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DIGEST OF DISCUSSION AT CONCURRENT SESSIONS

HEALTH CARE DELIVERY IN THE 1970'S

What is the actuary's response to the recent report of the Health Insurance Association of America entitled *Health Care Delivery in the 1970's?* Are health insurance benefits contributing to the inflation in medical costs? What types of improvements in policy benefits and policy provisions would have a beneficial effect? What cost control techniques are effective on hospital services; physicians' services?

How practical are the various proposals for reforming the financing of health care that have been suggested? Are there other methods that should be considered?

What is the likely role of the actuary in the delivery and financing of health care in the seventies?

Houston Regional Meeting

CHAIRMAN JOHN A. MAUER: In recent months the public has been inundated with articles in magazines and newspapers concerned with the extent and cost of health care in the United States. Most of these articles have been highly critical of the health care delivery system in this country, and some have made suggestions as to how these problems might be alleviated. In addition, politicians and other national figures have spoken out for the need of a system of national health care; Walter Reuther, the head of the UAW, and Martha Griffiths, a Democratic congresswoman from Michigan, are probably the most prominent of this group. In October of 1969 the HIAA published a report containing findings and recommendations of a special subcommittee of the Committee on Medical Economics. This report is the principal basis for this session; the discussion of any facet of this broad area of concern, however, will be in order.

MR. ALFRED L. BUCKMAN: Insurance providing benefits for the cost of medical care services in the United States is about forty years old. The earliest form of such insurance was employee group insurance, which provided daily indemnity benefits for hospital confinement and scheduled amounts of benefits for surgery proportional to the severity of the surgical procedure. The dollar benefit amounts of these policies were pitifully small, as low as $3 per day for hospital confinement and as low as $100 for

the most complicated surgical procedure. (Hospital confinement rates were then as low as $5 or $6 per day.)

In fact, as recently as November 4, 1950, the insurance commissioner of the state of California promulgated a set of minimum benefits that must be provided by policies below which the benefits were considered as not being sufficient to be of real economic value to the insured. These minimum benefits are set forth in California Administrative Code, sections 2220.18–2220.26, inclusive.

The minimum benefits acceptable to the California insurance commissioner as being of real economic value to the insured include such items as $3 per day for hospital confinement; 21 days as the period of time for which hospital confinement benefits are payable, provided the aggregate benefit payable, that is, the product of the daily benefit multiplied by the maximum number of days for which hospital confinement benefits are payable, is at least $84; miscellaneous hospital benefits of at least five times the daily hospital benefit or, alternatively, if the miscellaneous benefits are itemized, there must be at least seven such items of at least $7.50 each. Benefits for nursing services, if provided by the policy, are subject to the same limits applicable to daily hospital confinement benefits. Surgical schedule benefits must provide at least $100 for the most severe operation. A special all-inclusive childbirth benefit must be at least $30. Compensable doctors' calls must be at least $3 per home call and $2 per office or hospital call, with the provision that the policy must cover at least thirty calls and must have an aggregate benefit of at least $75 where the aggregate benefit is the product of the amount per doctor call multiplied by the maximum number of calls provided by the policy. Strange as it may seem, these limits are still in the California Administrative Code and are unchanged from the date in 1950 when they were originally promulgated.

I have referred to these minimum benefits for the purpose of showing how ridiculously low they are in comparison with prevailing costs currently being charged for these respective services and of emphasizing the tremendous inflation in medical costs that has taken place since November, 1950.

In the 1940's some companies started issuing individual policies providing benefits for hospital confinement and surgery. The earliest types of individual policies were basic benefit policies, which provided first dollar coverage and scheduled benefits. They provided indemnity benefits for hospital confinement as low as $5 per day and scheduled surgical benefits with maximums of from $100 to seldom more than $200. In addition, coverage was provided to cover miscellaneous hospital benefits

on a reimbursement basis up to five to ten times the daily hospital benefit; or the policy contained a schedule of benefits for each type of hospital service, such as a specified maximum for X-rays, another maximum for medicines, drugs, and dressings, and still other maxima for the use of the operating room, for anesthesia, and so forth. Benefits were generally on a reimbursement basis, which provided for payment of the charges imposed by doctor or hospital but not more than the maximum specified in the policy, although in some policies the daily hospital benefit was on an indemnity basis, with the amount thereof payable regardless of the amount charged by the hospital.

Over the years the limits of basic coverage have increased. Basic policies are available now which provide as much as $50 per day or more for daily hospital confinement, twenty times the daily benefit for miscellaneous coverage, and up to $1,000 or more for scheduled surgical procedures. If the rate of inflation of medical care continues for a few more years, even these amounts will become inadequate.

Prior to the advent of insurance for the cost of medical services, it was not uncommon for hospitals and doctors to have large portions of their total billings for services go unpaid; the advent of widespread insurance coverage assured both hospitals and doctors the means of collecting ever larger percentages of their billings.

Nevertheless, despite the fact that basic insurance coverages made it possible for hospitals and doctors to collect larger percentages of their billings, the basic benefit policies contributed indirectly to the rising cost of the distribution of medical services. Some hospitals, particularly proprietary hospitals, made it a practice to give each patient all the medical services for which costs were provided by the insurance—whether or not the patient needed all those services. Some doctors recommended hospital confinement for minor illnesses, so that part of the patient's bill would be covered by insurance. In addition, some doctors began increasing their surgical fees on the theory that insurance paid most of the fee and the patient could pay the balance. About fifteen years ago, one policyholder cancelled her policy, claiming that it was of no value to her because she had been charged $300 for a simple appendectomy by a surgeon who had charged her neighbor $150 a few months earlier for the same surgery. When challenged, the surgeon said, "Look, what are you complaining about? It's only costing you $150; the insurance company will pay the balance." Fortunately, not too many doctors are as callous as that, but many have been influenced to some extent by this type of thinking.

The market for basic hospital and surgical insurance is found primarily among persons in the middle-income classes who are not covered or who

are inadequately covered by group insurance. The basic benefits are considered to be too small and too limited to be attractive to the high-income groups. The lowest-income groups, on the other hand, continue to rely on government, county, or other free or charitable distribution of medical services. To attract the high-income groups, the concept of major medical insurance was introduced in the early 1950's. This coverage introduced the deductible and coinsurance features with maximum unscheduled benefits ranging from $7,500 per year or per illness to as much as $25,000. Deductibles range from $250 to as high as $1,000; coinsurance generally is either 75 or 80 per cent, the latter percentage being the most common. Some companies issue as much as 90 per cent coverage, and a few go up to 100 per cent in special situations.

Later still, some companies began offering a package of basic and major medical benefits with the benefits of the basic policy serving as a deductible from the amounts provided by the major medical portion of the contract. The package of basic and major medical insurance is referred to as "comprehensive" insurance. To reduce possible abuse of this coverage by insured patient, doctor, or hospital, a corridor of $100 or more was introduced between the basic coverage and the major medical coverage to serve as an added deductible to the latter.

At the present time there are almost an unlimited number of variations of hospital and medical policies on the market. There are variations in the amount of daily hospital benefit, duration of hospital confinement coverage, miscellaneous hospital benefits, nurses benefits, intensive care benefits, rehabilitation benefits following a period of hospitalization, and nursing home benefits. There are variations in doctor's call benefits in hospital, home, or office. There are variations in maternity provisions and benefits and in benefits for prescription drugs in and out of the hospital. There are variations in deductibles, corridors, maximum limits, and in coinsurance provisions. In fact, the variety of coverages being offered is so great that probably no two companies have identical policies.

There can be no doubt that the widespread distribution of major medical and comprehensive medical insurance contributed greatly to the inflation in medical costs during the last two decades. Hospitals and doctors soon discovered that insured patients objected little to the size of their medical bills once these costs exceeded the deductibles in their policies. The 20 per cent of the bill paid by the patient was comparatively small; patients seldom complained about its size.

Of course, insurance was not the sole contributory factor to the great increase in the cost of distribution of medical care in the country. Other factors contributing to this inflation include the following: (1) General

inflation in all sectors of the economy, especially in hospitals where, in addition to the increased costs of basic supplies and services, salaries of nurses climbed from subnormal standards to acceptable levels of $700–$900 per month and, more particularly, salaries of interns and residents climbed in ten years from near zero to as much as $6,000–$10,000 per year in some hospitals. (The Los Angeles County General Hospital recently approved salaries commencing July 1, 1970, of $12,000 per year for interns and up to $18,500 for residents.) (2) The increased cost of more sophisticated hospital equipment, such as heart-lung machines, renal dialysis units, intensive care facilities, facilities for open heart surgery, and the like, and the uneconomical waste of widespread duplication among many hospitals of this expensive equipment, which is not always used to full capacity. (3) The increased number of malpractice suits against doctors and hospitals and the increasing size of awards by courts and juries in such cases. This has made doctors and hospitals more careful in treating their patients, frequently performing unnecessary and expensive tests and examinations solely for the purpose of protection against possible malpractice charges that may result from accidental oversight of an unexpected condition. Also, this has increased the cost of malpractice insurance to as high as $4,800 per year for an orthopedist of my acquaintance who has never had a claim against him and $7,100 per year for his partner, who had one claim against him during twenty years of practice. These doctors practice in Beverly Hills, California, an area reputed to be one of the highest cost areas in the country for medical services; obviously, these high premiums are passed on to the patients in higher fees for services. (4) The shortage of doctors and the increased cost of obtaining a medical education. (5) The federal Medicare and Medicaid programs, which have the same effect as major medical and comprehensive medical insurance.

In the January, 1970, issue of *Fortune* magazine, the statement was made that in the years prior to Medicare and Medicaid medical costs climbed twice as fast as the consumer price index. When Medicare came in, physicians' fees went up three times and hospital charges went up five times the rate of general prices. In 1968, more than 10,000 physicians each earned $25,000 or more from Medicare alone. It is estimated that 40 per cent of all medical expenses in the country are now paid by government, that is, by Medicare, Medicaid, veterans' hospitals, county and state charity hospitals, and medical programs.

With such a large proportion of the country's medical bills paid by the government and with the ever increasing cost of medical care, it would seem that an expansion of the Medicare program to all sectors of the population is no longer a question of *whether* but of *when*. The *Los Angeles*

Times recently predicted that the question of universal Medicare will be a major issue in the 1972 elections. If these predictions are correct, and if Medicare is extended to other segments of the public, private insurance companies will be forced to react to the needs of the public in the form of providing supplemental coverages.

Insurance companies, at present, are offering two types of medical coverages to supplement Medicare benefits for persons over 65 years of age. Both are of the basic benefit type without any coinsurance features. One is a simple hospital indemnity benefit of a specified amount per day of confinement. The amounts being offered are as low as $10 per day to as high as $1,000 per month, or $33.33 per day. The plan is intended to provide supplementary income to help pay home bills as well as that part of the medical bills not paid by Medicare. The other is a "carve-out" program which pays the first $44 of hospital confinement, the first $50 of doctor bills, and the unpaid excess, if any, over Medicare benefits.

At least one state, Connecticut, prohibits the issue of insurance supplemental to Medicare. In Canada, when a national hospitalization program went into effect, insurance companies were prohibited from writing hospitalization insurance. On the other hand, in England, where National Health Service has been in effect for more than twenty years, there has been a recent upsurge in the sale of private health insurance. Persons who can pay for health service, outside the National Service, can choose their personal physician and the time of an operation, privileges which are generally not available under the National Health Service program. Thus, in England, there has been a resurgence of the pluralistic system of distributing medical services.

There is no question about the desirability of maintaining a pluralistic method of distributing medical services whereby those who wish to pay the bills can obtain private treatment. At least 2,000,000 people are now protected by private insurance in England, and their number is increasing rapidly, even though all the rest of the population receive care under the National Health Service plan.

If Medicare should be expanded to cover other segments of the public not now covered thereunder, private insurance plans will have to be adapted to the supplemental needs of the public. In my opinion, such plans should avoid the inflationary factors inherent in major medical and comprehensive medical plans. They should rather be of the indemnity type, with reasonable but fixed scheduled benefits for each type of service. The size of the benefits and corresponding premiums may be related to an index, either the consumer's price index or a medical cost index, with changes in both benefits and premiums taking place not more than once

every three or five years. The fixed schedule of benefits will have a slowing down or braking effect on the increase in costs of medical services. The coinsurance feature of major medical insurance defeats this end. For example, if a doctor or hospital made an excessive charge for a particular service, the patient would be more likely to complain if his insurance provided a much lower, but reasonable, scheduled benefit amount than he would if his insurance paid 80 per cent or more of the inflated charge. It is also important now to attempt to curb the practice of some hospitals and doctors of giving unnecessary diagnostic tests for research purposes solely because the bills for the tests will be paid by private insurance, Medicare, or Medicaid. In the March 16, 1970, issue of *Medical Economics*, a pulmonary disease specialist in Washington, D.C., Dr. Harold I. Silver, is quoted as suggesting that "Medicare, Medicaid, and private insurance [should] pay for diagnostic measures [in hospitals] only if ordered or countersigned by a senior attending physician. If the hospital had to look to the patient for the balance, or absorb it, it would not take long for the situation to change."

No medical or hospital insurance program should be written on a noncancelable, guaranteed renewable, fixed premium basis. It is suggested that such insurance be written on a guaranteed renewable basis at premium rates in effect at time of renewal. A provision commonly used now is one that makes the policy guaranteed renewable until age 65 or until the age at which Medicare takes effect, if earlier.

I would like to add a brief word about the role of the actuary in the delivery and financing of health care in the seventies. The actuary cannot be expected to play any significant role in influencing the actual methods of delivery to be employed. He will be expected to give advice as to the costs involved in different methods of delivering health care. He may be expected to suggest methods of financing these costs. The actual methods of delivery, if changes are to be made, will have to be agreed upon in a broad joint effort between the health insurance industry and the government. Note that I speak of delivery of health care—not medical care. Health care includes preventive treatment as well as medical treatment. Effective delivery of health care may reduce the volume of medical care necessary in the 1970's.

In conclusion, let me say that I strongly support each of the five recommendations urged upon health insurers by the HIAA as set forth in the program for this panel. My phase of the discussion has been limited to the first of these recommendations, namely, to design individual policies which encourage the use of the least costly appropriate service. For this, I have recommended offering fixed benefit, or scheduled, plans without the

inflationary coinsurance feature common to major medical plans. Noncan policies should be eschewed. Diagnostic benefits in a hospital should be covered only if ordered by a senior attending physician. If Medicare is extended to age groups other than those over 65, then the volume of hospital and medical insurance in force will be reduced, but, as the experience in England shows, it will not be eliminated entirely. Private insurers will remain in the field. The pluralistic method of distributing medical services in this country will survive.

I look forward to hearing the discussion of the other panelists on the other recommendation of the HIAA, particularly in the prepaid group practice field, which is apparently working successfully in some areas of the country and is being experimented with in other areas.

MR. HARVEY S. GALLOWAY, JR.: We as actuaries and we as an industry need to do something. Historically, we are in a reactive position. Even our actuarial knowledge is largely historical in nature. Our expectation of favorable results, with respect to our continuing role in the financing of health care, is low if we only react within our industry. Our lines of communication and interaction with those in the health care provider fields need to be developed further. Also we need to organize better our ability to apply pressure or to convince those who are in a position of power of what should be done. Then the insurance industry must be in a position to act.

Most of us would agree that something has to be done. Our current systems suffer from fragmentation on both the health care delivery and health care financing sides. Both the health care financing and provider sides suffer from either lack of long-range objectives or from individual deviation from the long-range objectives to satisfy particular short-range objectives. There is a shortage of provider personnel. There is extreme inflation in medical care costs. There is a lack of effective utilization of available paramedical personnel, and there is pressure for good medical care as a matter of right for all citizens. Unfortunately, there is a low probability of the emergence of the most effective solution to these problems due to the political nature of the problem. A new system of health care delivery must be found to replace the current "nonsystem." The current financing system must be at least altered to mesh properly with the new delivery system. Due to the conflicting political ideologies, no one solution is perfect for all; some solution will be tried, however. The HIAA report is not a perfect solution; however, it behooves us to use it as a base of discussion and of action.

Our statistical systems and analytical abilities will be taxed by the

process of balancing our needs to act with our ability to remain solvent. The report indicates, to me, that there will be a need for more data on a more timely basis from insurance records. There will also be a need for the assimilation of external data. There will be a need for close monitoring of all aspects of the proposed new systems of health care delivery. Historical data will be less relevant. A correlation with old data will be difficult. The traditional role of evaluating the future based on the past will be extremely difficult, particularly during the evolutionary period. An unresolved question is, "Is the industry to pay the price for all this innovation to stay in the health care financing game, or can it expect its policyholders to pay their share to maintain the private health care financing sector on a pay-as-you-go basis?"

Currently, the health insurance industry uses illness in the acute stage as a loss control mechanism. The industry is reluctant to pay for preventive medicine. Some of us tend to judge the public as a bunch of hypochondriacs just waiting to take advantage of us if we provide too much coverage or if we make it too easy to collect. Calendar-year major medical plans have tended to alleviate the problem with respect to ambulatory care. If neither illness nor injury is present, however, many plans would still not pay for medical services (pre-illness services). The industry has tried to encourage medical providers to discipline themselves in order to cut down abusive situations; at the same time, however, the industry has had problems disciplining itself and the companies which take abusive action. In order to have proper use of pre-illness outpatient coverage, the industry must provide properly designed benefits, and doctors as a group must be motivated to act in a responsible manner or must be subject to effective review and control.

The report brings up many additional questions. Many of these questions revolve about the industry's power to be an effective force for change and its ability to provide real muscle in an area where cash flow is great but assets and profits are small. It seems that, to be effective, the insurance industry will have to act as persuaders rather than as directors.

Let us view the HIAA report from a group insurance bias. Group probably has the best chance to accept change because of the following factors:

1. Its share of the market.
2. Its ability to affect more quickly large numbers of people with single transactions, single sales.
3. Its ability to provide different types of benefits and controls.
4. Its ability to keep benefits more up to date.
5. Its ability to influence costs because of its concentrated economic impact on providers.

Some of the limitations which face the group industry follow:

1. Competition with self insurance.
2. Minimum cost allowances in retention and dividend formulas due to both policyholder and competitive pressures.
3. Lack of foresight of a few brokers and consultants.
4. Lack of control of providers of health services.
5. Although this area is not unique to group, often we must resort to underwriting and contractual controls which limit the effectiveness of coverage. These limitations tend to provide fuel for the forces who would detract from a job otherwise well done.
6. Group benefits still must be sold. In group, we do not have a "bird nest on the ground." Programs to sell adequate benefits and offers to small groups to increase benefits, with few or no restrictions, have often met with disappointing results.

Health insurance benefits have contributed to the inflation in medical costs; however, the providers and users have not always utilized the availability of more enlightened benefit design. To the extent that providers and users feel economic pressure to utilize more expensive facilities than necessary, benefit design is an inflationary factor. To the extent that providers and users are not economically encouraged to utilize equivalent but less expensive facilities, benefit design is probably still inflationary. In some areas pressure for new business, coupled with benefit design, creates inflationary pressure. This is particularly true in the franchise and individual fields. Health benefits are sold to supplement other health benefits without a real attempt truly to supplement other benefits. Thus claim payments are duplicated in areas where this should not be the case. The individual health area has large numbers of out-of-date policies and, thus far, has apparently not found a good method of improving the old out-of-date policies without using supplemental policies, which do not properly supplement the old policies or which, taken together with the old policies, provide reinforcement of the use of expensive hospital facilities. A recent survey in Texas indicated that health insurance paid the largest percentage of charges for hospital care and the lowest percentage of charges for out-of-hospital care. This relationship held for both insured plans and service plans.

With respect to beneficial improvements in policy benefits and policy provisions, some mechanism must be found to provide more outpatient coverage. A way must also be found to publicize adequately the availability and proper use of such coverage. In the hospital area, the industry still does not always provide what is considered to be adequate coverage. To the extent possible, we should utilize economic restraints to the use of

hospital benefits while still providing adequate hospital benefits. Perhaps this means that both out-of-hospital and in-hospital benefits will have to be increased, but, in the final result, the out-of-hospital benefits should be more favorable. A way must be found to strengthen the use of ambulatory facilities in lieu of inpatient facilities and to promote the pre-illness medical care concept. If we are not careful, we will lose our ability to control the plan from an underwriting point of view. Underwriting restrictions in policy language and benefits can only be reduced when the providers of medical care are able to react in a more responsive way to the needs of the total health care–health financing system.

In the area of cost-control techniques, efforts are made to hold down administrative costs. Restrictive contractual provisions and benefits are often used to control costs and abuses. Deductibles and varying elements of coinsurance are utilized, as well as COB-type clauses. Additional cost-control areas which are utilized, but not always effective over the short term, include the following:

1. Policyholder utilization control.
2. Educational campaigns with certificate-holders.
3. Peer-review mechanisms.
4. HIC-promoted relationships with providers.
5. Direct negotiation with providers of medical care.

With respect to the question of the practicality of reformation of the financing of health care, the current system has many strong points; it needs, however, substantial support to fill the needs of the public. The current pluralistic approach has provided for substantial innovation; some would consider this a fault, however, to the extent that it does not bring the strength of our total resources to bear to make a total impact. The current system does not fit the need for coverage for all regardless of the ability to pay; however, the industry has proved that it can provide coverage for all who will pay through the various state 65 plans. So far, the current system has not done enough to fill the need for further exploration of prepaid group practice. Most total-financing systems, which build upon the current system, seem complicated when an attempt is made to provide coverage for all. We must guard against complications which are due only to our own desires. Unless a method is found to expand our system, the practicality of reformation will not be at stake.

What is the likely role of the actuary in the delivery and financing of health care in the 70's? The role of the actuary is critical. There is a need to utilize fully the accumulated actuarial knowledge to guide the evolution of medical care delivery and financing systems toward the most practical

and acceptable goals. The actuary will be faced with the increased problem of judging the most probable results based on the scantiest of data. There will be a need for the development and utilization of a better, faster-reacting data base. Possibly the Society should expand its co-operative gathering of meaningful data. The extrapolation problem will be more acute. The actuary must develop a better understanding of both provider and consumer points of view. Other groups closer to the users or providers feel that they have as much or more technical prowess. Unless we extend ourselves to develop our talents further and to enlarge our respective areas of impact, our views will be buried in clamor for action. Those closer to the action will prevail.

MR. WAID J. DAVIDSON, JR.: I have been asked to comment on this report from the consultant's viewpoint. We kept some smaller companies out of the group accident and health business by convincing them that the present value of future profits on this line of business is at best zero, and probably negative.

The consultant as a professional in public practice feels a kinship for the other professionals, such as physicians.

The method of delivery of health care has changed little in the past few decades except for socialization (Medicare and Medicaid). I question whether it is a foregone conclusion that the method will change radically in the next decade.

The shortage of physicians is not helped by the prospect of socialization. The report speaks of "paramedical personnel," but, since this word is not in Webster's Unabridged, I prefer to call them "junior doctors"—practitioners with much less training than physicians but able to handle a portion of the patient's medical problems. They would know when to bring in a physician. This type of person would operate under the direction of a physician and would be specifically trained for this type of work. He would be similar to the medics in the military. Incidentally, insurance companies using physicians for medical examinations on applicants for insurance waste the time of the physicians, because the examination could be handled by less skilled personnel.

If "Parkinson's law" applies to hospital beds, that is, the number of patients will expand to fill the beds available, this implies overutilization at some times and unavailable spaces for those in need at other times. The hospital must build for peak periods to avoid turning away needy patients at that time but in the interest of cost should not keep the beds full at all times.

The insurers can contribute to more effective delivery of health care

The recommendation of the "group practice" leaves me with some doubts:

1. I fail to see how this method is efficient. How do you assemble the proper proportion of each specialty? Will the system work if part of the group is also in regular practice?

2. The lack of overtreatment is theoretically provided for, but undertreatment is a possible problem. This method of care reminds me of the Russian clinic which had two doors as you entered from the street. One said "First Visit This Year" and the other said "Not First Visit." If you walk through the "Not" door, you find two other doors labeled "Serious Illness" and "Minor Illness." If you walk through the "Minor" door, you find two more doors labeled "Communist Party Members" and "Nonparty Members." If you walk through the door labeled "Nonparty Members," you will find yourself back on the street without having encountered anyone.

This type of treatment could very well result from group practice. Since disability and illness are to some extent subjective, an ailment which one person considers serious is unnoticed by another. The group practice clinic could very well be abused by some with minor problems to the extent that the over-all level of care would deteriorate. The clinic would then be forced to have coinsurance in the form of a modest charge for each visit or remove offenders from the plan.

Implied in the report appears to be the problem of allocation of hospital costs between Blue Cross and the government in Medicare, Medicaid, and assistance programs, on one hand, and, on the other hand, the balancing item which is all others, this being primarily financed through private insurers. This "balancing item" will tend to receive the least consideration, with the result that it may become almost prohibitively expensive to finance health care through private insurance. Any increases in government programs and regulation will tend to intensify the problem. The insurance industry will need to oppose government programs and fight for equal-payment rules for the Blues and for fair allocations of hospital costs. The use of inside limits may control the insurance companies' costs to some extent, but the purchaser is not receiving adequate financing of health care when his coverage is limited to $25 per day and the hospital charges him $75 or more.

Setting fees for any profession is a bit repugnant to me as a consulting actuary; the physician is unique, however, in that the client is not normally in a position to negotiate or to do comparative shopping for reasonable cost. Abuses in fees on government programs may result in strict controls on fees for these programs. On the assumption that the physician intends to earn at a predetermined level, he must increase his income from other sources, which is the privately financed sector.

In looking to the future, why could not a master medical computer facility exist for each community which contains medical histories on each person available to each physician on a terminal, in the office or hospital, constantly updated by new findings and treatments and automatically billed on the basis of a set of fees previously supplied by the physician. The same computer could be used for diagnostic purposes. The fee schedule could be compared with other fee schedules on a statistical basis for assurances of "reasonable charges." The system could be carried to the point of rating physicians as "A," "B," or "C," depending on how their fee schedules compare with the average. This use of computers is at least as practical as ALIS used for life companies and at least as beneficial to the public.

The co-ordination of benefits provisions and elimination of overinsurance are areas which could channel more health insurance dollars into health care. Restricting benefits under group and individual policies so that in total they never exceed the cost of the care would be desirable in attaining this goal.

The concept that all citizens should have equal access to health care is idealistic and not a practical goal. The practical structure may well remain similar to what it is today in that the government will provide a minimum level of care for the "poor" (however defined) and the aged, with the balance of the population on their own to provide for the economics of health care through group coverage, individual coverage, the Blues, group practice, or such other method as they choose. Those with the means to provide for prepaying health care, but who do not do so, become a burden on society or their relatives, and a system which required a minimum level of health insurance similar to compulsive auto liability insurance would be desirable and would not penalize those who do adequately prepay their medical costs.

MR. BUCKMAN: I earlier made the statement that major medical and comprehensive medical policies have contributed to inflation because the portion of additional charges paid by the patient was comparatively small once the deductible was exceeded. In addition, these policies frequently have been guilty of providing for benefit payments on the basis of "reasonable and customary" or "regular and customary" charges in the locality where the service is performed. The use of these phrases creates built-in inflationary pressures. What is considered a "reasonable and customary" fee soon becomes the minimum fee charged in the area. Some physicians very quickly increase their fees over the established "rea-

higher fees than those charged by the average physician. Thus a new level of average fees is soon established, creating a new, higher level of "reasonable and customary" fees which becomes the new minimum for the area. This creates an unceasing inflationary spiral.

MR. MAURER: One aspect of medical care which has not been discussed to any real extent is group practice of medicine. There seems to be some feeling brought out in recent articles that this kind of approach may be the only way to deter federalization of medical care in this country.

MR. BUCKMAN: Prepaid group practice of medicine was established in California more than thirty years ago. The two most prominent programs are the Kaiser Foundation Health Plan and the Ross-Loos Medical Group. The former has nearly two million members sharing in the group medical facilities provided by the program. In the Southern California area these members are cared for by approximately seven hundred doctors who practice at six medical centers, each consisting of a hospital and satellite clinics. At each medical center, physicians in all fields of medicine work on a salaried basis with regular hours to serve the members of the health plan. In addition, twenty-four-hour service is provided to treat emergency cases.

Most of the membership of the Kaiser plan is made up of employee groups. However, provision is also made for individual membership. Premiums are paid on a quarterly basis. A variety of coverages are available and, depending upon the coverage, nominal fees may be charged for

Life Insurance Company, which is also advancing the funds necessary to build a hospital and clinic.

It is my opinion that the actuary can contribute much to help in the financial planning of prepaid group medicine.

Hartford Regional Meeting

CHAIRMAN JAMES H. HUNT: Our assignment today is to review and discuss a report of the Health Insurance Association of America entitled *Health Care Delivery in the 1970's*, which was adopted by the HIAA at its annual meeting on October 28, 1969. The impetus for the report was, in essence, an increasing awareness on the part of health insurers of the criticisms being directed at the present health care delivery system and the demands being voiced for radical change in that system. The report is divided into two sections—"Findings" and "Recommendations." Among the findings are the following:

1. There is a serious shortage of physicians, nurses, and other paramedical personnel and of administrators of health care institutions. No problem regarding health care delivery can be satisfactorily solved until this situation is corrected.
2. The cost of erecting, equipping, and maintaining a modern hospital has become so great that it is no longer economical to use such an institution for convalescent care or for the treatment of chronic illnesses, to say nothing of custodial care.
3. There is agreement that, whatever the number of hospital beds in a community, both hospital administrators and physicians will see that the beds are kept filled.
4. Cost-saving techniques, including the sharing of expensive equipment, central purchasing, and full operation of the hospital on a seven-day basis, are not being fully employed to keep costs down.
5. No significant reduction in hospital utilization will occur until at least three things are accomplished:
   a) suitable alternative facilities, including ambulatory care centers, convalescent facilities, home health services, and custodial care facilities, are made readily available;
   b) insurance is made readily available to cover the cost of care in these alternative facilities and services;
   c) the physician and the public have been re-educated to accept and use these facilities and services.
6. While prepaid group practice appears to be an effective way of organizing health services, financing of health care will, for the most part, remain a third-party function, since providers of health care have enough problems to solve without entering into the areas of risk assumption and marketing.

6. Last, that health insurers should do all they can to improve the public's image of the business. Implicit in this recommendation, of course, is a finding which was not stated—that the public has, at best, a mixed attitude toward health insurance.

Before proceeding to the other panel members, it may be well to say a word about prepaid group practices and to indicate why this concept is gaining increasing attention.

A group practice is the association of physicians of differing specialties under some kind of common management. In a group of any size it would be expected that the group would contain nearly all the important specialties needed for the care of a large number of people. The group practice may or may not have its own hospital. It is preferable if the hospital is a part of the group practice.

A prepaid group practice is simply a commitment on the part of the group to render comprehensive health care, including preventive care, to subscribers for a predetermined monthly fee which does not change, usually for one year. The result of this, as you will appreciate, is that the group

nor, in my judgment, would the report appeal to labor, to the politicians, or to consumer groups. The report is protective of the insurance industry, and the American businessman does not give a darn about the insurance industry. The American businessman wants the biggest "bang" for the buck, that is, the best product at the lowest price.

Sometimes the biggest "bang" is provided by Blue Cross/Blue Shield and other providers. The report seems to ignore the role of Blue Cross/Blue Shield and others, who provide about 50 per cent of the group health coverage in the United States. I believe the "Blues" are much shrewder than the insurance companies in getting close to labor, to politicians, and to "Mr. Consumer." There needs to be a joint report with Blue Cross and with the other health providers instead of a report by a front organization for the insurance industry. No one can disagree with the obvious recommendations of the report as to peer review, more ambulatory care, more liberal licensing laws, adequate benefits, use of less costly facilities, and so on, but this is not where the battle is being fought. More on that shortly. In brief, this actuary feels the report was written in a closet and will be read in a closet, but all is not yet lost.

The second point I shall discuss is how practical the various proposals that have been proposed are for reforming the financing of health care. As you all know, there are many proposals around. I have seen summaries of the proposals of (1) Walter Reuther, (2) Martha Griffiths (AFL-CIO), (3) Aetna Life, (4) Senator Javits, (5) Governor Rockefeller, and (6) the AMA.

If you are not familiar with these proposals, you can probably guess what they are like. On one extreme, Walter Reuther wants to provide broad health coverage on a national compulsory basis, administered by the HEW, financed by social security–type taxes. On the other extreme, the AMA provides modest tax credits for the purchase of private health insurance for low-income families with no real change in the financing of medical care. The other plans are in between.

It seems clear to me that the main gaps in American medical care today are (1) for the poor people and (2) for catastrophic coverage for those with limited coverage. The Aetna Life plan addresses itself to these two problems and makes little change for the vast majority of Americans who have decent employer-provided coverage. Unfortunately, the Aetna proposal has a complicated financial structure, including partial loss of tax deductions for noncompliance and involved federal and state cost-sharing arrangements.

Most of us in this field would agree that it is most important to let the government get very little further into the medical care–financing area

because quality will decrease and costs will soar. The insane inflation in hospital and medical costs that we are seeing now coincides with the government's entry into the field through Medicare and Medicaid. Not

3. Limiting definitions; that is, registered nurses, recognized hospital, prescribed drugs.
4. Place of treatment restrictions—emergency accident is covered in the outpatient department of a hospital but not in a doctor's office.
5. Eligibility limitations; for example, first fourteen days for newborn, preexisting conditions.

All these approaches once made sense, but they are all losing relevancy for a number of major reasons:

1. The contracts being agreed on with labor are wide and broad. Labor does not like deductibles and coinsurance and surgical schedules and room and board tops, and they are all disappearing.
2. The cost of hospital care has soared so high that every effort must be made to encourage the use of less costly facilities, for example, nursing homes, tests in doctors' offices, and so on.
3. The delivery of medical care has changed. For example, consider the gradations in a progressive hospital now from intensive care units at one extreme to ambulatory patients at the other extreme, or consider the need to introduce paramedical help because of the shortage of more qualified people.

What do these changes in the provision of medical care imply as to policy provisions and policy benefits? Clearly there will be a broadening in all directions, for example, as to where the treatment can take place (i.e., the emergency accident problems that I referred to earlier). There will be further broadening to include a wide range of items such as in-

tensive care units, therapeutic abortions, practical nurses, and dental bills. The actuary will have a really important role in pricing these open-ended benefits realistically but taking into account the possibilities of overusage. The actuary will also have a statistical role much broader than he had in the past to keep track of the actual charges of the providers. For example, I see the reasonable and customary profiles as just the beginning. Detailed cost profiles by hospitals will certainly follow.

In brief, there will be radical changes in the policy provisions and bene-

On the other hand, health insurance as it is functioning today also has certain undesirable side effects. Its role is that of a third-party payor. It acts as a conduit of funds between the policyholders and the providers of services—physicians, hospitals, nursing homes, and the like. Unfortunately, under this arrangement the economic balance between consumers and providers is altered. In conventional economic terms, price no longer functions effectively as a regulator of the balance between supply and demand. This situation is further aggravated by the shortage of physicians and hospital beds. In short, health insurance greatly exaggerates inflationary tendencies in the medical sector.

Health insurance also contributes to inflation of medical costs by reducing consumers' concern over the expensiveness of the care they receive. Prices have been completely left to the self-restraint of the physicians and hospital managers. Since consumers have so little direct economic influence over the providers, they feel helpless to effect any change in the services or the charges made by the providers. Also, because health insurance has removed financial restraints from consumers, they are willing to tolerate inefficiency and unnecessarily high costs that they would not otherwise accept. In many instances, the desire to get one's money's worth out of the insurance policy leads to extravagant care. These side effects of health insurance have contributed to some of the problems that we face today in health care.

The insurance business has made some attempts to act as a restraining influence on the prices of physicians' services. For example, all actuaries know that the health insurance policy states that it will only pay the "reasonable and customary charges" of a physician, but let us examine this clause in operation. Is it possible for one insurance company to penetrate the market in a given locality to such a large degree as to obtain the customary charges of a particular physician? The enactment of the Medicare program has provided an answer to this question. It was found that the reasonable and customary charge is almost a myth on paper. Not even one company has adequate data to put this concept into effect for the Medicare program. Some companies with large amounts of health insurance business have used crude prevailing charge screens as the only means of controlling physicians' fees.

In summary, the health insurance mechanism has removed the economic checks and balances necessary to maintain an equilibrium in the delivery of medical services in our economy. Such an economic balance is essential in a free enterprise system.

Present public concern with respect to the high cost of medical services and the scarcity of services available in some localities has reached na-

tional magnitude. President Nixon has termed it a "massive crisis." A number of bills have been introduced in Congress to provide comprehensive national health insurance, financed either from public or private funds. Public pressure today is demanding a rapid evolution in the health care field.

The private health insurance business is at a critical juncture today. If it so wishes, it can continue to play its traditional role. In other words, it can continue its role as a third-party payor until the health care system is completely changed by other forces in our society. On the other hand, the insurance companies can respond to the concerns and demands of the public at large. The companies can play a vital role by representing the policyholders' interest and acting as a counterbalancing force against physicians and hospitals.

The HIAA report has clearly identified four key problems in the health care field: (1) supply of manpower and facilities, (2) distribution of manpower, (3) proper utilization of manpower and facilities, and (4) allocation of resources and cost control. The private health insurance business can provide the leadership in finding solutions to these problems by using the financial leverage that it holds jointly. There is little that it can do with respect to the supply of medical manpower and hospital facilities. On the other hand, it can greatly affect the distribution of available facilities and manpower and the proper utilization of these resources; also, it can exercise cost-control measures in determining payment for the use of medical services.

You might ask how can this be done by the private insurance industry. I would like to offer some suggestions. Some of them may appear radical to you, but let us bear in mind that finding solutions to a complex system which has consumed more than $60 billion in 1969 requires some unconventional thinking. First, insurance companies can play a greater role in the development of alternative forms of care, such as the prepaid group practice plans. Second, they might experiment with variable cost insurance. To date, the insurance companies have always developed their premiums on the basis of the risk that it insures, such as age-sex distribution and type of industry. They have failed to look at the other side of the equation, namely, the variation in level of fees among the providers of services. It is possible for the insurance business to classify physicians and hospitals according to the level of their charges. The premium rates then can vary by cost category. This might encourage the consumers to use providers with lower costs, which, in turn, would be reflected in their premium rates.

Let us turn back to the suggestions made in the report. The goals advocated are sound and commendable. They are similar to God, country, motherhood, and apple pie. No one can disagree with them. But we can only take the first concrete step toward these goals after the health insurance business changes its basic philosophy. Instead of taking a laissez faire approach with providers, it must take up the financial interest of its policyholders and consumers at large. It must be willing to use its financial leverage to affect the actions of physicians and hospitals. That path is difficult and treacherous, but the reward is great. Everyone in our society will benefit from it.

MR. JAMES A. GOBES: I would be a little less than honest if I did not express some concern about the extent of this report. Some of the "findings" are hardly significant. What I consider as the most critical findings—namely, the shortage of trained medical personnel and the unequal

planning effort, assume a more active role which will assist in improving the distribution and availability of health services and facilities, particularly in the 'inner city' and in rural areas, with emphasis on the less costly forms of care; and with full recognition that this is a continuous process which calls for additional contribution of both financial support and manpower, the making available of 'seed' money, and the encouragement of group policyholders to become interested in such matters." This is indeed a challenge not directed specifically at actuaries but at the entire health insurance industry. However, certain of the specific recommendations seem to me to present a challenge which is very clearly addressed to actuaries.

Two of the recommendations (one recommending that we encourage hospitals and other health care institutions to adopt effective cost-saving techniques and the other recommending that we seek effective systems of peer review, including development of cost profiles and patterns of use) are addressed at joint and unilateral efforts to make the greatest use of the public's health insurance dollar. Here we run head on into both of the problems that I noted earlier: How much can we as third-party financers do to control the inflation in medical care costs? How much can we afford to invest in the tighter claim cost control necessary to achieve the desired success? The obvious response is that we must be prepared to do a better job in this area than we have ever thought of doing in the past. If we add to this the concept expressed in the first recommendation, that we should be introducing broader benefits—benefits which will expose us to significantly greater risk of abuse—the challenge to group insurance actuaries becomes even greater. Gentlemen, all we have to do is to (1) assume greater risks, risks which are almost impossible to control and just as difficult to price; (2) see that our claim people administer these new benefits without giving away the shop, as well as doing a better job on existing benefits; and (3) at the same time restore health insurance earnings to reasonable (from management's point of view) levels.

I think that this report does represent a tremendous challenge to the health insurance industry and to actuaries involved in health insurance.

In closing, I would mention the HIAA "Program for Health Care in the 1970's," a comprehensive program, now in the developmental stage, to improve the availability and acceptability of health care and its financing for all in the United States. This program expands on the present report and, in my opinion, addresses itself very well to the key findings, about which I expressed concern earlier—the shortage of trained medical personnel and the unequal distribution of health care to the poor.

MR. JOHN C. ANGLE: It has been asserted that the Swedish people enjoy lower mortality rates than residents of the United States. This longevity, it was asserted, can be ascribed to the health-giving attention of Sweden's national health service.

To illustrate the deficiencies of United States medicine, we heard statistics cited (which can be traced at least back to the report of the Health Manpower Commission) which rank the United States, in relation to other nations, fourteenth in infant mortality, twelfth in maternal mortality, and eighteenth in male life expectancy. Sweden, on the other hand, occupies a rank far above the United States in each statistical measure of mortality. This evidence is said to support the case for a radical change in the financing of health care in the United States.

It is an oversimplification to suggest that mortality indexes in Sweden and the United States differ solely because of differences in how medical care is paid for. One must be careful in asserting the existence of such a cause-and-effect relationship. Ever since the days of E. W. Marshall, the Society of Actuaries has admonished its students that mortality statistics often indicate spurious differences in the mortality of two regions because the populations of the regions may not be homogeneous.

Is it possible that the United States and Sweden do not contain comparable homogeneous populations? I believe that it is and would now mention some elements which contribute to substantial differences in life expectancy, infant mortality, and maternal mortality between the United States and Sweden.

As to the life expectancy of United States males, I would call attention to some studies completed in 1968 by Dr. Richard Auster, an economist, that were sponsored by the National Bureau of Economic Research. Professor Auster studies statistical variations in mortality rates by state and the possible relationship of such variation to medical services and environmental factors in the United States. Professor Auster reported the following:

1. At similar levels of income, medical services, and other conditions, states with a relatively high level of education tend to have relatively low mortality rates.

2. At similar levels of other variables, states with relatively high levels of income per capita tend to have *high* mortality rates. High income may be associated with unfavorable diet, lack of exercise, psychological tensions, etc. These characteristics may be nullifying beneficial effects of increase in quantity and quality of medical care. These findings suggest the need for further research on the usefulness of environmental control as a means of improving health.

Professor Auster joins researchers who previously had commented upon the apparent relationship between educational attainments and mortality rates. He also confronts us with the disturbing finding that rising affluence in the United States does not automatically bring with it a longer life span.

Medical leaders, public health officials, health educators, and heads of such health organizations as the National Cancer Society have long pointed out the increase in mortality rates attributable to cigarette smoking. Other medical commentators remind us that many residents of the United States eat too much, exercise too little, tolerate consumption of alcohol in quantities detrimental to health, use drugs too freely, and exhibit a rising incidence of venereal disease, which seemingly coincides with a relaxation of standards of social conduct. The point to be made is that quality medical care alone cannot offset completely these influences of our life style, nor can it, as a result, increase the life expectancy of the American male to the level of "less fortunate" countries.

We should also point out that rates of accidental death in the United States are now rising. A reminder of this phenomenon has been issued on several occasions by the editors of Metropolitan Life's *Statistical Bulletin*, most recently in the issue of August, 1969. These articles report rising male mortality rates for ages 15–29. All of this rise is attributable to an increasing violent death rate. The most significant part of the increase in ages 15–29 mortality rates is due to motor vehicle fatalities, though increases have also taken place in the rates of violent death from other accidents, from suicide, and from homicide. Added together, these increasing deaths by violence constitute a significant social and public health problem in the United States. Yet it seems unlikely that changing the means of financing health care in the United States can do much to contain or reverse this rising accidental death rate among United States males.

Let us turn to another aspect of the matter. There are within the United States substantial differences in mortality rates by state. For instance, mortality levels of people living in Utah are roughly similar to those of residents of Sweden. But in many other states there are marked differences. The United States is a large country with far less homogeneity in the characteristics of its population than in Sweden. It exhibits much more complicated problems of medical logistics and such vast differences in social and economic characteristics that it is difficult to relate differences to a single cause. There are, as writers on poverty remind us, substantial numbers of households in the United States still lacking inside toilets or access to pure water. This leads public health officials to

conclude that housing, sanitation, nutrition, and education are important determinants of the mortality of the poor, especially poor residents of the inner-city metropolitan areas.

Dr. Donald Gatch is a physician who has practiced among the very poor in Beaufort and Jasper counties of South Carolina. Dr. Gatch's testimony before a Senate subcommittee in early 1969 led to a pilot free food stamp program in these counties. Participating in the 1970 Master's Program at the University of Nebraska, Dr. Gatch told students, "The problems these people face cannot be solved with good medicines alone." Dr. Gatch added that this is why he has become involved in politics, psychology, sociology, and economics.

One experimental approach to the difficult problem of providing health care in impoverished areas recognizes that the first problem is one of getting medical resources into areas that have none. This has led to experimental establishment of fifty or more neighborhood health centers in the United States. These centers supplement professional staffs by hiring neighborhood residents to perform outreach and health education services. The medical director of one such health center established in Mound Bayou, Mississippi, reported a two-thirds reduction in infant mortality in his area since the center was established in 1965. However, this physician credited most of the reduction to environmental and nutritional improvements that the center was able to bring about. The commonest prescription written in the early days of this center was said to be for nutritional supplements.

The neighborhood health care centers are an attempt to cope with the problem of bringing professional health manpower to these areas, a problem requiring far more than new financing sources. The HIAA's report, *Health Care Delivery in the 1970's*, recognizes the need to train, recruit, and subsidize medical manpower to serve the poor. There are also those who believe involvement of poor community residents in health services will be essential if health services are to deal effectively with health problems of poor and minority groups.

There is a tendency in the United States to oversimplify problems; for example, to view the problem of slums as being solved by new housing and urban renewal. In the field of education, President Nixon, in his special message on education reform, noted the difficulty of predicting educational results from such school characteristics as the style of building in which students are housed, the type of equipment used, or the pupil-teacher relationship. The President indicated that "this direct uncomplicated relationship does not exist," and called for enlarged experimentation and research.

We should also recall that economic resources are scarce in any nation and that people have other goals than optimum medical care. Therefore, we need to seek an optimum allocation of resources between medical care and other uses, so that the last marginal dollar's worth spent for each use brings the same amount of satisfaction and benefit to people.

To summarize, I do not believe it possible to demonstrate a direct connection between the way in which a nation funds health services and the level of mortality in such a nation. Some of the characteristics of a population which may contribute to differences in mortality are education, public health services, sanitation, cultural attitudes, place of residence, and the supply of health professionals at all levels. At any rate, we should not leap from a premise I consider unsound to a highly speculative conclusion about the virtues of national health insurance for the United States.

MR. WILLIAM A. HALVORSON: No discussion of the future of health insurance or of the medical care delivery system would be complete without mention of foundations for medical care, as best illustrated by the Foundation in San Joaquin County, California. Under such a foundation, which is organized by the county medical society and in which a majority of the private physicians in the county participate, insured groups are assured of a maximum level of fees to be charged by participating physicians. While the foundation establishes minimum standards for acceptable coverage, the insurer issues the coverage and sets its own premium. Claims are administered by the foundation in order to provide for peer review by practicing physicians, who assume this role on a part-time basis.

The foundations claim substantial savings in utilization because of active peer review, as well as elimination of excessive fees. Meaningful physician profiles, patient profiles, prescribers- and providers-of-drugs profiles are established in all medical areas, including the very important area of outpatient treatment. Because the patient maintains wide freedom of choice in choosing his physician, and physicians still operate on a fee-for-service basis, it appears that the foundations as operating organisms offer considerable promise in satisfying the much repeated need for medical controls—short of a revolution in medicine.

Large insurers have been reluctant to co-operate with existing or new foundations, primarily because insurers seek to maintain their position as benefit administrators. Rather than companies "getting tough" with physicians, as has been suggested by previous speakers, there would appear to be more hope for health insurers' retaining a major role in financ-

ing medical care if they would be more co-operative with the positive attempts of private physicians to control themselves.

During a recent visit with the San Joaquin Foundation, I came to the conclusion that in large metropolitan areas there is a need for a foundation alternative which uses the resources, know-how, and risk-taking function of the insurer in setting up community-wide claims processing (but not through competing facilities) with peer review provided by physicians appointed by the medical society.

Only the nation's physicians can provide the public with adequate control of medical charge levels and of the utilization of all medical and hospital facilities. There are signs that both Congress and physicians understand this fact.

If insurers are to remain active in basic medical care insurance, they must help preserve the private practice of medicine on a fee-for-service basis. The alternative is prepaid group practice (apparently sponsored by many in government and receiving attention in our communications media) where the underwriting risk—also called "physician-incentive"—is turned over to physician groups through capitation schemes.

MR. MILTON F. CHAUNER: To many of those not directly involved with health care, the problems that have been cited may seem insurmountable. Even those of us deeply involved in the field at times throw up our hands. It is important, however, that we stop to realize what health insurance companies can provide, in spite of the seriousness of the problems.

Insurance companies have a great reservoir of operative know-how to pay claims, to judge reserve levels needed, to record information accurately, to select qualified personnel and train them, and, in general, to carry out all functions of the health insurance business based on experience in actually developing suitable methods for handling health insurance. It is easy for outsiders to criticize and magnify what goes wrong in a small percentage of instances. As in other complicated endeavors, it is natural for those who are inexperienced to think that handling health insurance matters is simple enough to be done by almost any method. This simply is not so. Insurance company know-how should not be sold short. Inadequately interpreted or improperly administered health care delivery can be most unsatisfactory and inordinately expensive.

We should not undersell the research and ingenuity insurance companies can bring to the job of health care delivery in the 1970's. Such things as product development and communication among knowledgeable

actuaries are highly developed. By and large there is effective co-operation within the health insurance industry. There is not blind, destructive competition.

Perhaps one of the greatest services insurance companies can perform—one frequently overlooked or disregarded—is encouraging financial soundness. There is great need for a dike against the wave of financial irresponsibility or financial disregard. The money to pay for health care delivery must come from somewhere. Insurance premiums are not calculated with a built-in loss. The input to the health care financing system is a fair premium to do a good job without financial loss to those involved. We need not be apologists for carrying on the health insurance business as we know it can be and for stating the cost of so doing.

Section A

1. What is the responsibility of the consulting actuary in regard to the investment philosophy of a pension fund?
2. On what factors would his advice be based?
3. To what extent would he consider himself responsible to analyze past investment performance?
4. Should he presume to recommend another investment manager?
5. What investment performance measures—and comparisons—would he elect? Are there conflicts with other sources of investment performance measurement services?
6. Should he engage in investment management? How would he reconcile his roles as investment manager and performance critic?
7. Is there any conflict if the actuarial firm is part of a "financial service" company which also sells stocks, mutual funds, and investment advisory services?

Section B

1. To what extent does the nature of individual insurance policies influence the manner of investment of the premiums?
2. How closely are premium bases—and dividend projections—tied to anticipated investment return?
3. What qualifications does the insurance actuary feel that he requires to manage his company's investments?

Section C

1. What degree of risk relative to return does the insurance actuary feel is desirable in investing to support equity products?
2. To what extent is fixed-dollar as opposed to equity investment used under deposit administration policies? Does the manner of computing commissions and administrative expenses affect the recommendation?
3. How are realized and unrealized capital gains and losses reflected in interest credited to deposit administration accounts? How are these related to rollover and new-money credit procedures?

Houston Regional Meeting

MR. JAMES B. H. PEGLER: I should like to suggest that an actuary's investment responsibilities may be classed under two headings—those which arise when the actuary is specifically asked by his client to advise on the detailed and short-term aspects of investment policy, for example, the choice of stocks and bonds in which to invest; and those which are general and long-term responsibilities, which arise, for example, under item 1 of section A, the "investment philosophy" of a pension fund

operate in practice and liable to cause difficulty in the relationship between the actuary and his board of directors. The recommendation made was that the actuary, in the report which he makes to the control authority about his valuation, be required to state the extent to which he had taken the nature of the assets into account in making his valuation. This, we thought, would have the double advantage of making those responsible for the investments recognize the necessity of informing the actuary about what was being done and, hopefully, consulting him in advance about investment policies, and of reminding the actuary of his responsibility for paying proper regard to the assets. This recommendation was accepted.

This, then, is my view, and one now generally held in the United Kingdom about the investment responsibilities of all actuaries. I should like to add a brief word on the more specialized responsibilities. I am particularly interested in this aspect because nearly all the experience I had in responsible positions in my Society before becoming its chief executive officer some twenty years ago was on the investment side. A very considerable number of life office actuaries in the United Kingdom are engaged in portfolio management, a number of consulting actuaries give advice on the assets as well as on the liabilities of their clients' funds, and we have a number of actuaries serving as business or investment analysts with firms of solicitors. I believe that this is a good development for the profession and for the public interest, because I believe that the training of actuaries fits

from some of our clients. We established an investment counseling practice and have now gone through SEC registration and registration by our own state. We now have a number of individual and institutional investment clients.

Obviously we do not believe that every actuarial firm has the interest or the personnel to take a similar step. Nevertheless, we do find a great deal of overlapping of responsibility and ownership in the investment and actuarial fields. There are, for example, two members of our Society who are partners in New York Stock Exchange member firms. In view of the recent move encouraging public ownership of New York Stock Exchange firms, it appears that in a matter of a short period of time the diversified corporation will have, in some form, actuarial, investment, and stock brokerage services. One of our larger consulting firms is now owned by a New York Stock Exchange member firm. Several consulting firms are publicly owned.

MR. LEROY B. PARKS, JR.: The degree of a consulting actuary's responsibility in the investment philosophy of a pension fund is a subject of great importance to individual actuaries as well as to the Society as a whole. In answering the question "What is the actuary's responsibility in this area?" it might be helpful to turn first to the Society's motto which, as we are all aware, states, "The work of science is to substitute facts for appearances and demonstrations for impressions." This motto sometimes will not allow the consulting actuary the luxury of treading lightly in such a potentially sensitive area as investment performance. As a minimum, therefore, I would conclude that the actuary must either remain completely silent regarding investment philosophy and performance or else go beyond the subjective and misleading phrases that sometimes are used to avoid making a definitive statement. So many times in reports covering investment performance we read the actuary's concluding remarks, which may begin with such statements as, "It appears as if . . ." or "It would be our impression. . . ." This type of commentary is inappropriate and inconsistent with the Society's motto.

In reviewing an actuary's education, we find that investment material is included in Part 6 of the syllabus of examinations. However, very little if any of this material is devoted or directly related to the investment of pension funds. If the actuary is to become increasingly involved in determining investment philosophy, perhaps this apparent deficiency in the present course of reading should be corrected.

The report from the Committee on Continuing Education submitted to the Board of Governors on October 24, 1969, established seven specialty

areas which are presumed to be within the province of the actuary. The sixth area, economics and finance, includes the subcategory of investment. Thus it appears that this scholarly body considers the area of investment within the realm of an actuary's responsibilities.

Mr. Dorrance Bronson, in his monograph entitled "Concepts of Actuarial Soundness in Pension Plans," made the following statement:

> Certainly, actuarial soundness is not independent of the investments of the pension fund. In fact, these investments are more tangibly important than are the actuary and his techniques; the fund is the essence of the matter. I believe it is distinctly a responsibility of the consulting actuary to satisfy himself on the character of assets.

Thus we find that one of the recognized leaders in the pension consulting field definitely charges the actuary with the responsibility of at least satisfying himself as to the character of pension fund assets. The temptation, however, presently exists for the actuary to extend his alleged responsibility beyond the character of assets and into the realm of future performance of those assets. Most of us in the consulting field have been exposed to the concept of "profit center" when dealing with pension plan clients. No longer do corporate managers consider that moneys placed in in a pension fund are gone and forgotten. The current thinking among the sophisticated executives is that the pension fund assets are expected to play a positive role in the over-all profitability of a company as much as any operational unit.

We ask ourselves, therefore, just what responsibilities the consulting actuary should assume. For example, should the actuary recommend the type of funding vehicle? Most of us probably feel that the answer is yes. Assuming that a trusteed-type plan is selected, should the actuary then give an opinion on the most appropriate type of money manager—such as a bank, investment adviser, brokerage house, or mutual funds? The actuary may also assume the function of recommending a suitable portfolio "mix" and of suggesting an appropriate balance among stocks, bonds, mortgages, real estate, and other suitable investments. I believe that the actuary does have the responsibility to his clients of at least recommending a funding vehicle, suggesting a type of money manager, and providing guidelines for the portfolio mix. The actuary, however, may be requested to select a specific investment manager or to select specific stock, bond, mortgage, or real-estate investments. I believe that an actuary need not feel obliged to assume this function and *must* decline this role if he is not professionally educated and trained to assume it.

If we agree that the actuary has some responsibility in investment

philosophy, we must then ask ourselves a second question of fundamental importance, mainly, What factors should be considered as a basis for the investment philosophy of a pension fund? I should like to mention several factors that seem to me to be of importance:

1. The liquidity requirement may be a relevant consideration in certain pension funds. In most instances, the month-to-month income of a fund probably substantially exceeds the outgo, and thus liquidity is not of prime importance. However, an actuary should be aware of any exceptions to this generalization, where they do exist.

2. One obvious factor to consider when rendering investment advice is the applicable laws. The investments in certain states may be governed by so-called prudent man laws or by a legal list. In still other instances, few legal restrictions exist.

In addition, the actuary must be aware that a plan and trust may lose its tax-exempt status if it engages in prohibited transactions as defined in section 503 of the Internal Revenue Code, or the trust may be denied tax exemption on unrelated income under section 511 of the Code.

3. Investment philosophy may also depend, to a certain extent, on considerations of a more actuarial nature. For example, if the assumed interest rate in valuing liabilities is, say, 4 per cent, the company and the actuary may decide that it is desirable that the fund earn a minimum return of 4 per cent in terms of interest and dividend income alone. It is probably true, however, that interest assumption for valuation of liability purposes is usually based upon long-range yield expectations of the fund, including a consideration of hoped-for capital gains.

4. Another factor that may be involved in establishing investment philosophy is the need or desire to recognize or to realize capital gains. *Accounting Principles Board Opinion No. 8* has encouraged some funds to recognize a large excess of market over book value, or, alternatively, to realize some of the excesses thus reducing pension contributions.

5. Investment philosophy should depend upon the sophistication of the employer and his financial ability and temperament to cope with the potential risk associated with certain types of investments.

6. Perhaps the most important factor to consider when developing an investment philosophy of a pension fund is the fundamental question "Whose money is at risk?" Investment philosophy would presumably differ in those instances where an employee's money is directly at risk and/or an employee's benefits are related to the performance of a pension fund. Two situations come to mind—first, in the "money purchase" type plan when the money of an employee (and probably also his employer) is deposited to accumulate dollars for the eventual use in purchasing an annuity at retirement; second, when the value of an annuity payment fluctuates directly with the performance of the related fund, such as is true with the variable annuity type pension plan.

I believe that an actuary probably should be more cautious when employees' money is at risk than when only an employer's money is at risk.

As for the measurement of investment performance, perhaps the best

Under the internal rate of return approach, Fund A receives credit for the superior performance during the year, whereas, under the time-weighted method, the records of both funds would be considered a stand-off.

5. In addition to measuring the rate of return, I feel that it is important to develop a yardstick to determine the "degree of risk" that is being assumed by the fund. It has been well documented that the average investor will receive a higher rate of return by assuming greater risks. This can easily be seen from observing the stock market indicators, where we find that the blue-chip Dow-Jones industrial average fluctuates less and grows at a slower long-term rate than the indices of less conservative stocks, such as the American Stock Exchange indicator, or the over-the-counter index.

It would not be prudent or advisable for an actuary to sanction an investment performance that was achieved by the assumption of undue risk. The measurement of risk may take one of many forms, but for comparison purposes the "minimum absolute deviation" measurement is perhaps a suitable approach.

6. Another criterion to consider in investment performance measurement is to subdivide the assets of a fund into distinct categories of securities. It would not be fair or acceptable to compare the performance of a fund heavily weighted with industrial bonds against a fund primarily invested in stock. Therefore, perhaps a more worthwhile measurement would be of the various components of the pension fund.

7. In the comparison of funds, it is essential that one knows the objective and constraints placed upon the fund. In all probability, pension fund performance should not be compared with profit-sharing fund performance. Also, funds should not be directly compared when the equity mix of the fund is dictated by anyone other than the person responsible for making investment decisions. Similarly, the investment results should consider whether the investment manager had sole investment responsibility or whether he was in any way restricted in his investment decisions.

8. I believe that it is essential that a sufficiently long period of time be considered before attempting to develop meaningful measurements of investment performance. Perhaps what is considered to be the minimum length of a suitable period has been gradually reduced over the past year. Probably, a period of three to five years is the shortest time span to allow for a satisfactory analysis of past investment performance.

9. In addition to the length of period under consideration, I feel that it is important that the period must have experienced different sets of market conditions in order to make a comparison totally valid. We are all aware that some funds tend to perform better in up markets, and frequently these are the very funds that are the weakest in a bear market. Thus it would be a misleading comparison if the period of experience analyzed involved only a time when the market was moving in one direction.

Since this entire area of the investment responsibility of the actuary is just beginning to emerge as a legitimate subject for debate and discussion, I do not anticipate that all of my remarks will go unchallenged.

MR. THOMAS D. SLOAN: The group pension actuary in a life insurance company works in two principal areas that involve some degree of investment responsibility: a plan-related area—actuarial consulting to clients—and a contract-related area—rates, guarantees, and credited investment return rates. In both areas the group pension actuary's investment responsibilities are, in a broad sense, advisory and administrative. Since he typically is not trained in investment analysis, he does not participate in individual investment decisions.

In the plan-related area the investment responsibilities of the group pension actuary are quite similar to those of a consulting actuary operating outside a life insurance company. He may be asked to provide advice to group pension clients on the split of investments between the company's general account and its separate accounts. In addition, he may do cash-flow projections, investment-return analysis, and other technical jobs to help in making and in analyzing investment decisions. Within the insurance company he may be involved in setting broad investment policy for separate accounts, taking into account competitive requirements; however, the day-to-day investment decisions will usually be made by investment people, not by actuaries.

In the contract-related area the group pension actuary's investment responsibilities fit in the traditional responsibilities of the actuary to set appropriate actuarial assumptions for rates and guarantees. Since group pension guarantees have become very short term, interest rate guarantees and the interest rate assumption in rates must closely reflect current conditions. Accordingly, the actuary has to have a good understanding of investment operations and of what investment people mean by their terminology. Here, as in all other areas, language questions create communication problems, and in competitive situations for large amounts of pension money it is exceedingly important for the actuary to know exactly what investment people mean in their evaluation of investment returns.

The group pension actuary is also involved in analysis, accounting, and allocation of investment results for annual statement and experience-rating purposes. Again, this activity is largely postinvestment but carries investment responsibilities because of substantial and difficult equity considerations among policyholders.

The group pension actuary's investment responsibilities also extend to product design. The development of group equity products has brought about a situation where the investment risk has been transferred to the client for many products. The group pension actuary is responsible that such products are soundly and appropriately designed and that the change in investment risk is understood and described properly.

CHAIRMAN SIEGEL: There is something that strikes me as being somewhat amusing. Although the determination of a rate of return for a pension plan has always been within the province of the actuary, it seems that most of the books and papers on the subject are now being written by nonactuaries.

There are at least three member firms of the New York Stock Exchange that offer to compute rates of return for pension funds and to supply comparisons with other pension funds subscribing to the same service. These services are provided on a fee basis, but usually this can be offset fully by the awarding of commissions. Another member firm offers something called "decile range analysis," which provides decile rankings of several hundred common stocks according to fifty-seven measurable characteristics. The rankings are related to 2,200 stocks. Here, again, the charge for this service can be offset by commissions.

Most research-oriented brokerage firms provide investment research on individual stocks which is paid for by commissions. We recently read of Chase Manhattan Bank's establishing a contest among brokerage firms, again to be paid for by commissions. One brokerage firm provides weekly figures on investment returns on four hundred mutual funds. Many brokerage firms provide portfolio management, again to be paid for by commissions.

It seems that if a small pension fund is to be suitably managed, measured, deciled, researched and compared, it will have to turn over its portfolio four times each year.

In regard to the measurement of risk under the Bank Administration Institute study, I do not think that investment risk in a pension fund should be measured retrospectively by examining the extent of fluctuation in the market value of a portfolio. On this basis a fluctuating investment that, over a period of time, *increased* in value is considered to have been "riskier" than another investment that *declined* in value at a uniform rate. I believe that the various statistical measures that have been developed simply measure market value variability and not risk. Even if you accept this approach as a measure of risk, I have some reservations about the use of quarterly or annual values for this purpose, after seeing some listed stocks drop 50 per cent in one week!

Using such a retrospective statistical measure of risk, the highest grade of long-term corporate and government bonds purchased in the last three to four years would be considered "risky." In fact, the only "non-risky" types of investment in the last couple of years were treasury bills, commercial paper, savings accounts, and the like.

Another question concerning the application of sophisticated statis-

tical approaches secure terms. How valid is the Monte Carlo technique

1. Measurement and comparison of past investment performance.
2. Analysis of future cash requirements.
3. Identification of the components of an investment policy which is best suited to the philosophy of the sponsors, the fiduciary obligations imposed upon the benefit funds, and the selection of investment categories which are most attractive in the light of current and prospective market-place and economic prospects.
4. Selection of the number and types of investment managers which are most likely, on the basis of past investment achievements and present organizational characteristics, to achieve the investment goals of the sponsor.
5. Establishment of investment performance goals which represent reasonable expectations for the sponsor, in the light of selected investment policies, and represent realistic targets for the portfolio manager.
6. Selection of realistic actuarial assumptions which properly translate all elements affecting the future liabilities of the pension fund into suitable current levels of current pension cost accruals and funding obligations.
7. Establishment of an administrative procedure which will effectively monitor future investment activity and provide the sponsor with the information required to evaluate the success of the investment program.

These elements are graphically displayed in Exhibit I.

The actuary is well suited to provide his client with objective and accurate numerical calculations of past investment performance and comparison of that investment performance with results achieved by other pools of capital and with market indices.

The actuary should be at all times conscious of his subordinate role in the decision-making process. The client is ultimately accountable for the success of the investment plan and must therefore be the decision-maker. However, the actuary can provide important inputs in the form of statistical analysis and in the development, collation, and presentation of meaningful information which will assist in this decision-making process.

In my opinion, the actuary should not engage in investment management, not only because this activity is outside the generally accepted bounds of our professional competence but because his objectivity in providing advice to management could be compromised if he were associated with an investment management organization or providing these services directly.

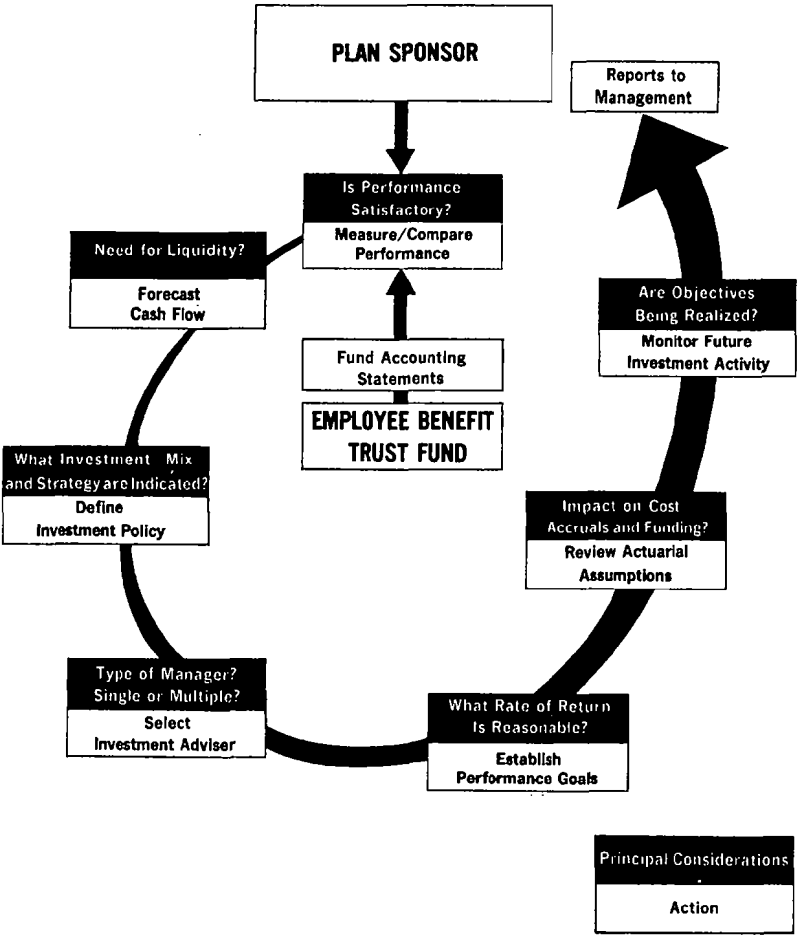
I do not believe that there is any fundamental ethical conflict. An actuary who has such relationships, however, must recognize that his credibility in the market place, regardless of the purity of his motives and the correctness of his conclusions, is very likely to be suspect by the buyers of his services.

MR. ALLAN B. ROBY, JR.: It has been about three and a half years since I first walked into our investment department and realized that I was going to have to learn not a new language but new definitions for well-worn words.

I will never forget how surprised I was to find that the term "effective interest rate" to an investment analyst means the same thing that the term "nominal interest rate" means to an actuary. For those of you who have forgotten the distinction, a nominal rate of 6 per cent payable month-

EXHIBIT I

AUDITING THE INVESTMENT MANAGEMENT PROGRAM



ly is an annual effective rate of 6.17 per cent. (You will usually be on safe ground in working with investment people if you assume that their main knowledge of the theory of compound interest is primarily intuitive.)

I also found that there were definitions of investment return of which I had never heard, such as "cash-on-cash," and that there were alphabet-soup terms like EBIT and "earnings after OET." Per cent constant, debt service, and term structure of interest rates were puzzlers, too.

I cite these few examples simply to show you that investment people, like actuaries, have a well-developed language of technique. Just as an actuary dealing with ordinary life insurance has only the vaguest notion of what a frozen initial liability looks like, so a stock analyst can be baffled by the thought processes of a mortgage analyst.

The point I would emphasize is that the *first* responsibility of the actuary toward investing is to be knowledgeable—not as an expert in all phases of investing, mind you, but knowledgeable enough to understand what investment men are trying to tell him and knowledgeable enough to ask the right questions.

For example, in setting premium rates, the actuary of a company will usually ask the investment department what its best estimate of return on new money will be into the indefinite future. But this is only part of the story, of course. The rate of turnover of investments is of vital concern in setting the interest assumption. Furthermore, the actuary should indicate whether he wants a conservative or most likely estimate, and, in asking this question, he should be aware of the fact that under some circumstances an increasing new-money rate may be more conservative than a decreasing one.

Under today's conditions of high rates and increasing policy loans, he

portant to recognize this concept today when it is common to accept a lower interest return on an investment in exchange for an equity interest.

A secondary responsibility of the actuary is to realize that with all the surface differences his basic job is the same as that of the investment man; each must value an uncertain stream of future cash flows.

In a sense, all investments and all actuarial cost calculations face the same two problems: the estimation of risk and the estimation of return.

Risk to an actuary connotes a broad range of items—risk of death, risk of living, risk of accident, risk of expense levels, risk of investment return—but all these items of risk have the uniform characteristic of uncertainty. Actuaries have devised elaborate models to estimate the degree of uncertainty in some of these parameters. Risk to an investor also covers a broad spectrum—credit risk, risk of fraud, inflation risk, tax risk, market risk—but all these have the same characteristic of uncertainty. Although there have been some attempts made to quantify investment risk, there is a great deal left to be done.

In this regard the actuary, as a result of his training, can give a great deal of assistance to the investor in trying to develop consistent quantitative measures of risk. The actuary can be of major aid in developing techniques of evaluation of return, especially in very complex deals. Examples would have to include, first and foremost, John Fraser's great paper on marginal tax rates. My company has been able to identify particular areas of opportunity by using his results that I know we would have missed if we had relied on older approaches. Another good example would be assisting in quantifying the value of prepayment penalties or other restrictive covenants in bond or mortgage loans.

An actuary can be of assistance in determining when to use either of the traditional discounted cash-flow techniques in valuing a particular deal. All of you are familiar with the "internal rate of return"; this is the basis used in most actuarial cost estimates. But in certain cases the "external rate of return" is much more meaningful. The external rate of return recognizes that reinvestment of cash flows at a constant rate of return is not always a reasonable assumption.

In summary, the actuary has two major responsibilities: (1) to be as knowledgeable as possible and (2) to teach, train, and assist the deal-makers in evaluation of return—and to help in coming up with some reasonable measures of risk.

MR. BARRY L. SHEMIN: In the area of pension fund investments, part of the actuary's role is to help the employer and his investment manager to establish or modify the plan's investment policy. He can be particu-

larly helpful in tying together the characteristics of pension plans in general and the employer's plan in particular with various investment policy alternatives.

For example, the over-all emphasis to be placed on liquidity, current yield, and long-term yield will be influenced by, among other things, the plan's benefit provisions, the characteristics of the employee group, the flexibility of funding desired by the employer, and his view of the future economic environment. The actuary who has a background in both the employee benefit field and the investment field is probably in the best position to put the impact of all these variables in proper perspective. As part of this analysis, a benefit projection can be made which would cast light on the probable liquidity needs with which the fund might be faced. Depending on these needs, as well as the size of the fund and the uniqueness of the employer's investment policy, the actuary can give advice on the relative merits of individual versus pooled funding media.

In recent years actuaries have been increasingly active in the area of measuring and comparing pension fund investment performance, both in analyzing the performance of clients' funds and in assisting nonactuarial organizations (such as A. G. Becker and the Bank Administration Institute) in the technical aspects of developing fund measurement services and programs.

To a certain extent there has been a convergence of opinion on the theory of comparing investment performance. Peter Deitz, the National Foundation of Health, Welfare, and Pension Plans, and the Bank Administration Institute have all published works which are in substantial agreement on the proper method of measuring comparative rates of return. The Bank Administration Institute calls its recommended measure the "time-weighted" rate of return. It is essentially equivalent to the change in a mutual fund's net assets per share, adjusted for reinvestment of dividends and capital gains distributions. This method adjusts for differences in cash flow between one fund manager and another. It is usually applied separately to the fixed income and equity segments of the portfolio. Unfortunately, this uniformity of theory is not always reflected in investment performance comparison practices.

Everyone also seems to agree that risk should be reflected in investment performance comparisons, but no single method has received wide acceptance and there is doubt by some whether it is even possible to measure risk accurately. The Bank Administration Institute recommends use of the mean absolute deviation in quarterly rates of return as a measure of risk. One definition of what is meant by risk is the dispersion of the probability distribution of possible future rates of return. Observed rates of return

then become samples from the population distribution, and the mean absolute deviation of these observations is an approximation of the dispersion of the population distribution. One defect in this method is that the population distribution of rates of return does not remain stable over a number of years, due not only to changes in portfolio holdings but also to changes in risk characteristics of securities which are held throughout the period. For this reason I do not think that this particular method is good enough to be used in making decisions affecting the management of large sums of pension fund money.

At the John Hancock we publish periodic reports of the performance of our pooled separate account as compared to the Dow-Jones industrial average and the Standard and Poor 500 stock index. In addition to showing what is equivalent to the "time-weighted" rate of return, we also illustrate the results which would have been achieved by a program of level monthly deposits.

I do not think that the actuary necessarily has the qualifications which make for a successful investment manager. An investment manager has to be able to look into the unknown aspects of the future as well as into those aspects which are reasonably certain. This has to involve a considerable element of subjectivity. While the actuary may be an expert in extrapolating past trends, he may not have the necessary subjective skills. This is not to say that no actuary can be a successful investment manager but that it depends to a certain extent on qualities which are related to the individual rather than to his vocation.

Turning now to insurance company investments, I think most of us will agree that an insurance company's investments ought to be affected by the nature of its product line. This has traditionally meant an emphasis on long-term fixed income investments. In recent years there has been a substantial shift toward equities —in the form of both common stocks and equity features on bonds and mortgages. The major sources of assets for most of the larger life insurance companies are the individual insurance line of business and the group pension line. Investment guarantees contained in newly issued individual insurance policies are relatively modest in terms of yield that can be obtained currently on fixed income investments. The over-all emphasis is on securing an average yield on current and future premiums together, which will support these guarantees and provide a margin for dividends.

The increased emphasis on equities is appropriate here because investment guarantees can still be supported while providing the opportunity for higher yield and dividends than could be achieved with fixed income investments alone.

In the group pension line most new business in the general account either contains virtually no investment guarantees or guarantees which are applicable to premiums received over a limited period of time at rates which are fairly close to current yields obtainable on fixed income investments. As increased proportions of equities are acquired, the competitively important "new money rate" decreases from current fixed income rates, causing the general account to appear less attractive when viewed as a fixed income investment, as it usually is. It also becomes more difficult to guarantee a given level of interest because of this equity flavor. In a period of rising interest rates, this is aggravated by the fact that funds being lent today may have been committed a year or two ago, when prevailing yields were lower. Both of these investment policies are more appropriate for the individual insurance line of business, where premiums are relatively predictable, than for the group pension line, where new contributions are highly mobile and where the separate account facility may be used to provide equity investments. I do not have any easy solution to this problem, but perhaps some thought might be given to modifying the allocation of investment return by line of business so that different portfolios of investments may be attributed to different lines of business, in a manner similar to that in which policy loans are handled as investments of the ordinary line.

In any event, rather than acquiescing in whatever investment policy the investment departments choose to follow, the actuary should play an active role in the formulation of his company's investment policy to ensure that it is consistent with the products being supported.

MR. PAUL D. HALLIWELL: Generally speaking, a consulting actuary should, and must, it would seem to me, provide his clients with more than an array of numbers. The client often has to seek the advice of other professionals, such as lawyers, investment managers, and accountants, who seldom have but a vague notion of the internal workings of a pension plan (look no further than the application or misapplication of *APB No. 8* for the proof of this statement).

In essence, the consulting actuary is usually the only person involved with a pension plan who is capable, from a technical viewpoint, of advising his client as to his fund's performance. He is the only person who knows and who can communicate the importance of performance to his client.

I would venture to say that not one in a thousand companies knows what its fund's performance has been. A doctor would certainly not attempt to improve on his surgical skills blindfolded, and, likewise, the client

cannot begin to improve the investment performance of his funds properly without being properly told the facts on his fund's past performance.

Investment performance analysis is a very difficult procedure if done correctly. Several values must be determined:

1. The internal rate of return (which is becoming increasingly important to the actuary with the trend toward the use of exact experience-determined assumptions).
2. The time-weighted rate of return (for comparisons).
3. Mean absolute deviation values (for risk analysis).

These items should be calculated on a quarterly basis and should be broken down by broad investment classes (fixed income and equity).

Comparisons should be made with such standard indicators as the Dow-Jones, Standard and Poor, and the NYSE composite index. Comparisons might also be done with groups of mutual funds, other pension funds, and the like, depending upon the needs of the client. Comparisons should not only be done on an annual basis but on a cumulative-to-date basis as well.

These recommended procedures are not necessarily without criticism but are the same concepts supported by the BAI and the recent Ford Foundation reports on investment performance.

If these comparisons indicate a poor comparative position, we feel that it is our obligation to our client to advise him of other avenues that are available—what other funds have done within the same relative risk that the client is willing to assume.

Finally, these additional valuable services create a new source of income for the consultant. Someone will provide these services sooner or later in our increasing world of investment awareness. Is it not better that these services be handled properly by the actuary than by someone who is only casually familiar with pension business?

MR. VISHWA N. KAPUR: While actuaries in the United Kingdom are active participants in the investment management of life contingent funds, most actuaries in North America are passive spectators and rely solely on the judgment of professional investment managers. It seems that, in the conditions obtaining in this country, the role of actuaries should be somewhere between the two extremes. With their in-depth knowledge of the behavior of life contingent funds, actuaries have to familiarize themselves at least with the broad framework of the investment policy. It is not intended that the judgment of professional managers regarding suitability of particular investments be questioned at any time.

What is intended, however, is that the actuary has to be concerned with the broad guidelines of investment policy so that the obligations of the fund can be reasonably met in foreseeable contingencies. Actuaries have a professional duty to ensure that the fund does not become principally a tool of speculative investment manipulation.

MR. DREHER: We must extend our techniques of forecasting. The actuary should be able to develop a pattern of cash needs, taking into account benefit payments, expenses, and prospective employer and employee contributions, and then relate it to a series of investments that will generate the required cash flows.

Establishing a reliable schedule of cash needs will enable the investment manager more effectively to select investments which will optimize the total investment return of a benefit fund, consistent with the sponsor's investment policy and fiduciary obligations.

MR. ROBY: One very important point for the actuary to bear in mind is that he should not restrict the investment manager's courses of action because of his choice of any particular valuation method. Although it is possible to operate under general strictures as to realized gains and losses, the manager should not feel that he is unable to take such gains and losses as his investment skills would dictate. The actuary should work closely with the investment manager so that they are both aware of each other's problems.

MR. SHEPHERD M. HOLCOMBE: I would like to stress the point of giving free rein to investment managers. In one situation the investment manager was trying to make sure that all his actions resulted in keeping the book value the same so as not to upset the actuarial applecart. The investment manager should do the best investment job possible; the actuary should have enough ability and imagination not to have the investment manager's actions upset his calculations.

CHAIRMAN WOODS: A number of insurance companies have found that cash surrenders, policy loans, death claims, and maturities are currently absorbing new money received, and, if the situation becomes worse, these companies may be forced to sell securities. It seems that the long-established principle of matching bond maturities with anticipated benefit outgo has not been observed in the interest of earning maximum investment return. However, the severe depreciation which has occurred in fixed interest securities is very disturbing.

MR. IRWIN T. VANDERHOOF: One way in which the actuary can make a contribution to the investment function is to provide direction in portfolio balance for the matching of assets and liabilities. If proper portfolio balance is used, a company can partially protect itself from the risk of loss on in-force business on account of a future decline in interest rates. Analytical tools exist which allow the company to plan its investment portfolio both to minimize the loss if future interest rates decline and to meet the company's operating objectives. These tools are available only to the actuary, since an understanding of the pattern of future obligations to policyholders is required for their use. It is the responsibility of the actuary to indicate what pattern of investment maturities is needed to match company obligations.

The process of matching, and the related one of immunization, can be most simply illustrated by considering a pension fund to which no more contributions will be made—only payments by the fund to beneficiaries. In this case the normal actuarial calculation will indicate that a certain amount of money is needed in the fund to make payments as they will fall due. In this calculation an interest rate is assumed. The presumption is that, if interest rates in the future exceed this rate, payments can be made as planned. If rates decrease drastically, however, the benefits are secure only if the fund is invested in noncallable securities that mature in a pattern reasonably corresponding to the required benefit payments. If this matching has been done, then the fund is solvent, substantially independent of the future course of interest rates. Even if absolute matching of cash flows is not possible, the benefits can still be secure if the fund is immunized against future changes in interest rates by equating the duration of the assets with the duration of the future outflows of cash.

Duration is calculated by multiplying the year in which a cash flow takes place by the discounted value of such cash flow and dividing the sum of these items by the sum of the discounted cash flows. This produces an average year in which such cash flow will take place. If the average duration of the assets equals the average duration of the cash demands of the fund but is spread more widely than the duration of the demands, future changes in the interest rates can have little effect on the ability of the fund to make all payments when due. In the case of a closed pension fund, there could be real doubt about whether the assets are properly invested or whether the fund is solvent unless some reasonable matching had been done. This seems clearly the responsibility of the actuary, since only he can determine the pattern of calls upon the fund for cash and, therefore, the duration of the liability to which the assets must be matched. In the case of a closed fund, this result may be easily attainable. An immediate

annuity at age 65 has a duration of about ten, which is easily matched with bonds averaging maturity in fifteen years. In the case of growing pension funds, it may be impossible to immunize the active life fund because the maximum duration of fixed-dollar assets is that of a perpetuity, which is $1/i$. Growth stocks may have longer durations, however. Macaulay's formula for the duration of a bond follows:

Let

F = "Face" value of the bond in dollars; i.e., the "principal" sum in dollars.
I = Number of dollars paid semiannually; i.e., the number of dollars called for by one "coupon."
P = Number of dollars paid for the bond; i.e., the price in dollars.
n = Number of half-years the bond has to run; i.e., the number of half-years to "maturity."
R = Semiannual rate of the "yield"; e.g., if the bond is selling to yield 4 percent per annum, $R = 1.02$ (under the semiannual convention of the bond tables).
Q = Ratio of the face value of the bond to a coupon payment; i.e., $Q = F/I$.
D = "Duration" of the bond, in half-years.

Then

$$D = \frac{\frac{I}{R} + \frac{2I}{R^2} + \frac{3I}{R^3} + \ldots + \frac{nI}{R^n} + \frac{nF}{R^n}}{\frac{I}{R} + \frac{I}{R^2} + \frac{I}{R^3} + \ldots + \frac{I}{R^n} + \frac{F}{R^n}}.$$

Summing the terms in the numerator and in the denominator of this fraction and substituting QI for F, we find that

$$D = \frac{R}{R-1} - \frac{QR + n(1 + Q - QR)}{R^n - 1 - Q + QR}.$$

Let us now consider the situation with a life insurance company. If the company is writing renewable term insurance, the future course of interest rates does not matter. If higher premium forms are written, however, it may be possible to reduce the extent to which the company is dependent upon the future course of interest rates.

If we consider whole life written at age 45, using a nonpar premium just adequate to make all payments when due and a series of reasonable assumptions, we have the following situation. In the first year there is a strong flow of cash away from the company based on the cost of issuing the business. Thereafter, through the fifteenth year, the premium exceeds all claims and expenses and the fund attributable to the block of business grows from this and from interest on the fund. In the sixteenth year and

thereafter, claims and expenses exceed the premium, but the fund still rises through the effect of interest earnings until the twenty-third year. Thereafter the fund slowly declines until it is finally exhausted in the fiftieth year.

If we were attempting to immunize at 4½ per cent we would find that after the fifth year the duration of the future outflows is 51.1 years. This cannot be matched other than by growth stock and depending upon the additional margins in the premium. After the tenth year, the duration is 22.7, and this can be matched only by a perpetuity. However, after fifteen years, the duration is only 16.7 years, which can be reasonably matched by thirty-five-year bonds. After twenty years the duration is 12.8, which can be matched by twenty-year bonds. Since the average duration is the crucial factor and spread of the duration is desirable, instead of twenty-year bonds we would actually use longer bonds in combination with shorter obligations or cash.

It is then possible to decrease the extent to which we are at the mercy of future interest rates and to guarantee the solvency of our company better if we maintain an investment portfolio balance which matches the duration of liabilities and assets of the company. If the company issues other forms of insurance, a new proper asset duration will follow.

In the above illustration, I worked with a minimum premium. Companies may have varying positions on how to handle these additional amounts of money. A stock company might want to invest to produce maximum benefit to stockholders. A mutual company might wish to maximize the dividend or to immunize to protect the future dividends on the current scale. In any case, the type of business we sell determines what our investment portfolio should look like, and we, as actuaries, have the responsibility for providing direction along these lines.

MR. SHEMIN: It certainly is feasible to match investment cash flow against required benefit payments for a closed group of fully purchased annuities. But, for individual insurance policies, the purchaser has in effect a demand deposit which he can redeem at any time. In order to hedge truly against this right, one would have to purchase investments which could also be redeemed on demand, yet which contain long-term interest guarantees. To my knowledge, investments such as these do not exist in any appreciable quantity. For a continuing pension plan, hedging may not be possible, because the benefits are not likely to be completely determinable out into the future, both because of the effect of future salary changes and because the plan may be updated to keep pace with inflation.

MR. BRIAN L. BURNELL: The subject of immunization and the matching of assets against liabilities is one that has received considerable attention in British actuarial literature in recent years. While we all realize that in most practical circumstances there is a limit as to how far these concepts can be applied, the fact remains that, even from a theoretical point of view, they have one serious disadvantage. The problem is that immunization against investment losses achieves at one and the same time effective immunization against investment profits. I feel sure that none of us would consider this a desirable objective.

Despite these theoretical and practical objections, I do believe that the theory related to matching and immunization is of help in terms of providing a base line against which to measure the degree of departure from the "norm" and the possible range of effects of such a departure.

MR. HENRY J. L. FORTUIN, JR.: Are any companies currently reflecting the existence of policy loans in their dividend scales?

MR. BURNELL: At least one Canadian company is currently making such a distinction with respect to its West Indian business and is planning to do so with respect to its Canadian business at some time in the near future. I believe that other companies are giving consideration to similar action. In effect, this will mean that such companies will have one dividend scale for policies which do not carry policy loans and a second less favorable dividend scale for policies that do carry policy loans. This practice recently came under discussion at a meeting of the Canadian Institute of Actuaries, and a very heated discussion ensued between those who were in favor of such practices and those who were against.

CHAIRMAN WOODS: The investment manager must have full responsibility for the performance of a fund. If the performance is not satisfactory, he should be replaced. Some managers may show good performance over the next few years by deriving capital appreciation from investments in bonds.

MR. DREHER: I agree that an emphasis on bonds, under current conditions, is likely to show good results, provided that the manager can depend on the marketability of the bonds if they should become less attractive investment alternatives at some future date.

When setting performance goals, the investment manager, the client, and the actuary should set mutually acceptable targets based on the probable consequences of the selected investment strategy, giving due weight

to the portfolio manager's past investment accomplishments. If the actuary concludes, on sufficient statistical grounds, that past performance has been poor, he should recommend that the client review investment policy, consider other investment approaches available through the portfolio manager, or select other investment managers.

CHAIRMAN WOODS: The actuary should at least insist that an investment manager whose performance merits criticism discuss this frankly with the client and indicate what measures he will propose to remedy the situation. Many actuaries, however, might be reluctant to give a definite recommendation that the present trustee should be removed or to recommend his replacement.

MR. HALLIWELL: What is a reasonable length of time to use as the basis for judging the performance of an investment manager?

MR. DREHER: This is difficult to decide on a basis that has statistical justification. Five years are probably sufficient. Our studies have shown that some managers will show good performance over a five-year period, although over a three-year period their performance may be poor. A period of three to five years should be sufficient, although the results could still be subject to substantial statistical fluctuations.

An important factor in this decision-making process is that corporate management, which is ultimately accountable for the success of benefit fund investment results, has an expected lifetime in office that is relatively brief, in contrast with the life expectancy of the benefit fund, and is likely to be judged on the basis of results over a fairly short period of years. The most reasonable tradeoff among these competing influences is to evaluate the effectiveness of an investment program over an interval of three to five years.

MR. SHEMIN: We are in a number of situations in which we are competing with other pension fund managers. In one of these, great pains were taken at the outset to define the ground rules, with an outside investment counselor who would be acting as judge. One of these rules was that the comparative performance of the various investment managers would not be reviewed until two years had passed. While there was no certainty that changes in the distribution of cash flow among the investment managers *would* take place at the end of two years, their intent is to drop an investment manager at that time if his fund's performance is substantially worse than the rest of the group. This two-year period is in sharp contrast to the five years mentioned earlier.

MR. KAPUR: To determine the performance of an investment manager, I feel that a period of three to five years is far too short. The liabilities of life insurance and pension funds are, by their nature, long-term liabilities extending over many decades. An investment manager could manipulate the portfolio in such a manner that the short-term performance would appear to be attractive, but this may be at the expense of continuing beneficiaries of the fund. Consider the case of a particular bond of highest quality. If the bond is held till maturity, the underlying yield at the purchase price will always be realized, notwithstanding the fluctuations in price in the intervening period till redemption of the bond. The sale of such a bond at a time when capital appreciation can be booked and the proceeds reinvested in another bond at the market price would improve the short-term investment performance of the fund but only at the expense of continuing or future beneficiaries.

MR. ROBERT A. WISHART: We should keep in mind that the current interest in "earnings performance" in pension funds was initiated by Stock Exchange brokerage firms. Certain firms offered to make such studies and comparisons almost without expense, provided adequate trades and commissions were directed their way. With the tremendous increase in equity investments in pension funds in the last decade or so, it is not surprising that more and more investment advisers are anxious to get a piece of the action. Corporate officers should now be more aware of the fact that their pension moneys represent a substantial financial subsidiary and that how the fund is managed can have a significant effect on the operations of the company.

Many actuaries, I am sure, have the inherent abilities to do a reasonably fair job as investment advisers, but I believe they can do so only if they spend their full time at this work. With all the problems a pension actuary has today, he cannot do a good job on a part-time basis. My observation is that an investor of funds is always expected to do an outstanding job. His customers are not content with average results. This is a very specialized field of knowledge, and I doubt whether many actuaries have the training or the temperament to do the outstanding job expected.

ROLE OF THE ACTUARY IN EXPENSE CONTROL

1. What is the special competence of the actuary in the area of expense control?
2. What are the conceptual and practical frameworks for a system of expense control for a life insurance company? Do these frameworks vary appreciably by line of business or by size of company?
3. What tools and techniques are available to the actuary for measuring and appraising home office expenses? To what extent are functional costs being used to measure, appraise, and control home office administrative expenses? What steps are being taken to control the level of administrative expenses in the current inflationary period?
4. What methods are being used to determine a proper level for field expenses? How have expense performance factors in the compensation formulas for managers or general agents been used to promote effective cost control in the field? How can such factors be expressed to recognize increasing expenses in an inflationary period?
5. What are the particular expense problems in smaller companies? What pitfalls must be avoided in the expense management of new or small companies?

Houston Regional Meeting

CHAIRMAN A. ANTHONY AUTIN, JR.: Our topic today is the "Role of the Actuary in Expense Control." Those of you who have been called upon by your company's senior management to explain the large jump in your company's Bests' expense ratio or perhaps to explain why your recent asset share studies do not seem to reflect the recent upward trend in investment yields know that the actuary does indeed have a role in expense control.

The subject of expense control is both vital and intriguing. It is vital because the expense element of our insurance operations is probably the most controllable element of our operations. True, our underwriters can be held accountable for controlling our mortality experience, and our agents can be held accountable for controlling the quality of our business as measured by average premium per policy or by persistency rates. But the efforts of every manager and every clerical employee in our companies can be and must be brought to bear on the task of expense control.

Expense control is intriguing because there appears so little in the way of reference to this subject in our professional journals. Who is more qualified than an actuary to help a company's management tie together

the expense margins built into its products with the expenses actually being incurred by the company currently and with those expected to be incurred in the future.

MR. WILLIAM R. BATTLE: Like most actuaries, I have had considerable experience with field expense problems in my own company. My knowledge of what others may be doing is limited to what our field people tell me, and the facts probably lose something in the telling. So I will limit myself to what we do and think.

We operate a dual agency system. We have a limited number of branch offices in a rather restricted geographical area and a large number of small general agencies outside this area.

Expense levels and expense control are not really problems in the general agencies. All compensation and expense allowances are based on paid commissions, and we do not usually participate in any financing or training of new men. In the branch offices, on the other hand, there is heavy home office participation in all areas. We pay the rent and the clerical salaries; we finance the new agents; we subsidize second-line management. The control of expenses is paramount.

In determining expense levels, we consider three basic types of expense:

1. Nonsales compensation and expenses (clerical salaries, rent, telephone, etc.)
2. Managerial compensation
3. Financing and training of new agents

All expense measurements are related to first-year commissions, which we consider the best bench mark of the agency's accomplishment of the company's objectives.

Levels of expense which we consider proper for clerical salaries, rent, and similar expenses are determined by use of a model agency. The agency is set at a size which we consider necessary for it to be really self-supporting (about $50,000 in paid first-year commissions). Estimates are made of minimum but reasonable requirements for space, clerical help, telephone service, and manager's travel expense. The cost of these minimum requirements is related to first-year commissions, and a formula is developed to apply to all agencies.

Each agency manager's contract contains this formula for sales and related expenses, along with a provision for sharing any excesses or savings with the company on an equal basis. Allowances are made for renewal or maintenance expenses, based on the company's functional

cost indices and the number of policies in force in the agency. All factors are reviewed annually.

A manager has a small additional "slush fund," based again on first-year commissions, which he may use on a discretionary basis for sales meetings, local advertising, and similar expenditures.

The expense formula and sharing concept have been in existence for several years. Expenses in the agencies have decreased. The managers are still complaining, so the allowance is not overliberal. About half of them make a little money, and the other half lose a little.

Managerial compensation is based on the same model agency concept—what we can afford to pay for all types of management in an agency of this size. This is tempered by considerations of what we have to pay to get the kind of men we need. Compensation related to first-year commissions is higher in the smaller agencies because some subsidy is necessary if the manager is to subsist while he builds the agency. The manager's compensation rate above the model agency level ($50,000) is sharply reduced, for several reasons:

1. Growth is easier to obtain in an established agency in the sense that success breeds success.
2. We need to provide margins for expansion of other sales outlets.
3. We need to recover the capital investment which went into the agency in its formative years.

Financing of new agents is a very substantial and volatile expense. It is, perhaps, the most difficult of the three types to set accurate levels for.

Our financing plan provides specific monthly subsidies on a decreasing basis during the financing period. The subsidies are paid in addition to earned commissions and are contingent on certain production levels' being attained. The amount of production required for a given level of subsidy is determined, first, so that the rate of return on the invested capital or subsidy will meet the company's requirements. Then the amount of subsidy per unit must be reconciled with the margins available in the current rate structure. Finally, the amount to be spent on financing must be within the company's budget.

The high earnings requirements of today's prospective agents require, in turn, very high production levels in a general family or business insurance market. Some specialized markets—such as selling to college seniors—generate relatively more initial commissions and require less subsidy. Care should be taken not to overfinance men in these special markets.

staff additions can be avoided, a lot of people have to alter their priorities and take time away from improving the efficiency of operation in the existing lines. A major example would be the entry into a field such as variable annuities. A small company cannot really free many people to work on the project, and the cost of hiring all of it done by consultants is rather high. Some companies, I am sure, which would eventually like to be in this field have backed off for cost reasons.

The relatively high cost of indirect expenses and financing new developments should become less important as a company grows. And the company can take heart in this. Further, a point is reached where additional size no longer produces increased efficiency; so the small company also takes heart in the fact that it may someday match its large competitor's expense rates. Unfortunately, the inflationary pressures of recent years seem to diminish the chances for real progress in catching up.

A third, and perhaps the most difficult small company expense problem, is the one of becoming larger so all the expense problems will be smaller.

The marketing manager of a small company has these things to cope with:

1. He usually must provide greater field compensation from reasonably competitive premiums. Custom has it that additional compensation is required from small companies to compensate for their lack of prestige or public recognition. This probably is not true, but everyone in small companies acts as if it is. Basic commission scales usually are not greater than those for large non–New York companies, but a great deal of extra general agency or managerial compensation is paid by small companies as recruiting incentives. After all, there are many companies looking for new general agents.
2. Small companies which do agency building generally have smaller agency units. If the company pays any fixed overhead directly, the unit costs are higher. And there is likely to be a greater proportion of marginal or subsidized agencies in a small company. Small agencies and marginal agencies are expensive.
3. A small company usually requires more home office backup for each selling unit—repeating the indirect expense problem that we touched on a minute ago.

The marketing manager faced with these problems can offset them to a certain degree in at least two ways:

1. He can concentrate the company's selling efforts on a very limited number of specific markets. Such a market preferably should be one with certain unique features which the company has pioneered or one in which only a few companies are operating. But even if it is a more general market, concentration can produce much greater efficiency.

tion tells us that for successful learning a student should be led from the known to the unknown. Those in the audience with a moderate amount of experience or knowledge in expense control may find that my talk leads them from the obvious to the known. I should also make it clear that I am not an authority on education either!

The first point that I would like to suggest is that for one to consider expense control independently of the planning function is a rather sterile activity. I believe that an expense control system, to be effective, must be one of the elements of a company's operational plan. Expenses of a department, profit center, or a company should be measured in relation to the value of the output of the organizational body. Conceptually, then, the excess of the value of output over the costs of operation is the organizational unit's contribution to company profits. Both the output and the costs should be planned and controlled.

In an insurance company where the output or end product is an array of services and represents long-term commitments, the value of the efforts of each department or profit center is extremely difficult to measure. I use the term "profit center" here as a general term for each organizational unit within a company under a supervisor or manager who has responsibility for the performance of the unit. It represents the lowest level for which expense and achievements are planned for and measured.

One approach for considering a conceptual framework in which to determine the value of a profit center's activities over a period of time might be to estimate the revenue that the efforts of the center would bring if its services were sold in the market place. We might conceive of an insurance company organized totally under a holding company concept. The holding company has top-level corporate duties and is comprised of a chief executive officer and his staff. Corporate headquarters may also assume the normal insurance risks, though a risk-taking company could be formed for this purpose. All profit centers are separate corporations wholly owned by the holding company. We have, then, one or several marketing companies, actuarial companies, legal companies, accounting companies, and so forth. The marketing company would then sell products designed by the actuarial company and administered by the policyowner's administration company. The administrative company might then collect premiums and administer policies for the marketing company, for which the marketing company would pay the administrative company a negotiated fee. The marketing company may also pay the actuarial company a fee for developing, drafting, and filing the products it sells. Company headquarters, if it is to carry the insurance risks, could receive the premiums from the marketing company, after

budget is established for the forthcoming year or other period of time, it should be compared with actual expenses incurred throughout the period on, perhaps, a monthly basis. The manager of the profit center should be held accountable for deviations. At least in theory all such deviations should be accounted for in terms of changes in work or production requirements or of changes in costs of the elements of production, over which the manager has no control.

It was stated earlier that the relationship between past accomplishments and expenses might be used as a bench mark for budgeting for future activities. How does a manager decide whether these past relationships have in fact been satisfactory? The actuary has some special tools which might be of assistance here. The actuarial staff at United Benefit performs two types of studies which might be viewed as "macro" and "micro" expenses analyses. Both are based on the assumption that levels of expenses for performing functions are satisfactory if such levels compare favorably with those experienced by competing companies in performing the same or comparable functions. We also believe that some measure of control can be achieved by observing the changes in our own functional costs from one year to the next.

Our "macro" analysis is based on a paper published in Volume XIII, Part I, of the *Transactions*, entitled "Further Notes on the Trend of Life Insurance Company Expenses," written by Arthur Pedoe and discussed by Jack Moorhead and others. An actual-to-expected expense ratio is calculated for the ordinary line of business in aggregate. In our base year, 1965, all ordinary expenses were allocated to life policies, waiver of premium benefits, accidental death benefits, annuities, and investments. Expenses in all but the last category were further analyzed into those which are a direct percentage of premiums, those expected to vary by size of policies, and those depending upon number of policies. Finally, expenses in each of these classifications were separated into first-year and renewal year. Investment expenses were allocated among the various categories of assets. Expenses in each of these categories were then divided by the appropriate units of amount of first-year and renewal premium income, amount of new insurance, number of new policies issued, number and amount of policies in force, and so forth. Investment expenses for each asset were divided by the mean amount of such asset owned by the company for the year. A set of expense factors was thus determined such that, when each was multiplied by the appropriate unit and summed, the actual total ordinary expenses incurred for 1965 could be reproduced. All units required, such as number of new policies issued, can be obtained from the NAIC Annual Statement so that the derived expense factors

has called this normalized expense function the "performance rate." One would then expect that 68 per cent of all companies considered would have performance rates between +1 and −1 and 95 per cent would fall between +2 and −2. Thus for any company this method will indicate not only whether it has higher or lower than normal expenses but what percentage of companies in the population considered have higher or lower expenses.

A "micro" type of expense analysis can provide some insight on where problems exist in a company. United has participated in LOMA's intercompany functional comparison analysis program for several years. Many of you are probably also involved with this analysis. In effect, this analysis allocates all Exhibit 5 expenses, with adjustments, among the various insurance functions recognized by the analysis. The adjustments are made in an attempt to place a general agency company on a comparable basis with a branch office company by adding in all agency level expenses, such as bonuses and commissions to general agents, and subtracting out all expenses relating to fringe benefits of subagents. Expenses are first divided into major categories by line of business with investment, internal service, and general overhead expenses being treated as separate categories. Each major category is then further subdivided.

As an example, the ordinary insurance category is divided into "initial," "direct maintenance," and "general maintenance" as basic functions. Each basic function, such as "direct maintenance," is then further divided into subfunctions, such as premium collections, commission processing, death claims, surrenders, and the like. Finally, the subfunctions are divided into salaries, rent, data processing, and other, and between home office and field. The expenses allocated to each such subfunction are then divided by an appropriate unit of measure, such as number of premiums collected, number of terminations by death, number of surrenders, and the like, to arrive at a functionalized unit cost. To the extent that allocation procedures are consistent among companies, the unit costs for each function can be compared. Of course, since basic expense records differ among companies and detailed allocations such as this require much judgment, considerable differences between unit costs often appear between two companies, even though the companies are similar and have comparable over-all actual-to-expected expense ratios. Participants in this study meet once a year, however, to discuss results, methods, and procedures, and uniformity has gradually improved.

To the extent that unit costs developed by the LOMA study are reasonably reliable, a company can, by comparing itself with results of other similar companies, gain some insight as to what areas in its own

operation appear to be out of line with respect to expenses. It can, with more confidence, compare its own unit costs for successive years to determine for what functions expenses are rising most rapidly. If this analysis points to a given profit center within the company, a concentrated investigation can then be made to determine whether or how expenses can be reduced. Future budgets for the profit center will reflect any action taken by the supervisor or manager as a result of the investigation.

Many other similar techniques have been used by companies for expense control, but the questions asked should be the same. Are the company's total expenses higher than management can reasonably expect that they should be? In what specific areas should improvements be made? What actions will result in the desired expense reductions? What should the budget of each profit center be for future periods, based on the desired level of cost per unit of activity and the *planned* quantity of activity for the future periods? These are tough questions! But the very survival of a company, in a climate of increasing costs and intensive competition, could depend upon its ability to find the answers.

MR. GENE W. BUCHTER: Effective expense control is dependent upon an interlocking process of expense analysis, evaluation of results, and translation of the results into specific action to form or attain corporate goals.

Expense analysis is a tough area to work with. The areas analyzed often fluctuate widely, lack homogeneity, and require the application of a substantial amount of judgment in order to obtain usable results.

The actuary can bring skills in analytic techniques and problem evaluation to bear on these problems. He has intensive formal training in the complete range of the company's operations coupled with a detailed working knowledge of a substantial part of those operations. These qualifications are useful in expense work, which covers the entire range of company operations. They are also useful in the many judgment areas characteristic of expense work.

Expense analysis is only half the battle. Realistic corporate goals, consistent with corporate resources, must be established in specific terms. The actuary's complete and detailed knowledge of product lines and company operating characteristics and his skills in financial analysis are necessary to integrate expense findings with corporate resources so that meaningful information can be submitted to management and ultimately translated into realistic, specific action.

My company has used a method of field expense analysis and control over a period of years which seems to be fairly common in the industry.

Expenses are budgeted annually for each field unit, using Exhibit 5 classifications. The budgets are generally determined on the basis of prior years' budgets modified by plans for the current year.

One exception is the budget for the costs of agent financing. Financing costs are budgeted on the basis of projected costs for new men currently under contract modified by projected costs for new men to be placed under contract during the year. Total costs are scaled to a total company budget—agents are required to meet certain production standards which vary by time under contract in order to qualify for salary while they are being financed.

Comparisons of actual to budgeted expenses are made during the year. The expenses of each field unit are related to premium sales for interyear comparisons. General territorial expense, manager compensation, supervisory salaries, and financing expenses are separately reviewed. Projections of financing costs for the remainder of the year are also compared against original estimates. The significant expense control in regard to the expense level occurs at budget time, with the review functioning as an implementation tool.

The expense control recognizes that some expenses, such as rent, are incurred at the discretion of the home office; others are incurred through the joint decision of the home office and the field manager; and still others are incurred largely at the discretion of the field manager.

The underlying assumptions of this type of control are that expense levels of prior years are a valid measure of expense levels of future years and that expenses related to sales are an appropriate profit measure. Neither assumption is fully realized in actual practice.

This method of control seems to function most satisfactorily in relatively static situations where there is little change. It tends to maintain the status quo, whatever that may be. It also tends to motivate home office and field management toward sales without adequate recognition of profit differential by type of sale. While a certain consistency in level and trend of expenses from year to year is introduced, it provides no meaningful information about the relationship of expenses to expense margins or to profit potential or to the content of the actual work done. Furthermore, we have found that expenses can and do occur at high levels which cannot be supported by the profit potential of the business sold.

Expenses must be considered in relation to the actual or expected profit resulting from the expense if any realistic determination of proper expense levels is to be made. To date, the existing pattern of field expense analysis and control does not seem to have fully evolved to the point of such a direct comparison at the level of the field unit. Recently,

however, a few companies have attempted to introduce a profit relationship into the expense analysis. This type of analysis relies upon sales weighted by some form of profit potential of the business sold. The result is to obtain expenses which are related to profit-weighted sales rather than to some raw sales measure.

One such method determines the profit potential of each policy sold during the analysis period. Appropriate recognition can be given to different patterns of agent compensation, persistency of business, and variations in underwriting standards which may apply to the policy in determining its profit potential. Totals of profit potentials can be compared with appropriate expense totals for the analysis period. This provides information concerning the expense/profit potential relationship as well as information about the sources of potential profits, particularly by agent and agency.

These new types of analyses go a long way toward changing the orientation from sales to profit. They can give meaningful information on the profit or loss sources. They present, however, some problems for control use. Shifting the emphasis from sales to profit is a distinct departure from existing sales systems and will require considerable field education. All levels of field supervision find difficulty in adjusting to the idea that high levels of sales can and often do result in poor profit pictures, particularly when those sales are concentrated in plans with little or no profit potential or in plans which are sold at a potential loss. Also, it is necessary appropriately to relate sales expenses to profit potential from sales. This requires a subdivision of the total expenses of an agency unit into sales and nonsales components.

We are currently attempting measures of this type. We feel that we are able to determine reasonably the profit potential of the business sold. For this measure we are using the present value of book profits before deduction of field expenses. We are reflecting the actual commission and other direct compensation which apply to the policy. We are also reflecting the actual first-year termination rates of the writing agent in the profit potential calculation, but we are using standard rates in renewal years. We are, however, experiencing difficulty in separating the sales expenses from the aggregate field expenses. As a consequence, the comparisons which we are currently able to develop are those of total field expense to profit potential of business sold.

The Life Insurance Agency Management Association recently announced an activity analysis which shows considerable promise in helping to solve the problem of separation of expenses. Incorporated in this activity analysis is a functional cost program which will provide func-

tional cost data on some thirty-four different field functions which can be grouped under three major headings: Sales Assistance and Other New Business Activities, Man-Power Development, and Administrative Activities.

This analysis is based on time studies made during a study period. Data collected during the study period are edited by the company on programs furnished by LIAMA, and reports are then processed by LIAMA.

Such a functional separation of expenses would appear to pave the way for separate expense and profit potential comparisons in the areas of sales, man-power development, and administration.

The separation of man-power development expenses together with the time-study data also makes it possible for some analysis to be made concerning the quality of the field manager's management of the man-power resources of the company.

The totality of the activity analysis coupled with the functional cost data permits a field manager to obtain some insight concerning the area where his time can be most profitably invested and permits home office supervisors of these managers to determine what the managers are doing at what costs and what return is likely on the managers' efforts.

The expense performance factors in managers' and general agents' compensation formulas generally provide for some form of participation by the field manager in specified categories of expense. These may take the form of bonuses or penalties of a part of the deviations in costs relative to a standard or the direct allocation of expenses for specified items against income otherwise payable to the field manager.

Our experience has been that the amount of compensation from sales tends to override the amount of compensation from all other sources, and, as a consequence, the field manager is not adequately motivated to work toward the desired goals. We are currently requiring field manager participation in the financing of agents who do not meet production requirements if the agent subsequently proves to be unsuccessful. The theory is that the financial participation by the manager will motivate him to weed out likely failures as early as possible so that we can avoid pouring financing funds into a recognized failure.

If sales expenses are related to the profit potential of the business sold, if man-power development and maintenance expenses are appropriately related to the profit potential of the man-power developed, and if these operate in such a manner that the substantive part of the field manager's compensation must come from potential profits which he develops from his activities, there is then reason to feel that performance standards will prove to be effective. Anything less than a significant part of the

field manager's compensation for performance is very likely to be lost in the sales compensation and to result in inadequate motivation of the manager toward the desired goals.

Many companies are finding that the expenses of the traditional agency distribution system cannot be met adequately by the profit potentials of the business sold and the profit potentials of the man-power developed. In the search for viable alternatives, a substantial amount of experimentation is being done with modified and alternative methods of distribution. The reduction or elimination of some functions, such as agent training; the entry into modified marketing forms, such as sponsored marketing; and the adoption of new distribution systems, such as mass marketing and direct selling, are some of the manifestations of the continuous effort being made to find satisfactory alternatives.

These new systems require expense controls specific to their characteristics. Systems which are tailored for the requirements of one company may be wholly inappropriate for another. Playing the popular game of "follow the leader," on a trial-and-error basis, is likely to be financially hazardous unless expenses and profits are planned and progress toward plans is realistically monitored.

MR. CHARLES F. B. RICHARDSON: For the foreseeable future, expense control will undoubtedly be the dominant problem in our business. We have been encroaching to a greater and greater degree upon the profits from mortality and interest. The secular improvement in mortality seems to have ceased several years ago and seems unlikely to resume without a major breakthrough in medical science. At the same time, competition has forced some relaxation of underwriting standards, which is bound to show up in mortality on current new business. The unprecedented level of interest rates has been watered down to some degree in the mature companies by the extremely high level of policy loans, and there may even be capital losses due to forced sales of assets in an adverse market. In any event, these interest levels cannot continue much longer without severe economic consequences.

If inflation continues, even at a slower pace, it seems to me that we are not far from having to face the fact that increases in premium rates or net costs will be required to reflect the continual rise in operating costs. Every other business has had to face this, and we will too. One point often overlooked is that the increasing average size has already been discounted in present rate structures.

As for the tools available, a functional cost study by line of business and by subsidiaries is indispensable, and this is becoming more true as the corporate structure becomes more complicated through the prolifera-

tion of subsidiary operations. The functional costs should be broken down by operating departments so that the source of increases in cost can be readily determined. Another tool that is being used to an increasing extent is work measurement. Functional costs tell you only what the costs are, not what they might be with more efficient use of staff.

Earnings projections are essential for proper planning by management. They must, of course, be preceded by studies of costs, mortality, morbidity, and investment operations, they should include some allowance for future increases in costs, and they will determine how rapidly a company can afford to grow within its surplus objectives.

It is difficult to say what a "proper level" is for field expenses. For companies operating in New York the maximum level is effectively set by statute, and through the forces of competition this influences the level of field expenses in non–New York companies. It is interesting to analyze what margins the field expense limit in section 213 actually allows. If we ignore agent commissions, the first-year margin is about 45 per cent of first-year premiums. The first-year expense of operating an established agency, excluding general agent or manager compensation, is likely to require about two-thirds of this, and considerably more than this amount is required in a new or immature agency, or one which is being developed rapidly; for example, by substantial investment in supervisors or agent financing. The renewal margins in the first ten policy years leave about $2\frac{1}{2}$ per cent of premiums for field expenses after allowing for general agent overrides, but this figure may be lower if agent renewal commissions are heaped. With home office collections this would leave a modest margin. Margins after the tenth year appear to run from perhaps 6 to 9 per cent of premiums, depending on the overriding commission scale and the degree of vesting allowed. In essence, it is the margins after the tenth policy year that provide the money for subsidies to new general agents and managers, for agent financing and for a number of other items charged to the field expense limit.

A recent study which I made showed that on quite conservative assumptions as to expenses a new scratch agency, with financed agents, assumed to reach a production volume of $4 million by the sixth year and then leveling off, would be in the red for ten years on the New York margins, for a cumulative deficit of at least $250,000. This is undoubtedly one of the reasons why the New York companies' share of the total market has been gradually declining. With further inflation and consequent increases in supervisory and clerical salaries, rent, and agent financing, the situation will become even worse. All this points to the need for another review of the New York law, particularly as it affects smaller companies.

Hartford Regional Meeting

CHAIRMAN WILLIAM A. SPARE: In these times, expense control is of vital concern to all of us. For too long a time we have depended on increasing mortality and interest gains and have given too little attention to decreasing expense margins. The current inflationary period brings home sharply the need for a better understanding of our expense situation. We must learn how to measure, appraise, and control expenses.

MR. GARY K. DROWN: The subject of expense *control* is inherently a managerial topic. The managerial functions are at least three: to plan, to organize, and to control. Managers PLAN corporate activity to achieve specific objectives. They ORGANIZE their resources (manpower and money) so as to deploy them with maximum effect to carry out planned activity. They CONTROL such activity by developing and using such mechanisms as are required to measure actual performance against planned results.

Such managerial functions are virtually independent of the manager's particular technical specialty. Many of us here find ourselves in a manager's role with our own employers, responsible for the whole gamut of these managerial functions, whether the actuarial work in our respective companies happens to fit into the organization as a staff or a line activity.

In asking "What is the *special competence* of the actuary in the area of expense control?" I infer that we are inquiring into the special competence of the actuary as a technician rather than as a manager. Therefore, my brief comments will be developed from this standpoint. In this sense, the actuary would function in an advisory capacity to others in the organization who are responsible for the decision-making of the enterprise in the same manner as the lawyer advises about the legal implications of a proposed course of business action. Such advice may, in the final analysis, be either adhered to, compromised, or disregarded according to management's assessment of the business risks involved.

In his advisory capacity, I believe the actuary's special competence derives from his education, training, and experience in three ways:

1. Mastering problem-solving techniques based on the academic disciplines pursued in the course of attaining his professional competence.
2. Quantifying or measuring anticipated results based on statistical probabilities which are grounded in reality, projected with educated judgment, and employed with such technical accuracy as is commensurate with impinging practical limitations.
3. Developing the necessary tools to provide periodic soundings of actual performance against assumed results in order to be in a position to advise remedial or exploitative courses of action to his company's management; that is, developing his own control mechanisms.

Each of these three aspects of the actuary's special competence could be discussed at length, and they are most certainly interrelated. I shall continue by discussing only the third aspect—developing control mechanisms—as being the most relevant to this topic.

I suggest that one of the most effective ways the actuary could advise his company's management in matters of *aggregate* expense control could be through the development of an earnings projection model office. The form of the "inputs" and the units of measurement will vary from company to company. It remains to the other aspects of the actuary's special competence (problem-solving techniques and quantifying indicative measures) to determine what these variables are in order to operate the model.

While such model development is an expensive proposition, the long-term nature of a life company's business and pricing structure helps put such cost in a more palatable perspective. Since estimating and insuring against the adverse financial impact of future life contingencies is the business we are in, a logical extension of actuarial expertise would be to do the same job for the life of the corporate enterprise. Many consulting actuarial firms make such a service available to the smaller companies, as do the growing number of computer "software" services. Thus development of such expense control (or revenue estimating) mechanisms is not within the reach of larger companies only.

At Ohio National we have expended many man-hours to develop and perfect such an earnings projection model. Gross approximations and business cell groupings become less of a compromising necessity with the continued technological improvement in electronic computers. This fact allows a better reconciliation of projected results with actual performance, consequently enhancing the credibility of the model as a management tool.

One significant piece of such a model is the new-business partition. With the "software" capabilities of third-generation computers, we are enabled to develop modules for projecting new business in pieces. Sales manpower and production estimates can be generated on the basis of the planned activity of marketing management for manpower recruiting, production goals, and planned market penetration. These data can be coupled with derived historic agent retention rates and market trends. The results of such a new-business module also could provide valuable by-product information on net sales manpower financing costs—an item of expense requiring a high degree of control by sales management.

With aggregate new production, the earnings projection model can be run for various product, age, and sex mixes superimposed upon in-force business partition to project earnings flow. The actuary's special competence in problem-solving, quantifying unit measures, and develop-

ing validation mechanisms can come into play in many subdivisions of such a project.

A couple of critical areas may be worth special mention. First is the area of general overhead expenses of a nonpercentage of premium nature. Percentage of premium expenses are capable of fairly straightforward handling. The implacable resistance of general overhead expenses to being nicely squeezed into neat little unit expense factors makes their projection less precise; however, they are most susceptible to managerial control, even in the face of inflation. Whether the actuary chooses to project general overhead expenses by unit factors underlying the pricing system, by unit factors related to the number of transactions, or by another appropriate measure of activity, the aggregate amount must be evaluated for realism by some aggregate relationship to premium income, renewal commission, business in force, or a combination of these. Without some touchstone to reality, general overhead expenses can be unwittingly and unrealistically distorted, high or low, by the projecting mechanism.

A second major area of special concern is that of the federal income tax liability. This little gem could call for a model all its own! A major stumbling block to any generalized discussion of this cost factor is that the complex law for taxing life companies virtually defies generalizations. Suffice it to say that the model outputs must be in a form to provide data necessary to reasonably estimate the federal income tax liability in its several parts. A valuable by-product of a federal income tax module could be some creative tax planning in the area of legal reserve structures. For example, it could be used to test the advisability of making a section 818(c) election or, if such an election is in effect on the approximate basis, of devaluing reserves on certain blocks of business to enhance the advantage of the election.

In developing such model offices, the actuary must also anticipate alternative courses of action or possible significant variations in the projecting parameters. Good management is bound to ask: "What if . . . ?" and the actuary should either be prepared with methods to adjust his results reasonably or should have a range of results based on optimistic, most probable, and pessimistic expected results.

Because earnings are the important wherewithal both to defray expenses and to finance new ventures, such an earnings projection model provides management with a powerful managerial tool. Models can function not only as an aid in budgetary planning or expense control but also as a test of a wide range of creative business possibilities before commitment of the enterprise to a new venture.

MR. JASPER E. MOORE: LOMA Financial Planning and Control Council and its subcommittees are concerned with the same questions as topics 2 and 3. The reports produced by these committees summarize the philosophy, techniques, and success of member companies' programs—budgetary, work control, work measurement, consultant-propelled, and so forth. They explore the use of historical versus professional work standards and the differing problems of large and small companies; in fact, the whole gamut of considerations that attend this important facet of our business.

The LOMA *Functional Costs Manual* of 1957 and cost analysis of 1960 have provided a base for intercompany appraisal and generally provide a staging point for measurement and comparison by participating companies. Arthur Pedoe's classical work on expenses has also been the background for much actuarial study in individual companies.

The current and prospective inflationary effects on salaries and other costs are such that management must find better solutions to these long-standing challenges. If we cannot keep unit costs down, the loadings provided in our rates must anticipate increased costs, may be even enough to cover deficiencies in our present and past rate structures.

In recent years we have made progress through automation:

1. Unit costs of many service functions have been directly improved.
2. Better records have evolved for simplified personal service.
3. Errors, and hence the costs of correcting errors, have been cut substantially.
4. More direct servicing from the head office has reduced the volume of service necessary from field offices.

We cannot expect to achieve much further direct savings from extended use of computers. In fact, the massive costs of developing, implementing, and maintaining systems tend now to impede our progress.

Conceptually and practically, the best framework for expense control is within a budgetary control system. How can we achieve this and make it highly effective in all areas to control and to energize the organization?

Basically, the budget requires a system of accounts designed to fit budgetary needs, which means expense categories identifying budget divisions by function, by agency, by area, by line, and so forth. Most companies' ledgers are a compromise stemming from the impossibility of maintaining such a diversity of account breakdowns by manual or even punched-card methods. Because the primary purpose of our accounting systems is to produce the annual statement, the cost of more elaborate labeling of items and the synthesis of results is still a major deterrent in most companies.

To the extent that the results can be made available in meaningful breakdowns, they must be translated into people and accountabilities, whether the expenses involved are related to sales promotion, acquisition, or maintenance. "Results versus targets" is the name of the game for individuals and teams; to be effective it should be translated into "contributions to profitability." So we come round the whole circle to the management responsibility for expense control—management by objective, using total company budget not only to control but also to energize.

Like many other companies Crown Life has exposed all its managerial personnel to behavioral science courses developed from the theories of McGregor, Maslow, Argyris, Herzberg, and so on; our problem is how to build from there and "move beyond the talking stage." Marvin R. Weisborg's article entitled "Organizational Development" (January–February issue of *Think*) is a very convincing argument that we must manage all of a company's resources, including its management style and behavior, and "creatively use the science-based theories to improve the way we manage our companies." "Inflation and the threat of recession push management toward the use of any new knowledge that might increase effectiveness," while "recognition is growing that improved technology requires better human capabilities."

This is our problem exactly. We use the computer primarily to cut unit costs but, in so doing, build up a need for system analysts able and willing to create complex systems. Outside the systems area, jobs are no longer narrow functional responsibilities but require comprehensive knowledge of our complex business. Not that behavioral science or organization development can be labeled "new knowledges," but certainly the goals of total involvement and maximum satisfaction are far from being achieved; my suggestion is that a total budget program can serve as the vehicle to take us along the road.

Mr. Weisborg makes the striking statement that the value of the human organization is worth conservatively at least 24–25 times earnings. The able president who could increase the productive capacity of his human organization by only 5 per cent would double the earnings figure.

What are the problems of setting up a comprehensive people-involved budget? Technically, problems have been vastly diminished by conversion of accounts to computer operations. Emotionally, if we face up to the consequences of inflation *or* recession, we should welcome a ray of light. Organizationally, if we place any credence in developing managerial science, this can be the way to achieving involvement. Many companies report through the LOMA Financial Planning and Control Council

their progress toward the effective use of budgets; involvement is mentioned frequently as one of the advantages. It should turn out to be the major achievement.

The importance of involvement is being recognized with the introduction of office landscaping. Physically arranging the members of the team to enhance the feeling of working together can make a better team, committed to a team goal. Whether we recognize it or not, we are accepting the theories of Teilhard de Chardin that we can release some of the "unused power" and "creative energy" of our people.

The flaw that remains is the artificiality of life insurance accounting. How many times are we called on to explain the absurdity that adding a new policy creates a loss in our books yet, in fact, adds to the value of the company? If we are to have a budgetary system that will generate the involvement of all our people, the profitability of each function or service must relate to a profit that makes sense. This means a third set of books based on gross premium prospective valuation of liabilities, the first set being the normal set required for government solvency statements and the second dictated by income tax reporting. Proponents of gross premium valuations have listed many good reasons to justify the considerable cost of this extra facility, but, as far as I know, no company has yet agreed that it is necessary.

To summarize, we are reaching the point where half-measures will not do. We must aim for total management and total involvement. A budgetary control system can be the vehicle, but it must have a base that relates to the real situation so that each accountability ties in to the total objective with meaning and without distortion. One more point. Budgets as they have been used have been susceptible to "I can't do this because of the budget" and "I have to spend my allotment." Surely in the climate of enlightened communicative participative management such suggestions sound strange; their validity should vanish under a realistic system with incentives built into it.

MR. DROWN: For a thorough study of field expenses and compensation I would refer you to an excellent piece of reference material published by LIAMA in 1967 on the advent of its fiftieth anniversary. *Cost and Compensation in Life Insurance* discusses the problems of study design, methodologies employed, and pitfalls encountered.

Particularly in these days of inflationary pressures, it is not uncommon to have questions of adequacy of field expense allowance raised by members of the field management organization. Without adequate, timely, and factual information, life company managements are very vulnerable to succumbing to pressures to increase expense allowances in the compensa-

tion patterns. Whether or not such increases are justified, they must either be reflected in the pricing of the product distributed or allocated away from other services. In the long run, either of these alternatives may be more detrimental to *total* sales compensation than the existing combinations of compensation, prices, and range of services. Adequate models for estimating current and future revenue to support any such proposed change are essential.

The LIAMA fiftieth anniversary research report begins and ends on exactly the same theme. The very first paragraph reads:

> Evaluating agency operations in terms of cost has always been a difficult task. A major reason for this is that *relevant measures* of output for the different types of expenditures required to build and maintain an agency are *not available.* [Emphasis added.]

The last summarizing observation is:

> Above all, effective compensation philosophies and procedures depend upon detailed records of performance in terms not only of production and survival but of amount and mode of premiums, number and average size of policies, persistency, and other basic data. It is a source of both surprise and concern that such data are only *rarely available* in *usable form* in company records. If LIAMA research succeeded only in making companies more aware of the importance of maintaining and using the necessary data banks for the development and evaluation of compensation plans, it would make a vital contribution. [Emphasis added.]

Thus the watchword for home office marketing management in evaluating field expenses and allowances must be "Get the facts! Get the facts! Get the facts!" Only with facts can a company management rationally defend its compensation patterns or alter them in ways compatible with over-all corporate objectives.

In my own company (a medium-sized, mutual, general agency company selling predominantly individual policy life and health products), that is precisely what we have been doing—getting the facts. We do not operate in New York State; therefore, the additional external environmental factor of the section 213 limitations does not impinge on us directly.

We began in late 1966 to gather field expense data on an annual basis from our general agents. Data were requested in several expense categories under the two main subdivisions of sales related expenses and office related expenses. Such data gathering leads to a whole series of subordinate problems which are topics for discussion themselves. In short, getting the facts is an ever changing task requiring time, effort, ingenuity, and no small amount of patience and deference—especially if your agency man-

agers are independent contractors. We are satisfied that we are making progress in refining the quality and homogeneity of our data. And, just as importantly, we are getting increasing co-operation from our general agents as they see the results of our studies and discern the opportunities for improvement in the efficiency of operating their respective "shops."

This brings me to the next question: "How can expense performance factors be used to promote effective cost control in the field?"

After concluding that expense allowances were adequate, we found that one of the most successful ways of using such performance factors to promote field cost control was to challenge that ingrained motivational characteristic of any salesman worth his salt—competitiveness. The results of our expense studies were presented in a comparative form to each general agent (with anonymity of his colleagues preserved, of course), showing how he stacked up against other general agents who were conducting a similar operation in terms of manpower, average compensation per sale, and market locale. We also showed a comparison with his own results of the previous year.

As an example, one of two such comparable general agents in 1968 carried 73 per cent of his total compensation through to profit or take-home pay. The other showed a 42 per cent net earnings factor. That alone is enough to rebut claims of inadequate expense allowances fairly effectively; but that is not all. The second general agent's total earnings carry-through showed a marked decrease from the previous year, while the first showed no change. If you do not think that having facts like that to talk about in a performance review session is a distinctive aid to sales management in diverting complaints about inadequacies of field compensation, then I am hard pressed to think what would!

But it is not enough to stop with such a demonstration. If the less efficient general agent is now convinced of *his* need to improve expense performance, sales management should be prepared to exploit the opportunity afforded by his receptivity with concrete plans and recommendations. Of course, the general agent cannot abdicate his responsibility to accept or reject such proffered guidance and, if he accepts, to make it work. But to leave the man frustrated in his quandary is obviously just poor human relations—not to mention being unsound business management.

We have *experienced* this receptivity and have been prepared with a wide variety of suggested opportunities. You could make up your own list with little trouble; but one is pertinent to this discussion, so I will mention it briefly.

We had quite a conglomeration of agency bookkeeping systems among our general agencies. Some were very efficient, others extremely cumber-

some. Some were "home grown" so to speak; others were of our company-recommended form—but, we discovered, sadly outdated. We have convinced several general agents to change over to a new, improved company-recommended bookkeeping system, obviously designed with our expense information requirements in mind. Even if it were no more efficient than the old system, such a transition obviously enables them and us to continue our expense-data gathering in a more uniform, efficient manner, enhancing the quality and homogeneity of these data.

For our own part, we overhauled our system of agency policy-record keeping by using a computer-produced current status card to eliminate much manual updating in the agency offices. We also changed our premium-collection reporting to an exception basis, so that only late payers or nonpayers are referred for conservation follow-up in the field. These unilateral actions on our own part are important signs of a team-work attitude prevailing among home office sales management personnel. These serve to enhance the credibility of our genuine interest in the problems of our first line of sales management out in the field.

With respect to the third question in this subtopic, I would again refer you to the LIAMA report. While the current intensity of public concern over inflation was not extant at the time of its publication, I feel sure that the research task force is prepared or preparing to counsel with interested inquirers on coping with constructing appropriate measures reflecting inflationary impact. To the extent that a company's expense allowances are expressed as a percentage of premium, there is a certain amount of built-in allowance for inflated expenses as the average-size sale increases to offset eroding dollar values.

In summary, get the facts—they are indispensable. Next exhibit your findings in comparative ways to exploit the innate human competitive drive and to disclose performance trends. And, then, be prepared with viable plans for co-operative field expense reduction programs.

Finally, since expense measurements are so uniquely related to each company's *modus operandi*, the measured impact of inflation must be determined in realistic practical ways for which the actuary, by virtue of his special competence, can make a valuable contribution.

MR. MELVIN L. GOLD: Expense is the one cost element which life

In a small, newish company with normal retention levels, a reasonably good mortality experience is not crucial for its existence. The same can be said for a company's investment return or lapse rate. Even poor sales will not kill a company—but extravagance in spending can and has done so.

My basic thesis is that most small companies not only do not get their money's worth; in too many cases they are dissipating hundreds of thousands of dollars. My own observations lead me to believe that, if anything, I am understating the case.

The prime reason that so many small companies dissipate their money is that the chief executive officers do not understand the life insurance business. They may understand the business of selling life insurance, but the heads of many smaller companies do not really understand the inner working of a life insurance company. They do not know what provision for expenses is implicit in the rate structure of the policies. While they have plenty of time to discuss and mull over the innumerable schemes that come across their desks, somehow they never seem to have time to discuss the annual statement with their actuaries.

This has nothing to do with brains. On the contrary, most company presidents are bright, educated, effervescent; they love to spend money, and they can discuss deals all night. They lack, however, the fortitude to set their goals and to work toward them slowly, patiently, and persistently. They cannot seem to say "no" to extravagance. And, when the president spends freely, this feeling permeates the whole organization.

There is a tremendous dearth of topnotch people among small companies. The best combination seems to be a president who is essentially a merchandiser and a Mr. Inside who can direct the underwriting, policy issue, and accounting. But what generally happens is that many of the middle management are mediocre—people who cannot make decisions and who dissipate time and money. And, to top it off, companies refuse to fire people who are not performing.

Most of the new company presidents do not realize how vital a smooth-running home office is. They will hire all sorts of $15,000-a-year sales people without blinking an eye. And yet they will refuse a $20,000-a-year inside man who will save the company all sorts of headaches. A Mr. Inside is invaluable. By no means am I thinking of an underwriter when I describe Mr. Inside. Too many underwriters are narrow technicians, nothing more. Underwriters seem to forget their sales function; after all, they are talking to the agent more than to the sales manager.

Where is it written that a newer company should be all things to all men? Why must a small company be able to provide expertise in indi-

vidual life, health, group life, health, group permanent, credit life, credit A & H, pensions, mutual fund packaging, substandard, annuities, association group, par, nonpar, and so on? Too many companies seem to find it impossible to say "no" to a request by the field or even to an inquiry, for that matter.

Diversification takes expertise, and that means time and money and personnel. Rarely will a small company have enough volume and manpower to man many parallel departments; it is just not economical.

In any discussion of expenses, we must discuss the cost of selling the product. The American agency system of life insurance distribution has been less than satisfactory, although no one has been able to formulate a better way. While the sales of individual life insurance continue to mount, it is primarily face amount and not policy count. Thus, in the past two decades, the sales of individual life insurance have increased sixfold, but the number of new policies sold has only doubled. We are selling larger policies but not many more of them. The situation is compounded by the accompanying trend toward lower reserve forms.

There is nothing sacred about paying full commissions all the time. If by a system of leads, a company can make the agent more of an order-taker than a salesman, do so. I do not see the investment banking community shouting "unfair" when direct placements are made. Agents should be paid when they are selling and not for any other reason.

The profit margins on life insurance have become small indeed. Somehow the only way many companies know to boost sales is by lowering premium rates or by raising commissions. It has been my experience that more competitive premiums or higher commissions rarely produce more profits. Rather, profits arise from a combination of the following:

1. Deciding which portion of the market to aim at and merchandising products to fill this need.
2. Attempting to attract the reasonably successful, not oversophisticated agents who want to associate with a growing company and who like the idea of having an entree to the president.
3. Having the fortitude to do the day-by-day unglamorous work that must be done to give good service.

Merchandisers, without any reverence for our distribution system and its cost, may conclude that, for the average sale, the American agency system is in reality a false god or one that must make way for another deity.

Let us look at some misplaced emphases.

Why must small insurance companies rent such expensive quarters?

Where is it written that the executive suite of a new company should look more elegant than that of an established company? Do agents really care? Certainly the public is oblivious.

A constant problem is management infatuation with highly sophisticated electronic machines. There is no question that EDP hardware is essential to the large insurance operation. The computer industry could hardly have invented a more ideal client. But for the medium-size company, slower, less expensive, and less sophisticated equipment will often do. And, for the smaller operation, the main advantages of a conversion to EDP are in the analysis of one's operations and the necessity for consistency and clarity. Sophisticated machines require a sophisticated staff—programmers, systems men, and the like. The rental cost is just the top of the iceberg.

A perennial problem with small companies is what might be called "state-itis," the feeling that somehow the more states you are in, the more valuable or progressive the company. If the company is sold, some value is placed on the number of states in which a company is licensed. But, in the meantime, think of travel and telephone expenses, not to speak of manpower costs.

I love conventions. It is fun to go to Puerto Rico, Mexico, Bermuda, Florida, at the company's expense. Granted, I generally have to give a talk on some current topic, but I am willing to do my homework. What I constantly wonder about is whether the results bear any reasonable relationship to the investment. In addition to direct costs, which may amount to $30,000 or $50,000, great gobs of time and effort are required at the home office. Management cannot say, "It is costing us $300 per qualifying agent." The expenses of the home office people plus the days of no production have to be added in.

Most small companies spend much too much money on printing. It has been my experience that it pays to have a small printing machine at the home office. Nearly all forms, except policies, can thereby be printed on the premises. For policy forms, use a printer who specializes in life insurance printing—someone who will find mistakes in the material given him.

Most newer companies make poor use of their consultants. This is probably because they do not understand the function of their consultants, and their consultants are content to go along with the status quo.

Lawyers are always content to draw up a prospectus for an SEC filing; they are always willing to have the company enter a new state. Lawyers love to sue someone on principle, particularly if they get paid on a per diem basis. But they seldom seem concerned with the fruits of

their actions. In other words, they may be technically correct—but the company may have committed itself to heavy future expenses.

One pitfall that constantly seems to befall life insurance executives is the reverence for the CPA audit. An audited statement gives little or no information on whether a company is well run and gives absolutely no indication of its worth. All that it indicates is that the financial statements have been inspected and to the best knowledge of the auditors, who may or may not be experienced in insurance matters, appear correct

VARIABLE LIFE INSURANCE

1. What are the advantages and disadvantages of the various designs of variable life insurance that have been offered or proposed in the United States and Canada? What minimum guarantees are likely to be included?
2. What are the advantages and disadvantages of a subsidiary for variable life insurance?
3. What are the advantages and disadvantages of nonparticipating vs. participating variable life insurance?
4. What marketing and sales proposal problems will variable life insurance present?
5. What is the current status of state laws and regulations regarding variable life insurance?

Houston Regional Meeting

MR. DALE R. GUSTAFSON: If we might first consider the advantages and disadvantages of the contracts being offered in Canada as compared with the types of contracts that seem to be emerging for issue in the United States, they perhaps can be categorized relatively simply. The differing regulatory philosophy and environment in Canada seem to permit a much greater degree of flexibility than it appears will be the case in the United States. This seems to be true with regard to insurance regulation in terms of nonforfeiture, reserve, and policy provision requirements as well as in the area of securities regulation. The advantages of this situation have been that the Canadian companies have been able to experiment with a much broader variety of product ideas and the accompanying sales methods than will be the case in the United States. While it might seem at first blush that a corollary to this would be that this greater freedom is disadvantageous to the policyholder, if the more rigid regulatory atmosphere in the United States continues virtually to prevent the development of such contracts, it can hardly be argued that the Canadian freedom has been disadvantageous to the policyholder if it is agreed that some form of equity-based life insurance is a desirable product.

If, on the other hand, the more rigorous regulatory atmosphere in the United States has been a spur to the development of more sophisticated and effective product ideas, then we may see these newer product ideas adopted elsewhere in the world.

While only real testing in the market place will tell us positively, it is my opinion that the inclusion of a minimum fixed-dollar death benefit

guarantee will prove to be one of the most valuable attributes of variable life insurance as it will develop in the United States. While not as essential to the basic integrity of this new-product idea, it is my guess that some form of minimum cash-value guarantees will also prove to be extremely popular if the cost of providing such guarantees is nominal. As an example, it may turn out to be feasible to guarantee that, after a stated period of years, say, ten or fifteen, the cash values will in no event be less than what they would have been in a corresponding fixed-dollar contract. If the cost of providing this guarantee is 1 per cent of the premium or less, I believe that it will see widespread use.

It seems obvious that a disability waiver of premium benefit is as readily issuable for variable life insurance as it is for conventional fixed-dollar life insurance. Perhaps it will prove feasible to issue a disability income benefit in connection with variable life insurance that will itself either reflect the results of the separate account, be related in a fixed fashion to the varying face amounts, or possibly be related to some index.

MR. JOHN H. BIGGS: We have spent a great deal of time in my company, as I am sure all of you have in yours, in trying to select the kind of variable life insurance product we want to offer. In the broadest meaning of "variable" we have included variable life insurance, a hybrid product involving a variable annuity with a term rider, CPI-indexed or automatically increasing benefits. Although I realize that our subject today is variable life insurance involving separate accounts, I think some insight can be gained on separate account benefit design by reviewing briefly the basic motives for writing a variable life benefit.

The most often quoted reason for offering an equity product is to protect our policyholder against inflation. In very literal response to this reason a number of contracts have been offered which attack the inflation hazard directly. These are term policies with benefits indexed to the cost of living, the Life of Georgia's ingenious indexed whole life policy, and a policy simply with benefits increasing steadily at 4 or 5 per cent a year, on either a level premium or automatically increasing premium basis. Cost-of-living-indexed pension plans have been offered now for over five years. I have not heard any reports of great sales success for any of these contracts.

It seems to me that these literal responses to the inflation hazard meet the apparent rather than real market demand. One definition of the real market demand says that it is simply the easy get-rich-quick impulse of the stock market plunger and that life insurance companies have no business catering to that demand: "Leave that business to the go-go

mutual fund managers." The cost-of-living benefits fit well with this position, since they provide a technical answer to the undeniable problem of inflation and yet do not involve the company in the management of a common stock fund.

My own definition of the "real market demand" is that our policyholders are now and will continue to be looking more and more at the investment aspects of their insurance policies, and some will conclude that such a long-term accumulation arrangement will do very much better in equities than in fixed-dollar investments. This view leads to the conclusion that the answer to the equity-products dilemma does lie in a separate account-based product and that other product designs will probably produce a disappointment. In fact, I would say that the CPI-indexed and automatic accumulators are even somewhat misleading as a "*protection* against inflation." They really represent an adjustment of benefits for inflation with the full cost of that adjustment paid or prepaid by the policyholder by putting up additional money.

Without attempting to be comprehensive as to design features of separate account–based benefits, I would like to point up several key problem areas in designing this complicated benefit, ending with some sketchy ideas on a compromise design.

It is fairly well agreed that an important design goal for any kind of life contingency benefit is a benefit that our agents and policyholders can understand with reasonable ease. As an example of a design that may *not* satisfy this criterion, many of us have serious doubts about variable annuities since the "annuity" principle, which seems so simple to actuaries, is apparently not comprehended by our customers. I think that understandability is a major problem with the comprehensive variable life insurance benefit which evolves when the traditional face-amount, cash-value, and level-premium structure of a life insurance policy is retained but the separate account is substituted as the reserve accumulation medium for the general account. This is the benefit described in the Fraser-Miller-Sternhell paper, "Analysis of Basic Actuarial Theory for Fixed Premium Variable Benefit Life Insurance," given last fall at the Boston meeting. At first glance, it retains the features of the well-known and understood life insurance contract; at second, however, the mutations required to reflect the separate account produce strange and weird effects. These were detailed in large part by the discussions at the Boston meeting. They are answered in part by putting a guaranteed floor under the face amount, but other difficulties remain (such as the possibility of the face amount's declining at the same time that the earned rate exceeds the AIR).

I would suggest that a better answer is to segregate carefully the concepts of the accumulating fund and the term insurance benefit. Each of these two financial forms are straightforward and well known. Obviously, the present mutual fund plus term insurance packages do this, but perhaps not satisfactorily. What is needed is a single policy contract combining a variable annuity accumulation with a term benefit, bringing the total amount of death benefits to a certain agreed-upon scheduled face amount. This form has the advantage over the mutual fund package in that it includes the variable annuity payout features, and the total death benefit and the premium level can be scheduled according to the insured's needs. This approach requires very little overhauling of state insurance laws, since the variable annuity is already well defined and regulated, and the adjustments to allow for the term benefit would be minimal.

Moving on to guarantees of separate account results, I am sure everyone knows the great reserving questions that these raise and also that some very interesting and promising approaches were described in several papers at the Boston meeting. I would like to describe one idea of a guarantee that applies to variable annuities and to any options under a variable life contract. This is the guarantee of a floor under a variable annuity payment amount. The floor could be expressed as a percentage of the initial payment, say, 90–100 per cent, perhaps varying with the level of the AIR. The guarantee for a $3\frac{1}{2}$ per cent AIR might be 100 per cent; for 5 per cent, only 90 per cent. The guarantee in effect says that the company will make up any difference if the earned investment rate over the years does not exceed the AIR. The charge for this could either be in the rate for determining the initial amount or could be added to the percentage of fund charge for actuarial risks. Many purchasers would be willing to pay an extra $\frac{1}{2}$ per cent in the risk charge for a guarantee that the payment would never be less than the initial amount.

The reserving problem for this guarantee should not be too great, since no single sum withdrawal can be made and any losses would be spread over a number of years. Conceivably an extra reserve might be set up equal to the excess of (1) a reserve for paying the initial amount over the annuitant's lifetime with an AIR of 0 per cent over (2) the actual reserve for payments reflecting past investment experience since the annuity was purchased and the contract's AIR for the future.

MR. ARDIAN C. GILL: There are basically three players to the variable life game—the insured, the agent, and the company. Clearly, what is an advantage for one player may be a disadvantage for another. The insured's objectives are rather basic to a sound and acceptable design, so

let us take him first. The objective typically stated for the insured is to offset the erosion of the dollar due to inflation. If we accept this as a desirable end, any life policy with the face amount varying with anything *other* than the consumer price index may not achieve this objective and therefore has a major disadvantage. Admittedly, a common stock fund may well outpace inflation, *in the long run* and *on the average.* Unfortunately, people die in both the long and the short run, and none of us dies an average death. Even actuaries, those careful planners, will have difficulty timing their demise to coincide with a market peak.

From the point of view of the consumer, *any* product with a fluctuating death benefit suffers serious disadvantages. As a minimum, then, any product with an equity account–linked death benefit should have these two features: (1) a minimum death benefit of the initial face amount and (2) a damping device that fixes the death benefit for up to a year at a time. This latter feature will minimize the problem of whether the death benefit is determined as of the date of death or receipt of proof. (There will, I am convinced, be a minimum death benefit guarantee in every variable life insurance policy issued broadly in the United States; if insurance departments do not mandate it, competition will.)

I said that only a CPI-related variation would meet completely the stated objectives of keeping up with inflation. There are plenty of CPI-related products around, and they are universally distinguished by a singular lack of popularity. We have to ask if the demand for an inflation-proof life policy is not mostly in the mind of the actuary. From the insured's point of view, he is perhaps mildly concerned with the effect of inflation on the adequacy of his insurance program. But there are so many other factors that affect his need for insurance—the birth of a child, a new house, a raise—that they overwhelm the prospect of inflation alone rendering his program obsolescent. Further, most people are so vastly underinsured that inflation is trivial in terms of the adequacy of their programs.

What the insured may want, in my opinion, is not to hedge against inflation but to speculate in common stocks with his life insurance. And I do not think that he wants his gains, if there are any, to do much to his face amount. Oh, yes, if he is underinsured, he may take the plunge and buy a product with a common stock–related death benefit, persuading himself that a ballooning market will eventually make his program adequate.

This is a far cry from the shibboleth of inflation hedge. Rather, the appeal of a variable life policy will likely be to greed rather than to need. Most insureds consciously or subconsciously resent life insurance—they

pay for it and somebody else gets the benefit of it. I think they would like to get their hands on any extra earnings during their lifetime. From the insureds' viewpoint, then, an equity account-linked product should have two more features: (1) excess earnings should go primarily into cash values and (2) the policy should have a loan or partial surrender privilege. I would modify the first of these to say that a face amount linked to the CPI would be accepted, even if without enthusiasm. And there is no reason that the face amount could not be CPI-linked and still have the insured bear the investment risk. (There could be a variation in premium or, better yet, a variation in plan.)

Most plans being talked about in the United States, or issued in Canada, do not have a loan provision. The difficulties are manifold. The security may disappear in a declining market, or it may be necessary to send out the equivalent of margin calls or to cancel insurance and sell shares to maintain the proper margins. Another method is to lend in units and repay in units. A man may borrow at a unit value of $10 and be required to repay at $100, and he may not like this too much. But is not this the same thing that would happen if he sold some stock and repurchased it at a later date? A third route to the loan privilege is to freeze that part of the policy that corresponds to the loan as a fixed-dollar contract, an automatic change of plan, if you will. This, of course, changes the nature of the beast.

The equity ball game is different; if we are to design and market this product intelligently, we will have to abandon the Procrustean idea of forcing it to fit the fixed-dollar bed. This third type of loan provision is open to that criticism and does not have many advantages. The unit loan method got the brush-off in the Sternhell paper, but I am rather taken with it; it should make sense to anyone who understands stocks and mutual funds, and, if we sell to anybody who does not, we have a few problems on our hands.

Our insured is turning out to be a rather unreasonable fellow; I did not expect to find him this intractable. He wants to speculate, he wants guarantees, he wants to get his hands on his money, and he will not want his premium to increase. This fixed-premium idea is a good one. It has some disadvantages. First, the fund must not only outperform inflation, but it must perform well enough to fund the increases in benefits it creates. This, however, has a damping effect on the increases at the older ages and is a safety feature from the company's standpoint. Another disadvantage of this particular fixed-premium method is that the death benefit is not indexed to anything—not to the market, or to the fund, or to the consumer price index. These are major objections, but the fixed pre-

mium gets a very high score on consumer acceptability. In fact, the South African experience was that a varying premium product of the *fractieverzekering* variety had little appeal, and fixed-premium policies had to be introduced.

I have spent a great deal of time on the insured. If he likes the product, our agents will sell it well; if he does not, they will not sell quite as much. What does the agent want to sell? He wants what the insured wants but with higher commissions. The products that treat the term and investment elements separately will be subject to commission restrictions in New York, and this more or less kills them from the agents' point of view.

Quite by coincidence, since Charlie mentioned this panel to me, I have spent hours in discussions with agents and managers. I have taken the opportunity to raise the question of variable life insurance. While this can hardly be characterized as research, let me tell you some of their views. They have never lost a sale because of the threat of future inflation; they have made sales because of past inflation. They are afraid an inflation-proof policy will rob them of some of those sales. They view the lower dividend scale of variable life insurance as diminishing their chances to make a new sale using dividend accumulations to pay the first premium. They cannot sell an increasing-premium concept or a contract without a guarantee on the face amount. Nor can they sell a contract without a loan value. They do not want to take any more exams or to deliver a prospectus.

Surprisingly, perhaps, one thing that they say they want is a fixed-dollar element in the same contract. They want to hedge. I do not believe them; they said the same thing about individual variable annuities and our product permits all sorts of hedging and switching. So far the relationship between variable and fixed-dollar money is a million dollars to thirty cents. Above all, the agent will want us to keep it simple! Anything more complicated than whole life will be a nightmare to him.

There is yet another player—the company. Independent of the design variable life insurance raises serious questions for a company. Any product will be complicated and expensive. It will give to the insured automatically nearly all interest margins, a misfortune for a mutual insurer and a catastrophe for a stock company. It is possible that agents will have to be licensed security salesmen, that the policy will have to be a registered security, that there will have to be a prospectus, and that this prospectus will have to reveal the loads. There may even be a limit on the loads, as there is on mutual funds or variable annuities. Neither the agent nor the insured nor the company will like the loads revealed. They will all feel cheated; and the company will risk political control over its pricing. Let us hope that the SEC will see this product for what it is—insurance, not a security.

There is another real disadvantage to the company in the tying-in of its entire reputation to the performance of a single fund. If the fund does not perform, we may find our insureds switching not only their variable life insurance but their fixed-dollar life insurance and individual health insurance as well. And, when they take their deflated cash value with them, they leave the company less in surrender charges than the company anticipated. They also leave the company with a poorer-than-average class of risk, since insurables will tend to withdraw while uninsurables will tend to remain.

This same phenomenon may also cause partial surrenders by the better-risk group if the fund performs very well and their insurance amounts exceed their needs, especially at the older ages when those needs decline. Even in the absence of these special selection influences, the mortality of those who experience increases will be far from select. While there will be underwriting and, perhaps, commission savings, the company may find its mortality risk ballooning at the higher ages with mortality margins much smaller than those it is accustomed to. These phenomena lead me back to my earlier suggestion that increases in face amounts be modest and perhaps CPI-linked and that investment success or failure be reflected primarily in the investment element. Having come full circle, perhaps this is a good place to stop and sum up. The composite view of the insured, the agent, and the company would, as I see it, result in a product with the following characteristics:

1. Upper and lower bounds on the death benefit.
2. Some stability in the death benefit, fixing it for given periods.
3. A premium that is fixed or has a narrow range.
4. A loan provision that does not change the nature of the plan.
5. An opportunity to withdraw funds from "overfunded" plans; it follows that the withdrawable amount should be payable on death.
6. Commissions near the traditional level with some recognition of increases in face.

MR. DOUGLAS S. MAGNUSSON: In January, 1970, Great-West Life introduced a variable life insurance policy in Canada after considerable thought on the features that we felt desirable in the absence of restrictive legislation. The only significant restrictions that are imposed by Canadian regulation on design features are limitations that any cash-value guarantee can only be applicable at maturity and that such a guarantee cannot exceed gross premiums.

The policy that we introduced resembles very much a regular endowment. It is written with a face amount equal to the sum of the monthly premiums to retirement. The death benefit is the face amount plus any

gains in the equity fund over the investment components applied to purchase units. The maturity benefit is the greater of the face amount or the equity fund.

Under this design we came to the conclusion that it was not feasible to issue a contract of less than fifteen years, since the cost of guaranteeing the maturity benefit for a ten-year contract would be in excess of 4 per cent of the gross premiums. It is our opinion, and this has been confirmed by a large number of our field force, that the minimum maturity value guarantee is the most significant guarantee that could be included in a variable life insurance or annuity product. For a variable insurance product, it is also highly desirable to guarantee a minimum death benefit in order to make the use of the contract feasible as a financial and estate-planning tool.

At maturity, the policyholder has the right to defer the maturity date for up to fifteen years. At the original maturity, we apply any excess of the guaranteed maturity value over the actual fund value to purchase units for the policyholder, and from that point on the fund operates like a paid-up variable annuity until such time as the policyholder elects to surrender the policy or elects a settlement option. No minimum guarantee is associated with the maturity value on the deferred maturity date. Both variable annuity and fixed-dollar options are available.

MR. BIGGS: There is an interesting ambiguity in the question of what the advantages and disadvantages of a subsidiary for variable life insurance are that I would like to comment on. Do the words "subsidiary for variable life insurance" mean (1) a subsidiary for the broker-dealership function or (2) a subsidiary life insurance company in which the separate account is housed?

Taking the broker-dealership aspect first, I suspect that the presence or absence of mutual funds in the company's marketing plan is the main determinant. Many states will now allow an insurance company to sell mutual funds direct as a broker-dealer, so, if you have to form a subsidiary for funds, you might as well use it for variable life insurance. On the other hand, the new combination entity—an insurance company and broker-dealer—seems to be working well for those of us selling only variable annuities, and I see no obvious reason why it would not for variable life insurance. State securities regulation has not hardened on this still unknown product as it has on mutual funds. Of course, we all hope variable life insurance will not involve broker-dealers at all.

Taking the second interpretation of the question—Is it advantageous to form a subsidiary life insurance company to house the variable life sepa-

rate account?—let me first ask a question: Are there any new considerations on this question that variable life raises other than those raised previously by variable annuities? I do not think so. The great argument for the subsidiary approach on variable annuities was the insulation argument —the SEC would be prevented from reaching into your insurance operations. This argument is now less persuasive, since we have had some experience with the SEC on variable annuities. Although we have had our problems with the SEC, particularly in writing prospectuses, we have *so far* had little difficulty with their reaching into our insurance operations. That could change, of course. There are many disadvantages in the subsidiary approach: problems of state seasoning requirements before you can get the new company licensed, a complicated corporate structure, confusion of names and responsibilities, blurring of the marketing image of the parent, and so on. For most situations I would be inclined toward holding the variable life separate account in the parent, unless there were some unusual tax considerations or existing corporate structures that made the subsidiary useful.

MR. GILL: John has raised a couple of interesting questions.

First, "Why would not a subsidiary for variable annuities work just as well for life insurance?"

I think there is a potential additional difficulty in a broker-dealer subsidiary in certain states for example, our host state of Texas, where corporations may not receive life insurance commissions. Perhaps this has come up in connection with variable annuities and has been solved by companies selling variable annuities through subsidiaries.

Certainly if one entity is already a broker-dealer for variable annuities, there is a strong argument for having the same broker-dealer for variable life insurance, since there are states—for example, West Virginia—that will not permit an agent to be registered with two broker-dealers.

If the life company is this common entity, this may haunt you later when you form a subsidiary broker-dealer to market mutual funds.

Another reason for having the insurance company offer variable life insurance directly is that some flexibility to move funds from fixed to variable may be desirable, if only to help effect a particular loan privilege. Further, these transfers may be no-load affairs or at discounts. At the moment, the New York Department will not permit no-load transfers between separate corporations.

John further asks if there are any variable life considerations that variable annuities do not have in a subsidiary. I think so. Taxes are a different consideration when a subsidiary is involved.

a separate account is the ability to deal with the variable life insurance product in the frame of reference of its being primarily a life insurance product differing from traditional life insurance only in some (albeit very important) details. The advantages of the special-account mechanism have to do with the ability to merge the risk-bearing aspects of the contract (that is, mortality and expense) with the same risk-bearing aspects of traditional insurance. This frame of reference also includes marketing considerations, commission arrangements, and other sales aspects, possibly even bonus awards and contest credits.

There are no doubt very important and very complex tax considerations (especially federal income tax) that will have an important bearing on separate account versus subsidiary decision making. To my knowledge, at this early stage of development, there has not been time to give in-depth definitive consideration to these tax questions, at least not to the point at which any clear guidelines for the future have emerged.

MR. GILL: In regard to the advantages and disadvantages of nonparticipating vs. participating variable life insurance, first let me make the obvious point that there is no such thing as nonparticipating equity-based life insurance. A stock company gives up most of its interest margins and has, in effect, a one-factor dividend formula. To maintain some semblance of its profit position, a stock company will have to sell at a higher rate than it does for its fixed-dollar product. A higher rate for a product with lower guarantees will not have wide appeal to their field force or to their clients.

A mutual company has the same problem to a lesser extent. It will have to place more reliance on mortality gains to offset loading losses. Further, a mutual company retains much of its dividends in the form of deposits or additions, and it has interest margins on those retained dividends. These will be diminished because the dividend will be diminished. The company will also pay higher premium taxes because dividends offset premiums for premium tax purposes in many states.

The stock company will probably have harder sledding than the mutual, but it may get out from under comparing with the dividend illustrations of the mutuals. SEC will not permit variable annuity illustrations and, if they are involved to any extent in variable life insurance, illustrations will not be permitted. All the proposals with dividends, policy loans, tax deductions, and so forth, will disappear, and I do not know that anybody will miss them. We will not have to worry about the one-thirtieth method or Belth methods or equalized cost or what have you.

There is one product element unique to the mutual company, an equity

dividend option on fixed-dollar policies. This is not a very good idea. The amounts are relatively small and costly to handle. They will be no-load or low-load purchases in the equity account and transfers out of the general account. Both old and new dividend accounts will be raided, and both deposits and additions will be affected. This will impair cash flow, as policy loans are now doing. The loss in interest margins to the company can be measured by the difference between your dividend deposit interest rate and your new-money rate, 3 or 4 per cent under current conditions. The management fee for the separate account is on the order of $\frac{1}{2}$ per cent. There may also be some mortality gains given up through the erosion of the additions account. If you are in a participating company, you may be surprised at the size of the potential loss for your company, even before extrapolating for future loss of growth in the account or the accumulative effect. Apply whatever election rate you like, this may turn out to be a most expensive option.

On balance, I think that the mutual companies have the better of it if they stay away from this dividend option.

MR. GUSTAFSON: In a way it can be argued that participating insurance and nonparticipating insurance take a giant step toward each other in variable life insurance. It is obvious that the differences between them will be relatively much smaller in terms of dollars than is true of traditional fixed-dollar insurance. It may be much more difficult to produce participating insurance that will have, for the most part, increasing dividend scales when only mortality and expense factors are considered. From a merchandising point of view, the effort necessary by the salesman to bring the prospect to a proper level of understanding of the variable investment aspect may leave him little energy or time for also explaining the dividend practices. At the very least, this does introduce an additional dimension for possible confusion.

MR. BIGGS: Variable life insurance is really more "participating" than any traditional participating fixed-benefit policy as far as the important investment element is concerned. All the terms and conditions of this participating feature are even guaranteed by the contract, though, of course, the amounts are not.

I have a strong personal bias toward purchasing conventional fixed-dollar insurance on the participating plan. I doubt whether that bias will hold up for variable life insurance. If only mortality and expense enter the dividend computation, I suspect that the following points would make the purchaser favor the nonparticipating plan:

1. The pattern of charges under the nonpar plan for mortality and expense would be level and not subject to peculiar patterns. Under a par plan the refund for expenses would tend to be declining. Mortality might also decrease but would also be strongly influenced by investment results.
2. Competition on *guaranteeing* a future expense charge level might actually lead companies to hold down their expenses, especially when excess-interest cushions did not exist.
3. As to mortality, variances in the future from those anticipated by the actuary at the time of premium determination could not have too significant an effect on costs (as the period of time since premium determination increases, the amount at risk declines and the investment results become even more important).

I would hope we could change the requirement in many states that mutual companies must declare dividends, and provide the usual options, for variable life insurance. Since the investment element is so fully participating, we should not be forced to create an artificial dividend entity just to comply with statutes written for conventional fixed-dollar insurance.

MR. GUSTAFSON: To a very large extent the marketing and sales proposal problems will depend on how the SEC finally decides to deal with this product. If we assume for the sake of discussion that the SEC grants total exemption, the problems will be in a frame of reference that is relatively familiar to us. However, while it certainly has always been true that life insurance has been considered to be and has been sold as a long-term arrangement, it is also true that a significant proportion of those who purchase long-term life insurance contracts do not keep them in force for a very long period of time.

It would seem that the necessity for emphasizing the long-term nature of the contract will be even more important with variable life insurance than it has been with our traditional product. While the relative disadvantage of terminating a variable life insurance policy shortly after issue probably will not be any greater than is true with a fixed-dollar policy, the different investment nature of the variable product is apt to bring about a much higher order of criticism and dissatisfaction if high early lapse rates begin to develop with variable life insurance.

While there probably will be a great deal of similarity between variable life insurance policies and their fixed-dollar counterparts, there increasingly will be enough differences to make it quite undesirable to present variable life insurance as "just like your regular ordinary life insurance policy with an equity kicker added." The temptation to do this is very great. I have caught myself doing it in trying to explain this new idea to other

people. The difference in guarantees, the lack of a policy loan provision, and many other differences are all significant enough to make this kind of comparison possibly misleading.

It is almost impossible to contemplate marketing and sales proposal problems under SEC jurisdiction. The present securities laws were simply not designed to cope with this kind of contract. However, if either partial exemption or new legislation involves us with the SEC, the basic difference in philosophy between the SEC's approach and the state insurance department approach will undoubtedly survive. Insurance regulation in this area is concerned with prohibiting misleading or inaccurate presentations. In other words, the salesman can wax as eloquent as he sees fit so long as he sticks to the truth and does not produce a presentation that is misleading. The SEC philosophy, on the other hand, is that the salesman must present only that information that is contained in a set of prescribed facts, and he must present all of it.

We already, as an industry, are gaining much experience and familiarity with these differing concepts through the variable annuity, mutual fund sales, and dual licensing. It will be much more difficult to keep these two completely different concepts in mind in dealing with variable life insurance than it has been, so far, in dealing with variable annuities and mutual funds.

MR. BIGGS: It seems to me that offering variable life insurance will represent a very different kind of marketing step for most companies than other equity-product offerings represented, especially for those companies that have chosen the variable annuity as their equity product. The variable annuity for many of us was simply and narrowly an additional pension or 403(b) product and was designed for agents working in that specialty market. These agents were already selling to older buyers with high incomes, with investment sophistication, that is, with the whole profile of the classic "equities buyer." Thus the variable annuity could be grafted onto the product line with quite minimal dislocation in training, philosophy, and sales motivation. It is fairly hard for the most hard-line traditional agent to object to a 45-year-old doctor, making upward of $50,000 a year, placing part of his H.R.-10 contribution in a variable annuity accumulation. And to the young agents the variable annuity is simply academic—it does not fit any of the needs of *his* customers.

A second important point is that the income from variable annuity sales has been seen as a supplement to the agent's income and in no way as a substitute. No one expects agents suddenly to move out of life insurance production into full-time variable annuity sales activity.

Hence it seems that the variable life insurance move will have great marketing implications to many companies and will not be simply an extension of previous equity-product decisions. All kinds of traditional life insurance buyers will be prospects for variable life insurance, and the income from variable life insurance may well be the basic income of many agents. This is what makes the SEC decision on variable life insurance so extraordinarily critical. If variable life insurance gets the Procrustean treatment of the federal securities laws, there will clearly be some very serious marketing and financial problems. Agents' income will be distorted by the leveling tendency of the sales-load limitation, our accounting problems will be aggravated by being forced to a net level type of reserving, and sales proposals will be limited to home office–prepared, and NASD-approved, sales literature.

But, even if we put the massive regulatory problems aside, variable life insurance will represent a real departure in product philosophy from that which our agents have been offering. First off, it will focus a great deal of the buyer's intention on the investment aspects of his life insurance purchase decision. Second, it will complicate considerably the product and proposal presentation, and, of course, this is complicated still further by the specter of the SEC looking over every statement made. And, third, in terms of the agent's compensation, some are very fearful of the fact that new commissions are not paid on the additional insurance added as the variable life face amount increases. This would damage some very strong and good career patterns for some agents.

MR. GILL: I would like to ask Mr. Sternhell if he thinks that he could live with different commission scales for fixed-dollar vs. variable life insurance policies if the SEC does not grant an exemption for variable life insurance.

CHAIRMAN CHARLES M. STERNHELL: I am certainly hopeful that we would be permitted to pay the same commission scales for fixed-dollar and variable life insurance policies. It would create a severe conflict of interest for the agent if commission scales were not the same for fixed-dollar and variable life insurance policies.

MR. GILL: I am not sure that I agree; I believe that we could live with a first-year commission of 30-35 per cent if the fixed-dollar commission is, say, 55 per cent. The agent need not be in an indifferent position if the incentive favors our traditional product.

MR. MAGNUSSON: Our experience has been that an equity type of contract will require first-year commissions of approximately two-thirds of the commissions on a regular insurance contract. Since the emphasis of the contract is on the investment features, lower loadings than those for a regular insurance policy will be required for it to be attractive.

MR. CHARLES B. BAUGHMAN: I believe that almost all ordinary life products in the future will be variable in nature. Variable life insurance will offer a floor on the death benefit but no ceiling, and the public will buy this kind of product almost to the exclusion of fixed-dollar life insurance. Because variable life insurance will replace fixed-dollar life insurance as the "bread and butter" of the agent, the commission scales for variable life insurance should be comparable to the present commission scales for fixed-dollar life insurance.

MR. DANIEL J. McCARTHY: How will the SEC or NASD requirement that you may not sell a security to a person if it is not suitable for him affect the sale of variable life insurance?

CHAIRMAN STERNHELL: I think that it is unfortunate that variable annuities were developed and introduced before the actuarial theory underlying variable life insurance was developed. I believe that, if variable life had been developed first, it would have made it easier to establish the fact that both variable life insurance and variable annuities are essentially insurance products and not securities. Under both fixed-dollar and variable life insurance, the insured pays fixed premiums to the company. The company then invests funds underlying its life insurance reserves in its general portfolio, primarily fixed-dollar securities, for fixed-dollar insurance, and in a separate account, primarily equity securities, for variable life insurance. We should make the features of variable life insurance as similar as possible to those of fixed-dollar life insurance in our approach to the SEC and the public. When variable life insurance is looked at as an insurance product, it eliminates many of the problems that arise if we attempt to look at variable life insurance as a security, for example, in attempting to take account of the actual dates of premium payment in determining the variable death benefits.

MR. DAVID L. LIVELY: If variable life insurance products are widely accepted by the insurance-buying public, will not the diversion to separate accounts of a large portion of a life insurance company's premium income—including premium income from fixed-dollar policies converted to variable form—have a serious effect on that company's cash flow?

MR. GILL: Yes, I think so. It will have a serious effect.

MR. BIGGS: I am more optimistic. We exposed all our group pension funds when we introduced separate accounts without serious cash-flow problems resulting. There will be some shifting around, but I do not think it will be serious. Besides, a great deal of our money has already gone to mutual funds via the policy loan provision.

MR. GUSTAFSON: There are whole blocks of business that would not convert from a fixed dollar to a variable basis—the debit line, the policies in the $5,000–$15,000 range sold to the blue-collar worker. I think that the vast majority of this business will not make the shift. And the sophisticated buyer has already shifted his fixed-dollar funds to equities.

MR. CHARLES F. PESTAL: Will a company have to offer a variable settlement option in order to give the beneficiary a chance to make some recovery if the market is down at the time of death?

CHAIRMAN STERNHELL: Yes, I think a variable settlement option should certainly be offered as an attractive feature of variable life insurance policies.

MR. GUSTAFSON: During the fall of 1969, two subcommittees of our trade association structure began active and intensive consideration of a broad variable contracts model bill and model regulation. This activity was directly oriented toward dealing with the legislative and regulatory aspects of variable life insurance and possible related products at the state level. The model bill and regulation were presented to and accepted by the NAIC at its December, 1969, meeting. The speed with which this extremely complex subject was dealt with, as well as the fact that the NAIC accepted these model documents so readily, is a very high accolade to the quality of the work of these two subcommittees and especially to the leadership of their respective chairmen. While it is relatively unusual to give public accolades to the people who carry forward these important industry matters, I will remind you that the two men to whom I have referred are Harry Walker, who chaired the Actuarial Subcommittee, and Dave Sommers, who chaired the Legislative Subcommittee. Coincidentally, both of these men are associated with the Equitable Life Assurance Society. In the few months that have transpired since the NAIC meeting in December, a number of questions have come up as the variable life insurance product development has continued that were not even substantively considered during the drafting. The excellence of the broad consid-

MR. MAGNUSSON: Substantial capital and surplus requirements should be imposed on any company that is issuing a contract with a substantial guarantee on cash-surrender values or maturity values, since those guarantees create very large possible surplus strains, concentrated in periods of stock market decline. The longer the period over which such guarantees are effective, the greater the exposure to abnormal losses.

MR. GILL: If a company guarantees the cash value, there should probably be capital and surplus requirements more stringent than those for fixed-dollar products. If a company does not guarantee values, however, an argument can be made for lower capital and surplus requirements, because the investment risk is shifted to the insured. Perhaps there should be a requirement that a company must satisfy the commissioner of insurance that it has competent investment advice.

MR. BILLY N. JOYNER: Where can I find information about the level of gross premiums for variable life insurance policies?

MR. GUSTAFSON: I think that participating premiums would be the same for variable as for fixed-dollar policies. But I can see nonparticipating premiums being 10–20 per cent higher for variable policies than for fixed-dollar policies.

MR. BAUGHMAN: I think that the level of premiums for variable life insurance will be the same for both participating and nonparticipating policies. Perhaps nonparticipating premiums would have to be higher for a policy with a minimum death benefit guarantee, but the cost for this guarantee is so small that it could be buried in the loading.

MR. BIGGS: I believe that a benefit which will be very appealing will be a rider to a disability income policy with disability income directly indexed to changes in the consumer price index *after* the date of disability.

MR. GARY E. OLSON: With respect to Mr. Biggs's mention of group and individual long-term variable disability benefits, I should like to point out that there is a method for providing for inflation-attuned disability benefits which I believe is superior to a method utilizing a separate account. It will be easiest to use group LTD for illustration, but the same principles apply to individual disability income.

The disability benefit can be a guaranteed benefit increasing linearly each year by, say, 5 per cent (for a specified term or to 65) and calculated

by the usual classical actuarial formulas for increasing benefits. Note that this is a guaranteed increasing disability annuity and that it is not dependent upon equities or a separate account. In order to regulate the incidence and level of the actual benefit paid out in times of inflation, deflation, or a volatile CPI, one could easily provide in the contract that certain amounts otherwise payable might be "held back" according to reasonable criteria related to, say, specified drops in the CPI; these amounts would be set aside in an "escrow account" (to be accumulated at a high guaranteed rate of interest) and would be available at recovery, death, termination of benefit period, or at earlier dates if the CPI reversed itself and increased sufficiently or if the annuitant had a demonstrable need for any balance in his "account."

The aggregate dollar amount of benefits eventually paid, of course, would be the sum of an arithmetic progression; it is apparent that this aggregate amount would be doled out in a possibly irregular pattern, however, and, despite the fact that a progression of CPI's is a kind of "random walk," one can rather elegantly create (using maximums and minimums and other devices) contract language which will delineate a stipulated methodology for determining whether an increase for the year should be granted or not for the then-disabled claimant. One can compose this language so as to make the actual series of resultant payments reflect and/or keep pace with the movement of the CPI (or a dampened modification) just so long as the CPI does not cumulatively outpace the selected slope of the increases. It is suggested that the contract and calculation of premiums provide for the first increase only after two or three years of disability; this greatly reduces the added cost, which is on the order of only 15 per cent in a typical group LTD contract. Thus we can provide a flexible and veritably foolproof program of security for the long-disabled claimant, who is otherwise helpless at fighting the war on inflation.

Hartford Regional Meeting

CHAIRMAN HARRY WALKER: The subject of today's discussion is variable life insurance, which we will define as those policies where the benefits and/or the premiums depend on the investment results of a separate account in which the assets supporting the reserves are held. It is important to distinguish between variable life insurance as so defined and life insurance policies with benefits tied to some index, for example, the consumer price index. The index policy is not a variable life insurance policy, because the benefits do not depend upon the investment results of a separate account but rather on the chosen index.

I am conscious of the fact that the nature of the response to the questions in this afternoon's program may depend on the extent to which variable life insurance issued in the United States will be governed by the federal securities laws, that is, the Securities Act of 1933, the Securities Exchange Act of 1934, and the Investment Company Act of 1940. I suggest that we do not have to go into any extensive discussion of the difficulties that might arise from the need to comply with the federal securities laws, since the appropriate industry committees have been working on the preparation of a submission to the SEC that would urge exemption from the federal securities laws for a defined class of variable life insurance where the death benefit feature is predominant instead of the investment aspect of the contract.

MR. WALTER N. MILLER: I am going to start by presenting a summary of some of the alternative variable life insurance designs which were proposed in discussions of our paper, "Analysis of Basic Actuarial Theory for Fixed Premium Variable Benefit Life Insurance." These are not all the alternative designs which were proposed, but they have been selected in order to give an idea of the range of possible variable life insurance designs.

Let me also mention that some of the discussants derived "families" of variable life insurance designs; for example, Design F in this summary is one of a number of designs enumerated by Mr. Donald Cody in his discussion, and several of the other designs summarized here are also part of a family derived by Mr. Stewart Nagler in his discussion.

Except where noted, this summary relates to designs for a variable life insurance policy on the whole life plan, using traditional actuarial assumptions.

DESIGN A (PROPOSED BY STEVEN L. COOPER)

1. Each year fixed-dollar one-year term insurance of $(1 - {}_tV_x)$ is purchased in the general account.

2. The separate account is used as a deposit fund. When the net level premium, P_x, exceeds the one-year term premium, the excess is deposited

DESIGN B (PROPOSED BY JOHN K. BOOTH)

1. Each year the entire net level premium is placed in the separate account.

2. The total death benefit is equal to $(1 - {}_tV_x)$ plus the "policyholder's share of the separate account."

3. It can be shown that this design is the same as Design A except that the one-year term insurance is variable insurance for an initial amount of $(1 - {}_tV_x)$ at the beginning of the policy year.

With respect to Designs A and B, it can also be shown that (1) they are equivalent in the true continuous functions case, that is, where claims are paid at the moment of death and premiums are paid continuously throughout the policy year; and (2) the separate account can become insolvent if its investment performance is unfavorable.

DESIGN C (PROPOSED BY CHARLES BAUGHMAN)

1. This is a design for an n-payment life policy under which, at the beginning of each year, $1/n$ of the original face amount is converted into fully paid-up variable life insurance. The "unconverted" portion of the initial face amount, which is equal to $(n + t)/n$ at the end of year t, is funded through the general account.

2. Thus the total death benefit during the premium-paying period is equal to $(n - t)/n$ plus the current death benefit under the outstanding pieces of fully paid-up variable life insurance.

3. Therefore, at the beginning of each year t, A_{x+t-1}/n is placed in the separate account. If the net level premium, ${}_nP_x$, exceeds this amount, the excess goes into the general account; if ${}_nP_x$ is less than this amount, the deficiency is withdrawn from the general account.

4. Under this design, the separate account can never become insolvent; but there can be negative reserves (generally small) in the general account.

DESIGN D (PROPOSED BY GUY FAIRBANKS, JR.)

1. This design is based on the concept of viewing the death benefit under a fixed-dollar policy at the end of year t as composed of (1) a "fully funded" portion equal to the amount of paid-up insurance provided by the reserve, which is ${}_tV_x/A_{x+t} = 1 - (P_x/P_{x+t})$, and (2) an "unfunded" portion equal to P_x/P_{x+t}.

2. At the beginning of each year t, one-year term insurance of P_x/P_{x+t} is purchased in the general account, and a piece of fully paid-up variable life insurance with an initial face amount of $P_x/P_{x+t-1} - P_x/P_{x+t}$ is pur-

chased in the separate account. This initial amount matches the current year's reduction in the amount of fixed-dollar one-year term insurance.

3. Thus the total death benefit is equal to P_x/P_{x+t} plus the current death benefit under the outstanding pieces of fully paid-up variable life insurance.

4. The net level premium, P_x, is always exactly sufficient to purchase the fixed-dollar one-year term insurance and the new piece of fully paid-up variable life insurance. Therefore, the separate account cannot become insolvent, and there can never be negative reserves in the general account.

DESIGN E (PROPOSED BY HARRY WALKER)

1. Each year the entire net level premium is placed in the separate account.

2. At the end of each year a paid-up addition (the amount of which may be positive or negative) is purchased with the excess (positive or negative) of that year's separate account net investment performance over the assumed interest rate.

3. Thus the total death benefit is equal to the initial face amount plus the current death benefit (which may be negative) under the outstanding paid-up additions.

4. It can be shown that this design is the same as Design D, except that that the one-year term insurance is on a variable basis.

With respect to Designs D and E, it can also be shown that they are equivalent in the true continuous functions case.

DESIGN F (PROPOSED BY DONALD D. CODY)

1. Each year the entire net premium is placed in the separate account.

2. The death benefit is determined on a basis not related to investment performance; two possibilities are that it is level or that it follows a price index.

3. Actual investment performance of the separate account would determine the period of coverage. Thus, if performance was poor, the policy would expire when the reserve reached 0, or, if performance was good, the policy could mature when the reserve reached the amount of death benefit.

COMPARISON OF ALTERNATIVE DESIGNS WITH NEW YORK LIFE DESIGN

Let me now make several comments concerning the main characteristics of these alternative designs and how they compare with the New York Life design.

Companies must carefully consider the adoption of such designs as A and B in the summary, where there is a possibility of the separate account's becoming insolvent if its investment performance is unfavorable.

Designs such as C, D, and E in the summary, where the variable element of the policy is on a fully paid-up basis, have the property that, during any specified period, the total face amount behaves like a variable annuity unit value; that is, it will remain level if separate account investment performance during this period equals the assumed interest rate, go up if actual performance exceeds the AIR, and go down if actual performance is less than the AIR. The New York Life design does not have this property and may therefore involve some problems in explaining to policyholders how the death benefit varies from year to year. Quite apart from the question of year-to-year changes in death benefits, however, there is the very important question of what the amount of death benefit is at a particular point of time.

In this connection, face amounts under the New York Life design are, in the earlier policy years, a good deal more responsive to current investment performance than face amounts under such alternative designs as those summarized above. Thus, if actual investment performance is favorable, face amounts under the New York Life design are higher for a number of years and then lower than those under the alternative designs. We at New York Life consider this to be an advantage for our design.

The New York Life design has the property that terminal reserves per $1,000 of actual face amount are the same as those per $1,000 of fixed face amount under a corresponding fixed-dollar policy. As pointed out in our paper, this enables quite a simple basis for illustrating cash and nonforfeiture values, and their method of calculation, in the policy. The alternative designs summarized do not have this property. Therefore, they will involve the use of more than one factor in calculating and illustrating cash values, and it will be very difficult (if not impossible) to illustrate extended term periods.

Turning now to the question of guarantees, I consider a guarantee that the actual death benefit will never be less than the initial face amount to be feasible at a relatively small cost and a key factor in making any variable life insurance design attractive and salable. I believe that a guarantee that the cash value will *never* be less than that for a corresponding fixed-dollar policy would be almost prohibitively expensive and therefore not practical. It appears, however, quite feasible to have such a guarantee applicable to one particular point of time. In this connection, any variable endowment with a minimum face amount guarantee must probably also

include a maturity value guarantee in order to avoid possible discontinuity between the death benefit immediately prior to maturity and the maturity value.

Related to the question of guarantees is the "investment stabilization fund" concept proposed by Mr. Frank DiPaolo in his discussion of our paper. Under this concept any excess investment earnings beyond a specified level are held in a fund, invested in the general account, which can be used to offset or dampen decreases in benefits which would otherwise occur if investment performance became unfavorable. You can see that this concept involves a trade-off, holding back some increases in benefits in the early years in order to provide a cushion in later years.

MR. GEORGE R. WALLACE: In Canada variable insurance contracts have been offered for a period of at least three years. Quite a large number of companies are now offering some form of variable insurance, but there is little pattern developing in the type of contract being offered. For our purposes I have tried to divide the contracts into four general types, but it should be understood that there are probably no two contracts exactly alike.

The first type of contract might be referred to as a straight equity accumulation. This is a deferred annuity funded by a separate fund which is generally invested primarily in equities. The insurer takes some margin in the general fund to provide for expenses and commissions, and the balance of premiums paid goes into an equity fund where units are allotted to each contract and the value of the contract at any time is ascertainable from the number of units and the current value of the units accumulated. Annuity guarantees are provided for at maturity either in the form of fixed-dollar annuities or of variable annuities.

The second form of contract provides for a combination of an equity accumulation together with term insurance, which may be either of a decreasing or of a level nature. Such contracts provide for a definite split in the premium being paid, with a specific portion going to pay for the insurance and the costs of administration while the balance goes to the equity fund. Normally the only guarantees provided under such contracts are, of course, the guarantees of life insurance provided by the term insurance portion of the contract and the annuity options at maturity. These contracts, generally speaking, provide in one vehicle the premise put forth by many mutual funds, that is, "Buy term insurance and invest the balance in equities."

The third type of contract offered may generally be referred to as an equity endowment. These contracts generally provide for a guarantee of

the maturity value in terms of a return of premiums made under the contract. Some of these contracts also provide for a minimum death benefit if there has been depreciation in the asset values of the separate fund. Other variations provide for minimum death benefits which assume an increase in asset values of the separate fund of a somewhat limited nature.

The fourth type of contract is more like the type of contract described in Harry Walker's discussion of the Sternhell-Fraser-Miller paper, which uses the rate of return on a separate fund as a measure of performance of the fund. For a rate of return greater than an assumed rate, paid-up additions are allotted which may be funded in either the general funds or in the separate fund. Such contracts vary in that they may have a fixed proportion of the contract going into a separate fund with the balance going into a fixed-dollar contract, funded, of course, in the general fund, or there may be substantial freedom of action on the part of the policyholder in choosing what proportion of his premium he wishes to have funded in the separate equity fund and what proportion in the general funds on a fixed-dollar basis. These contracts may have basic mortality guarantees so that, in the event the rate of growth of the separate fund is below the assumed rate of growth, such deficits in reserves would be made up from basic mortality guarantees provided in the general funds.

It would be nice to say that there has been a regular development from one type of contract to another during the period that such contracts have been offered. This is, however, not the case, although it probably would be true to say that recently the great preponderance of new contracts has been of the equity-accumulation type. This may, in large part, be due to the delay in legislation being passed in Canada to enable life insurance companies to own mutual funds subsidiaries.

The advantages and disadvantages of the various types of contract may be considered from two possible aspects—the first being simplicity and salability and the second being the ability of the contract to produce a desirable result in any given expected situation. The contracts which combine term insurance and equity accumulations are quite simple for the policyholder to comprehend and, depending on their particular design, may produce a most desirable result in a given situation. They do not, however, contain guarantees in the event of depreciation of assets in the separate fund, either in the event of maturity or of death. This lack, however, does not seem to have been a hindrance to their sale. The equity endowment type of contract provides for minimum guarantees at maturity and in some cases a minimum guarantee of death benefits. It must be kept in mind, however, that such guarantees are a cost factor to be considered either in themselves or by regulation. The contracts themselves

are relatively simple and as such have received a high degree of public acceptance. Both these types of contracts tend to react directly to increases or decreases in value of the assets of the separate fund, and it can be expected that the values of the contracts in the form either of death benefits or of maturity benefits could rise or fall sharply as the stock market rises or falls. The fourth type of contract is somewhat more complicated to explain but tends to even out fluctuations in the market. Mortality guarantees provided in some such contracts would tend further to avoid sharply reduced death benefits in the event of depreciation of asset values. The choice of the expected rate of growth of the separate fund could have a substantial effect on whether the total death benefit of the contract would be expected to increase sharply or more gradually or, in some cases, in fact, decrease.

All those contracts which have been designed in Canada have death benefits which are less responsive to fund performance than the New York Life type of contract. In fact, in Canada the main thrust in the development of variable insurance has been to provide an investment vehicle rather than a contract stressing death benefits. It has generally been felt that the public would be more responsive to this approach, and it is my personal opinion that the New York Life style of contract is one that will require a substantial degree of public education before it achieves the desired level of acceptance.

MR. DANIEL F. CASE: It seems to me that there are perhaps two broad categories of variable life insurance plans which are being issued or proposed. One category comprises both the Dutch plan and the New York Life plan. Under these plans the death benefit responds energetically to investment performance in the early years. The second broad category consists of plans under which the death benefit is much less responsive to investment results during the early years.

The plans in these two principal categories would seem to serve two basically different purposes. The second type (that is, the initially less responsive type) should, theoretically, be enough to satisfy the prospect who fears that the dollars which he puts into a primarily fixed-dollar investment medium will not return as much as will dollars invested in equities. The Dutch and New York Life plans, on the other hand, seem designed for the prospect who is concerned lest the death benefit as a whole not reflect stock market trends. The appeal of these plans may rest on the assumption that stock market rises tend to keep up with increases in the cost of living or the standard of living.

I feel that the more responsive the death benefit is to investment performance, the better the plan fits the description of "variable life insurance." By this criterion, of course, the Dutch plan is the be-all and end-all. It is the only plan under which the death benefit really keeps pace with investment performance. I cannot help wondering why it does not get more attention over here than it seems to be getting. No doubt, the fluctuating premiums are held to be a serious drawback. Also, perhaps the death benefit is thought to be too susceptible to wide swings. On this point, I should think that the fluctuations in the death benefit might be highly desirable. If variable life insurance makes sense, then it should make sense for the beneficiary to place the proceeds immediately under a variable settlement option. If she does that at a time when the stock market is at a crest, she will need death proceeds which are also at a crest. On the other hand, if she does it when the stock market is in a valley, she will need much smaller death proceeds to provide roughly the same long-range income. It seems clear that, for the long run, death proceeds which vary fully with investment results offer the assurance of a smooth transition to a variable settlement option and continuation of the long-term trend of the investment results without dislocation. Of course, if the beneficiary chooses to gamble and does not convert to a settlement option immediately, but waits for the market to go down (she hopes), the fully variable policy has not served its purpose as intended. Also, regulatory considerations may preclude the selling of variable life insurance on the basis, proclaimed at the time of sale of the policy, that the death proceeds can be placed in a variable settlement option.

The Dutch plan seems easy to handle and to understand. As for the fluctuating premiums (fluctuating upward, let us suppose), perhaps the policyowner could be given the option on each premium due date of paying a premium anywhere between the initial (first-year) premium and the fully varied premium. Any deficiency would be automatically charged against the policy as a variable lien. An advantage of this would be that the policyowner should be able to understand very clearly the effect which such liens would have on the death benefit. Of course, if the policyowner's earnings eventually followed the upward (let us suppose) trend of the separate account earnings, he should have every opportunity to wipe out all or most of the lien.

Guaranteed minimum death benefits sound appealing and should work out well in practice. As for any kind of cash-value guarantee, however, even one which was subject to careful limitations, I wonder whether it might simply induce a lot of surrenders if investment results were poor.

As an alternative, maybe it would be possible to place a guaranteed floor under the death benefits payable under reduced paid-up or extended insurance options but not under the cash values themselves. I recognize that this would go against the principle that cash-surrender values should have values equal to those of the other nonforfeiture benefits.

CHAIRMAN WALKER: Dan, I think there may be problems in permitting automatic premium loans against the Dutch-type variable policy as you suggest. If offered as a loan per se, it would have to have a stated rate of interest and, thus, be a fixed-dollar investment. With any significant increases in premium, these loans might become a large part of the investment portfolio and dilute the equity investments in the account with fixed-dollar investments.

MR. JEROME S. GOLDEN: The guaranteed minimum death benefit under a variable life insurance policy need not be a level amount but could increase by a specified amount or percentage each year. To keep the premium within reasonable bounds, the guaranteed minimum would have to be limited to $1\frac{1}{2}$ or 2 times the initial death benefit. This would not be a pure cost-of-living policy but would provide some guaranteed protection against possible future increases in the cost of living. Under this policy, if the investment return in the separate account exceeded the assumed interest rate, the actual death benefit would exceed the guaranteed minimum.

MR. SIDNEY H. COOPER: I was interested to hear Mr. Case's references to the Dutch plan, since I have wondered myself why this type of plan has not received much more attention in the discussions. Apart from references to the fact that this design fulfills all the criteria which have been suggested for a satisfactory plan, the discussions appear to have concentrated entirely upon fixed-premium plans and there has been little, if any, consideration of the problem of dealing with a variable premium in order to secure the other benefits of a plan of this type.

In listening to the discussions, I have been most impressed by the difficulties and complications of the other types of plans which have been put forward. Under the Dutch plan all benefits on death, surrender, or maturity are clearly established at the outset in terms of units, and the policyholder only requires to know the current unit value in order to establish the current dollar amount of his benefits at any time. I feel that much more consideration should be given to the possibility of designing a plan

which can be presented in such a simple manner and can carry with it almost all the special features normally associated with a life insurance contract.

In referring to Mr. Case's remarks, Mr. Walker expressed some concern about setting up a fixed-dollar lien against a variable reserve, but I do not think that it is necessary or desirable to do this. The equivalent of a policy loan or an automatic premium loan can be set up in terms of units and can be expressed as a reduction in the benefits provided by the policy. The amount required to repay the "loan" and reinstate the full policy benefits would, of course, depend upon the unit value at the time of repayment and might be more or less than the amount of the original advance. By using this procedure, it is possible to include a nonforfeiture provision almost identical with the automatic premium loan provision, and it is also possible to provide the policyholder with the option of paying a lower premium if he does not wish to follow the full increase in the premium called for by an increase in the unit value.

The other objection that has been mentioned in connection with the Dutch plan is the fact that the death benefit is likely to vary more rapidly than it does under the other types of plans which have been considered. To meet this objection, it is possible to provide a minimum death benefit rider which will guarantee that the death benefit will not be less than the amount determined in accordance with the unit value at the date of commencement of the policy. The premium for this rider could be charged on a YRT basis as and when the necessity for the additional death benefit arises.

Another possibility under the Dutch plan, which leads to a great simplification for agents, is an arrangement whereby the unit value can be adjusted to allow for the withdrawal of an interest allowance from the fund accumulation. By this means it is possible to use the same rates as the company uses for its ordinary nonparticipating plans. In fact, it is possible to offer to the field force the whole range of the ratebook on an equity-linked basis (including premiums, supplementary benefits, cash values, and paid-up values), with the single proviso that "units" must be substituted for "dollars" when applying any figures for premiums or benefits to an equity-linked contract.

Other advantages which have not been mentioned are the fact that a simple predetermined basis can be established for switching back to a dollar contract and that premium loadings, which are linked with the premium to the unit value, provide the company with some protection against future inflation of expenses.

There appear to be numerous objections to other plans which are all highly complicated to explain to the policyholder and to agents. All these objections can be overcome by the Dutch plan if we can accept the idea of a variable premium.

MR. DONALD S. GRUBBS, JR.: Many of the plans of variable life insurance would provide benefits very similar to a combination of mutual funds and decreasing term insurance. Then why should not the insurance industry sell mutual funds and decreasing term insurance instead of variable life insurance?

The principal reason seems to be that the pattern of compensation of mutual funds and decreasing term insurance is less than that of variable life insurance, and this is not attractive to the agency force. Because variable life insurance must have higher agent's compensation, it must have higher loading and must be less favorable to the buyer than the combination of mutual funds and decreasing term insurance.

The real problem is that the agency system is an inefficient means of distributing the product and needs to be replaced with a better distribu-

would rise as the dollar depreciated in value. As a matter of fact, any examination of the pattern of loss of value of the dollar and prices of common stock and dividend return on common stock leads to the conclusion that, when the dollar is rapidly losing its value, common stocks and divi-

least. The basic reason for this is that the largest benefit balloons at the end of the period, when not only have the effects of selection worn off but the normal increase in mortality rate has taken place because of increased age of the insured. This means that the largest benefit is provided at the point in time wherein the benefit is most expensive, and, since the initial benefit provided is relatively small compared to the actual cost, it makes an unattractive package.

MR. GOLDEN: Before I list some of the advantages of issuing variable life insurance through a subsidiary company, I think it would be worthwhile to describe briefly the type of company it might be. The advantages of a subsidiary would be most fully realized if the sales of the subsidiary were limited to variable life insurance policies and to other benefits incidental to the sale of variable life insurance. The subsidiary would have to set up a separate account to comply with the model law and the proposed New York law; for example, the subsidiary could not be the investment account itself. The subsidiary would probably perform its own administrative functions, although marketing and investment operations might be performed under contract with the parent organization.

The use of a subsidiary appears to be the only way a domestic mutual New York insurance company could offer nonparticipating variable life insurance. The relative advantages of participating and nonparticipating variable life insurance will be discussed in the next question. The subsidiary might have important federal income tax advantages whether or not variable life insurance were issued on a participating or a nonparticipating basis. With a separate administration it might be easier to control expenses and to train people in new procedures required under variable life insurance. There may be some psychological and possibly marketing advantages in having the subsidiary issue this dramatic new policy instead of the parent company, which has long promoted fixed benefit life insurance.

These are some of the advantages of using a subsidiary to issue variable life insurance.

MR. CASE: I should like to discuss some of the regulatory aspects of this question.

If the SEC decides that most variable life insurance is not subject to its jurisdiction, or is subject to less extensive jurisdiction than are variable annuities, there would then seem to be less reason to set up a subsidiary for variable life insurance than there is in the case of variable annuities—at least from the standpoint of limiting the SEC's involvement in a sub-

sidiary rather than having it perhaps include many facets of the parent company's operations.

As far as state regulation is concerned, there is the problem of getting the subsidiary licensed if the company does not already have a subsidiary which can issue variable annuities. The Model Variable Contract Law, which was approved by the NAIC last December, contains a provision stating that, in considering matters such as the history and financial condition of the subsidiary which is seeking permission to issue variable contracts, the commissioner may deem the company to be qualified if its parent or affiliated company is qualified. If he does not exercise this privilege, there may be a delay.

Then there are the requirements and restrictions imposed by various state holding company laws. The NAIC model holding company bill authorizes domestic insurers to invest up to 5 per cent of assets or 50 per cent of surplus, whichever is less, in subsidiaries of kinds permitted by the particular state. This is in addition to any investment authorization already in the state law, and the commissioner is given some further discretion. The New York law authorizes 5 per cent of assets or 50 per cent of surplus, whichever is less, period. New Jersey's law is more liberal.

The model holding company bill imposes various requirements on authorized insurers which are part of a holding company system, unless the commissioner exempts them. The requirements include the furnishing of detailed information on structure, financial condition, and agreements and interrelationships among all companies in the system. The information must be kept current. The furnishing of such information is clearly less important when the holding company system comprises only a parent insurer and subsidiaries, all of which are subject to insurance department regulation anyway, than for some other holding company systems. New York's holding company law explicitly exempts parent insurer systems from the information requirements. Some other states are less sympathetic. Efforts are being made to achieve a regulatory pattern under which insurers do not need to furnish various kinds of detailed information to various states.

MR. WALLACE: As far as Canada is concerned, this is rather a theoretical question, since it has been impossible for a life insurance company to own a life insurance subsidiary in Canada. Regulatory problems aside, it seems that the question resolves itself into one of public image. Does a life insurance company wish to disguise the fact that it is departing from the traditional approach of providing guarantees to this new approach of sacrificing many of the guarantees in favor of performance? If a company be-

lieves in the social usefulness of variable insurance, then it would seem desirable to market such products directly rather than to use a subsidiary route.

We must also consider what proportion of our business will be assumed by such products in the future, and there are many of us who believe that such a proportion will become quite substantial. It is our opinion that the public is currently much more interested in performance and as a result is willing to sacrifice many of the guarantees which we now have to offer.

MR. MILLER: As previously indicated, use of a subsidiary would tend to blur the identification between the parent company and its variable life product. While some people may think this is an advantage, I do not. It seems to me that, if a company decides that variable life insurance is an attractive, sound product, it should be willing to offer this product itself rather than through a subsidiary. Having the parent company's name and prestige directly linked with the new product should certainly be a plus factor from a sales standpoint.

Getting the subsidiary licensed in all jurisdictions where operations are contemplated can be fairly time-consuming and expensive, even though seasoning requirements apply in fewer jurisdictions than they formerly did.

Using a subsidiary would cause a number of allocation problems and would complicate the administration of such items as agent's compensation, employee's and agent's benefit plans, and the like. In connection with this, while the subsidiary would almost certainly make use of people on the parent company staff, I am afraid that there would be unavoidable duplications of effort, leading to higher expenses than would be the case if there were no subsidiary.

Because of considerations like these, I would not be in favor of adopting the subsidiary approach. If, however, variable life insurance becomes subject to regulation under the 1934 Act, it might be desirable to use a subsidiary as the broker-dealer.

MR. WALLACE: The first obvious statement in connection with the question of the advantages and disadvantages of nonparticipating vs. participating variable life insurance is that one of the major sources of profit in dividend development is immediately taken out of the picture. Dividends for variable contracts would have to be based on gains from mortality and loading. For certain types of contracts, such as the combination of term and an equity accumulation, it is very obvious that the nonparticipating basis is the most practical approach. Similarly, the

equity endowment type of contract lends itself to the nonparticipating approach much more than to the participating one. In fact, in Canada, virtually all contracts of this nature have been issued on a nonparticipating basis.

I might say at this juncture that it is, of course, possible for almost all Canadian companies to issue either participating or nonparticipating contracts. There is complete freedom as to which route you wish to take.

The fourth type of contract that I mentioned can be adapted to either a participating or nonparticipating approach. Two of the three contracts of this nature being marketed in Canada today are on a participating basis. It seems to me, however, that giving the policyholder the opportunity of participating in the gains in the separate fund should provide, from his point of view, sufficient attractiveness to satisfy his desires. On the other hand, additional margins can be built into the premium rates for participating contracts to protect the companies against adverse mortality and increasing expenses, as they will no longer have the shield of excess interest earnings to protect them.

Of course, in the event of such difficulties the effect on policyholders of a declining dividend scale would not be particularly desirable either. Companies that may issue only participating insurance, having decided that they do not wish to set up a subsidiary, would have little choice in the matter. It seems unlikely that nonparticipating companies would wish to issue variable contracts on a participating basis in any event.

MR. MILLER: Speaking generally, we can perhaps say that those who believe that, over the long run in most situations the policyowner is better off with par than nonpar insurance, will probably favor issuing variable life insurance on a par basis. Those who hold the opposite view will probably favor issuing variable life insurance on a nonpar basis.

I believe that it is possible to offer variable life insurance on a sound basis via either the par or the nonpar route. It is clearly desirable from a sales standpoint to be able to offer variable life insurance policies at premium rates which are the same as (or as close as possible to) those for corresponding fixed-dollar policies. This may be harder to justify on a nonpar than on a par basis, because present nonpar premium rates reflect interest margins which will not be available under a variable life insurance policy. Another thing to be considered is that year-to-year fluctuations in company financial experience are liable to be greater in the case of variable life insurance than in the case of fixed-dollar insurance. Because of considerations like these, the difference between par and nonpar pre-

mium levels may be smaller under variable life insurance than under fixed-dollar insurance.

Dividends under a variable life insurance policy will also reflect the fact that no interest element is present. Our testing indicates, however, that they can still be illustrated and paid at a level which is reasonable and which the company should be able to maintain. In this connection, it is important to note that the mortality element of the dividend will increase if investment experience is favorable.

Offering variable life insurance on a participating basis will enable companies, if they wish, to fund the cost of the minimum death benefit guarantee through dividend adjustments rather than through an additional premium element, as would be necessary under the nonpar approach. I consider this to be an advantage for the participating approach.

If variable life insurance is sold on a nonpar basis, a combined fixed/variable contract would then have to be nonpar, unless you want to wrestle with the problems involved in developing such a combined contract if one element is par and the other is nonpar.

CHAIRMAN WALKER: In any discussion of variable life insurance it becomes obvious that, no matter how hard you try to simplify the description of the benefits under a variable life policy, it still remains very complicated. I think that participation would make a variable life contract even more difficult to describe. On the other hand, the administration of this product would be simplified if it were issued on a nonparticipating basis, since the various dividend options, which would be required under variable life insurance, would be eliminated.

The elimination of the interest element of dividends would reduce aggregate dividends by nearly 50 per cent in my company. The interest element has been effective in enabling companies to liberalize dividend scales even while expenses were increasing. It may be difficult to maintain a dividend scale in the face of rising expenses and to avoid a scale having dividends that decrease with duration under variable life insurance with dividends reflecting only the expense and mortality elements.

Furthermore, the significance of dividend illustrations is likely to become obscure if limited to mortality and expense elements. There may be limitations on the illustration of benefits based on net investment returns, and the result of any illustrations including dividends may be an incomplete picture. With these limitations on illustrations, the advantages of a lower nonpar gross premium may be significant.

While on behalf of participating insurance it may be argued that premium margins are needed because of the absence of the interest margin

under variable life insurance, the other side of the coin is that the assumption of the investment risk by the policyholder rather than the insurance company eliminates one of the principal elements of uncertainty in setting nonparticipating gross premiums for a long-term contract—that is, the fear that interest rates in the future might decline below the level assumed in the premium.

Finally, the issuance of nonparticipating variable life insurance may create additional incentives to hold down expenses.

MR. MILLER: I would like to mention a few items in connection with Harry's remarks. First, let me note that the relationship of the interest element to the total dividend on a fixed-dollar policy is very much a function of the interest rate assumed for reserves. For example, the ratio of interest element to total dividend will be a good deal smaller, other things being equal, on a 1958 CSO 3 per cent reserve basis than it would be on a 1958 CSO $2\frac{1}{2}$ per cent basis.

As for having several dividend options, I believe that one of the keys to successful product design in the 1970's is going to be flexibility. Because of this, I consider having several dividend options an advantage, even in the light of whatever administrative problems they may pose.

I think that Harry is quite right in pointing out that dividend illustrations could be a problem if you cannot illustrate the effect of varying levels of investment performance. If this comes to pass, however, we will have a much more serious problem in connection with illustration of death benefit and cash-value levels under the basic policy, and this problem will exist with respect to any policy design, par or nonpar. I am hopeful that we will be able to work out a satisfactory resolution of this fundamental question, and, if we do, problems in connection with dividend illustrations should also be resolved.

MR. LEWIS P. ROTH: For a mutual company, it is not a question of participating or nonparticipating. The question is really, To whom do you wish to distribute the excess earnings—those who contributed to the profit or those who put up the venture capital? A mutual company may sell nonpar through a subsidiary, but then the profits, however small, eventually find their way into the dividend scale of the parent mutual company.

MR. MELVIN L. GOLD: With "excess interest earnings" passed on to policyholders, the earnings potential of the stock companies, particularly the small ones, would be drastically reduced. How would they survive?

MR. COLIN E. JACK: The members might be interested in a system used by some companies in the United Kingdom under which only capital appreciation is reflected directly in benefits to policyholders; investment income flows to the company and is used at its discretion to provide dividends to policyholders. This approach has not been particularly successful, possibly because one reason for the popularity of equity-linked contracts might be that the public feels that companies do not distribute surplus quickly enough.

MR. VANDERHOOF: Comments were made earlier about the question of the source of company profits. The legitimate profits in the insurance industry seem to me to be in the area of the spreading of risks and the taking of risks. Stockholders can very properly take a profit if interest rates are higher than those assumed in the premium calculation, because the stockholders of the company have taken the risk of interest rates' being lower than those assumed in the premium calculation. The bonanza that they have gotten was unexpected, as would have been the bonanza the policyholders got if interest rates fell to 2 per cent. I think that when policies were issued ten years ago you would be as willing to have bet that interest rates would go to 2 per cent as that they would go to 8 and 9 per cent.

The relationship of this to equity insurance also seems reasonably simple. If an equity insurance plan contained guarantees, the equity policyholder must then pay for some reasonable value of these guarantees. These payments must be made to the person who provides the guarantee, either the stockholder or perhaps the participating policyholder's fund. In this sense the guarantee is provided by the regular account to the separate account; the separate account must then pay a reasonable fee to the regular account, because the regular account is taking the risk existing by reason of the guarantees of the policy.

MR. WALLACE: I have been asked to lead off the discussion of marketing and sales proposal problems presented by variable life insurance because in Canada we, of course, have had these problems for some period of time and they are quite real to us. I could perhaps clarify our position by stating that virtually all contracts in Canada, with the exception of certain of the straight accumulation type of contracts with only annuity option guarantees, are sold by use of commission scales very similar to those used for ordinary fixed-dollar contracts, although they may be slightly lower over all.

Your first problem is to provide some rules for your agents to sell these products, so that their enthusiasm does not lead them into making statements which are quite unreasonable and giving indications of guarantees which are in fact not there. It has, however, been felt in Canada that some illustration of the performance of the plans in various circumstances is desirable so that different types of plans can be compared under various conditions. In fact, given a certain set of reasonable circumstances, one can ascertain what type of plan will be most suitable for him. Most plans have been in operation such a short time that there is little in the way of past performance which can serve as a guide to the future.

However, an indication of past fund performance is desirable. Purely for illustrative purposes companies have been showing various rates of growth of the separate funds to show what would happen to the plans under such rates of growth. This has generally been done by showing perhaps three rates of growth, such as 5, $7\frac{1}{2}$, and 10 per cent, or some such similar rates, and showing the benefits at various durations under the contract should these constant rates of growth occur.

I might say at this point that guidelines for variable contracts, including a guideline covering illustrations, have been prepared by the superintendents of insurance of the provinces of Canada, and in addition the Canadian Life Insurance Association has prepared comments on these guidelines to assist companies in preparing reasonable illustrations. It is suggested that 10 per cent is the maximum rate of growth that should be shown and, when a high rate such as 10 per cent is used, another lower rate should also be used, such as 5 per cent or less.

If only a single rate is used, $7\frac{1}{2}$ per cent is the maximum. This rather naturally leads to a consideration of the requirements generally in marketing such contracts in Canada under the guidelines that I mentioned. The guidelines provide for the inclusion of certain specific provisions in the contracts themselves and also set out the information which must be included in an information folder which must be given to every policyholder when he applies for a variable contract. One of the important points contained in these guidelines is that any illustrations have to be clearly indicated as such and that they must be accompanied by a statement that amounts invested are at the risk of the policyholder and may increase or decrease in value according to the fluctuations in the market value of the fund. Similarly, if a stock exchange index is used for illustrative purposes, it must be for a sufficiently long period to cover both ups and downs in the market. In addition, if performance of a fund is shown over a period, it has to be clearly indicated that it should not be described as any indication of future performance. These rules are all very reason-

able and assist in insuring that reasonable care is given to avoid any misleading information's being given to the public.

One further item which is important in the marketing of such products is the actual proposal forms used by the agents during face-to-face interviews with their prospects. Even though the information folders may be carefully prepared in precise language, it is possible for proposal forms to contain information which is prepared by the agent in less than properly couched language. Therefore the guidelines indicate that proposal forms, if used by a company, must first be filed with the various superintendents of insurance for approval.

One other important factor is the serious one of replacements. The problem that all of us face is the problem of replacing fixed-dollar insurance by some of the new variable contracts. The problem of replacements in all forms of life insurance has been with us for many years, but it becomes particularly acute with a product which seems to many at the present time a much more glamorous one.

Up to this point little has been accomplished in the area of providing for changing existing fixed-dollar contracts to variable contracts, partly because revising the terms of contracts would probably involve refiling on individual cases. The chief attack on this problem has been by means of reducing agent compensation when replacements occur and advertising that fact well in advance. Many companies have found it desirable to indicate that no commission will be paid when premiums for variable contracts come from internally generated funds. This is a problem which is most severe when a new type of contract of this nature is being introduced, but during a period of inflation many fixed-dollar contracts are certainly susceptible to this type of replacement and it is a problem that will continue to be a serious one.

Where replacement of another company's policy occurs, it is the general practice in Canada to advise the original company in order to give them an opportunity to conserve their business; this system is equally applicable to variable insurance.

MR. CASE: In the United States there are, of course, regulatory aspects to the replacement problem. The Model Replacement Regulation, which was adopted by the NAIC last December, embraces variable contracts, including variable life insurance. It requires, among other things, that the agent who proposes a replacement give to the policyowner a comparison between the existing policy and the proposed policy. The comparison must be on the form prescribed by the regulation, or, if an annuity is involved, on an adaptation of that form, which is to be devised by the

agent's company. Attention is now being given within the industry to the question of what type of comparison, if any, may be suitable in replacement situations involving a variable product. Under the model regulation, such situations are to be handled by means of the comparison form (or adaptation) specified in the model. Incidentally, the model regulation, by its provisions, does not apply when "the application for the new life insurance and a contractual policy change or conversion privilege is being exercised." Whenever the model regulation is proposed for promulgation in a particular state, the trade associations will try to have this exemption broadened to include changes allowed administratively as well. Obviously, that is the type of exemption that would interest companies offering to exchange a fixed-dollar policy for a variable policy.

A few states have already adopted replacement regulations closely following the NAIC model. Many states, of course, have replacement regulations which were promulgated many years ago. Many of them require a comparison of one kind or another, and all of them, presumably, embrace variable life insurance simply by not excluding it from the term "life insurance."

With regard to sales generally, the NAIC Model Variable Contract Regulation contains the requirement that the following information be furnished to an applicant for a contract of variable life insurance prior to execution of the application: summary description of the company, of the contract, and of the investment policy for the separate account; a list of investments in the separate account as of a recent date; and summary financial statements of the insurance company and the separate account. (The above is condensed from the actual language of the model regulation.) The model regulation also contains licensing requirements for agents wishing to sell variable life insurance, which are similar to present requirements for variable annuity agents.

If variable life insurance becomes as popular as many believe it will, virtually all agents may desire to sell it. This would mean a massive training effort. If the SEC exempts most variable life insurance from its jurisdiction, this training effort may become more manageable than it otherwise would be. Perhaps it will even be decided that variable life insurance should become a part of every new agent's training and that agents' licensing examinations should cover variable life insurance as part of life insurance generally.

MR. MILLER: Let me first cover replacement problems which will occur at or near the introduction date of a variable life insurance program. These subdivide into two main areas, depending on whether the existing

fixed-dollar policy is in your own company or another company. If the existing policy is in your own company, you can consider two possible approaches. The first approach would be to continue existing procedures, which presumably involve a stringent commission-adjustment procedure. As George Wallace noted, this should do a good job of minimizing replacements suggested by your agents.

There will, however, be cases where the policyowner, not the agent, comes up with the idea of replacement because he thinks that the variable contract is better for him. In these cases especially you must consider whether your regular procedures are adequate. One possibility is development of a program under which the cash value of the existing policy is transferred to a new variable policy. In effect, the existing policy would be converted to a variable policy as of original date.

There are obviously problems connected with such an exchange program, particularly if you are offering just one plan of variable insurance at the outset. There would be problems if premium rates for fixed and variable policies were not the same, and particularly if your fixed-dollar policies are par and your variable policies are nonpar. You must also reckon with the fact that such an exchange involves an actual transfer of funds out of the general account into the separate account. This will have a direct effect on the cash-flow situation of the general account, and this kind of situation must be evaluated carefully in times like these, when general-account investments can be made at very attractive rates. Thus this is by no means an easy decision. I would favor development, however, of an exchange program along the lines outlined above.

The other area is where the existing policy is in another company which does not have a variable life insurance program. Thus neither the exchange program nor the commission adjustment approach is applicable. Here, I think it is vitally important that the industry take a strong stand against such replacement unless it can be demonstrated very clearly that the policyowner is fully aware of what is involved.

There will also be problems in the future involving replacement of one variable life insurance policy by another. These will be similar in nature and treatment to the replacement problems we have today, with one additional dimension—that of unsatisfactory investment performance on the existing policy as a possible motive for replacement. I believe, however, that this type of problem will be relatively minimal, because I expect that variable life insurance will primarily be viewed and marketed as long-term insurance coverage rather than as a short-term investment proposi-

tion. Furthermore, the minimum face-amount guarantee will be an important factor in minimizing problems created by unfavorable investment performance.

MR. CASE: Most states must pass laws if variable life insurance is to become accessible to companies and to the general public throughout the United States. There are two principal ways in which current state insurance codes must be amended.

The first type of amendment would authorize domestic companies to set up separate accounts for funding variable life insurance and not just for variable annuities or other retirement or profit-sharing plans, as is generally the case now. True, some of the current laws authorize separate accounts in connection with "variable contracts," or "contracts on a variable basis," or contracts with benefits "payable in variable amounts," or the like, and it may be difficult to determine whether variable life insurance is included in that concept.

The second type of amendment is needed wherever the code sets forth required provisions for life insurance policies which are inappropriate for variable life insurance, in which case the insurance department would have to decide whether it could approve, under present law, a variable life policy form which included analogous provisions appropriate to variable life.

The Model Variable Contract Law and Regulation, which were adopted by the NAIC last December with the purpose of opening the way for variable life insurance, set forth appropriate requirements for grace, reinstatement, and nonforfeiture provisions in variable life insurance policies. These requirements are phrased in broad enough terms to cover almost any reasonable provisions which can be foreseen at this time. The models contain no requirement for a loan provision, and I might note that, if a variable contract grants the privilege of a partial withdrawal with subsequent buy-back at the then unit value, this is not really a loan provision and should not be thought of as such. I might also mention at this point that our moderator, Harry Walker, made very substantial contributions to the development of the model law and the model regulation, both personally and in his capacity as chairman of a trade association committee.

Even an experienced lawyer might find it difficult to determine which current state laws may accommodate variable life insurance. A lot would depend on the opinions of the insurance departments. I have heard one estimate that twenty-four state insurance codes permit variable life. The

situation will become much clearer, however, if all states amend their laws to conform more closely to the new model law. Tennessee has already done this, and Arizona, Maryland, Massachusetts, and New York have bills which will also clearly authorize variable life insurance if they are passed. New York's bill has passed both houses. In each of these four states the bill is being sponsored by the insurance department.

We can be optimistic about the passage of enabling legislation in the various states, since the concept does have the backing of the NAIC. Of course, states are not obligated to conform to the model, and some of them may adopt one or more provisions that pose technical problems akin to those that have arisen on the state level in connection with variable annuities. Much less certain is the picture regarding the possible assertion of jurisdiction by the SEC. Negotiations are now under way with SEC staff to determine whether variable life insurance can be considered not subject to SEC regulation. It seems to the industry that a variable whole life policy, say, is an insurance policy and not a security. The dominant feature of such a policy is the protection which it furnishes in the event of death. We hope that the SEC will hold the same view. On the other hand, the SEC may view a very short-term endowment policy, say, as a security. We shall see.

There is one current development which may facilitate the issue of variable life insurance in a limited market. The so-called Mutual Fund Bill, which was passed by the United States Senate last year and is now in a committee of the House, will, if passed in its present form, exempt insurance company separate accounts for qualified corporate pension or profit-sharing plans from the Securities Act of 1933, the Securities Exchange Act of 1934, and the Investment Company Act of 1940, except for the antifraud provisions in the securities acts. It will also exempt insurance company separate accounts for retirement plans for self-employed persons (i.e., H.R. 10 plans) from the 1940 Act. The Mutual Fund Bill will, then, if passed in its present form, give helpful exemptions to plans which are often funded by means of individual policies.

There is, of course, the problem of state securities laws. We will hope that variable life insurance will come under the jurisdiction of state insurance departments rather than of state securities departments.

MR. WALLACE: When variable contracts were first introduced into Canada, there was no legislation accompanying them and companies preparing variable contracts at that time were operating in a state of vacuum as far as supervision was concerned. As contracts came on the market, some of the provincial superintendents of insurance became

interested in them, and various types of draft guidelines were prepared. At the meeting of the Association of Superintendents of Insurance of the provinces of Canada in September of 1968, interim rules applicable to variable life insurance contracts were agreed upon and were shortly thereafter published. These are the guidelines which I have previously referred to, and these interim rules provided for regulation of the following areas:

1. A copy of the actual contract itself must be filed with the various superintendents.
2. A copy of the information folder to be used must also be filed and kept up to date.
3. Various provisions in the contract were spelled out which had to be included in the contract.
4. Any applicant for a variable contract must be supplied with the information folder.
5. The information folder had to contain various statements as a prerequisite.
6. Information on illustrations in prescribed form only could be included in information folders.
7. At least once a year the insurer has to forward a statement to the policyholder by which he can ascertain his interest in the contract.

In addition to the interim rules set up by the provincial superintendents of insurance, the federal superintendent of insurance has issued a memorandum to life insurance companies setting out detailed rules covering guarantees which could be included in such contracts. In effect, these rules provide that only a maturity benefit may be guaranteed and that no withdrawal benefits before maturity could be guaranteed. In addition a minimum premium was set out covering the cost of providing such guarantees. Provision for a reserve in respect to such guarantees must also be held.

Companies continued to operate under these regulations with certain minor amendments until October 29, 1969, when the Manitoba Securities

be drawn between those contracts which were to be considered securities and those which were to be considered insurance contracts. Up to this point we have no information as to where this line may be drawn, but it is to be hoped that such information will be forthcoming shortly and that the industry will be regulated by only one supervisory authority.

The Canadian Life Insurance Association has recently produced new guidelines for its member companies. These guidelines are designed so that the information folders for variable contracts will conform in the essential respects to the form of prospectuses filed with securities commissions. These guidelines have been compiled in order that the life insurance industry may avoid strict adherence to security regulations as certain of these regulations are not appropriate to variable insurance contracts. All variable insurance contracts in Canada should comply with these guidelines by the end of 1970.

1. For our purposes, what do we mean by inflation and tight money? Should inflationary and tight-money conditions be provided for in actuarial projections?
2. How do inflation and tight money, whether continuing or not, affect plan design, actuarial assumptions, asset valuations, contingency funds, and methods of funding? Have any significant changes occurred in these items?
3. If realistic interest assumptions can be used, what attitude and approaches should be taken toward establishment and maintenance of contingency funds?
4. How will the Internal Revenue Service and employers react to realistic interest and salary-increase assumptions? Can the difficulties be foreseen and avoided?
5. What special consideration in using realistic assumptions and contingency funds should be recognized in bargaining situations by actuaries retained either by labor or by management?
6. Do inflation and tight money require different actuarial assumptions and methods of funding for public than they do for private sector pension plans?

Houston Regional Meeting

MR. RICHARD A. WINKENWERDER: The relationship between inflation and investments affects the pension actuary vitally with regard to the interest assumption that he utilizes to calculate the costs and liabilities of a pension plan and the method that he uses to place a value on the pension assets. There has been a change in the considerations given to both the interest assumption and the valuation of assets because of the impact that inflation has on yield.

Before we can draw any meaningful conclusions about the relationship between inflation and yield, it is necessary to determine whether we are considering the inflationary effects upon interest and dividends, its effects upon realized gains and losses, or its effects upon unrealized gains and losses, since inflation may affect each one of these forms of yield in a different manner.

With regard to the yield on fixed income investments, we would ordinarily find that during an inflationary period the interest return would be up, realized and unrealized gains would be negative, and the yield to maturity would be up. The total return, including interest and both realized and unrealized gains, would generally be up on new issues and down on seasoned issues. The effect on equity investments is somewhat different. Dividends during the early period of inflation would generally rise and would then tend to level off as the inflationary period matured. Realized

and unrealized gains would generally be up during the early period of inflation and then would also level off, by and large following the same trend as dividends. The total return, including dividends and both realized and unrealized gains, would generally be up during a period of inflation.

The relationship between inflation and the interest assumption utilized in calculating costs and liabilities is an interesting one. There have been, and are, pressures applied upon the actuary to increase his interest assumption both in single-employer unilateral plans and in negotiated plans. With regard to single-employer unilateral plans, there has been an increasing tendency as a result of inflation for the employers to be concerned about the interest assumption. This concern is brought about by tight money and reduced profits. This is a definite change in attitude from recent years, when profits were substantial and many employers were interested in making the largest contribution possible to their pension plans. They now realize that an increase in the interest assumption is going to reduce the current outlay and thereby reduce the squeeze on corporation funds available to operate the business.

We find that employers are becoming ever more concerned about the significance of the investment aspect of the plan. This concern has been expressed in many ways. The use of a professional investment counselor has been gaining momentum, and we find that employers are willing to spend the additional money to get sound investment advice, realizing that a slight increase in the return on their pension investments will more than offset the cost of the investment service. This concern is further reflected in the fact that much more is being done today relative to the analysis of the investment performance of a pension fund and the comparative performance of a particular fund with what might have been achieved if the investments had been handled through some other investment medium. Certainly this has been made obvious to all of us by the increasing investment of a pension fund in common stocks during recent years and the firm hope of increasing the investment performance of the fund.

We may once again find ourselves in the position where the guarantees offered by insurance companies, primarily under deposit administration contracts, may gain more favor with employers. The client should be made aware of the fact, however, that, should a contract be terminated at any time, there will be a revaluation of the fixed income investments at market, and thus the unrealized losses on fixed income investments cannot be deferred forever.

It would appear that the completion of actuarial valuations at two or more different interest assumptions would be invaluable to employers.

This would be of significance not only in showing the client the effect that different assumptions have upon the estimated cost but might also serve another dual purpose. The client, for instance, might be interested in funding his pension obligations on the basis of the lower cost produced by a higher interest assumption while recognizing that the cost produced by utilizing a lower interest assumption may truly be more indicative of the actual long-term cost of his retirement plan.

The actuary should be conservative in the selection of his various assumptions to assure his client that the cost that he is currently representing as the cost of his retirement program will be reasonably representative of the cost to be incurred in the future. We may find a situation (or perhaps one has already occurred) where the actuary has been told to use an interest assumption higher than one he feels justified in using. This could result in the resignation of the actuary because he feels that his rights in the selection of the assumptions are being infringed upon; or he might be willing to prepare an actuarial valuation report certifying to the correctness of the mathematics but declining to certify as to the appropriateness of the assumptions.

The problems of the interest assumption as it pertains to negotiated pension plans are somewhat different. The concern here is that the trustees recognize that a higher interest assumption rather than reducing costs will increase the benefits to the members of the plan, a consideration which is of primary concern to the labor trustees. This may result in pressures from the trustees and/or the pension consultant, if other than the actuary, to increase the interest assumption.

The viewpoints of labor and management trustees are frequently different in this regard. If the interest assumption selected should turn out to be too high, a resulting possibility is that the benefits might have to be reduced, which certainly is an unsatisfactory alternative to labor trustees. The other alternative is that the contributions might have to be increased to fund the deficit, which certainly would be an unsatisfactory alternative to the management trustees. The trust should not be put in the position of selecting either one of these alternatives, and therefore it might be that the actuary should be slightly more conservative in the selection of his interest assumption on a negotiated plan than he would be on a single-employer unilateral plan.

The comments made above relative to the significance of the investment aspect of the plan and the possible performance of multiple actuarial valuations at different interest assumptions apply equally well to negotiated plans. One final factor is that we find considerable competition among negotiated plans in the same craft or industry to produce the high-

est normal retirement benefit. The interest assumption is frequently the scapegoat to satisfy this competitive desire.

There are certain legal requirements relative to the selection of the interest assumption, and most of these are set forth in Revenue Ruling 63-11. To summarize briefly, this ruling states that an interest assumption of anything less than 3½ per cent must be justified on the basis of the actual experience of the plan. It further states that the interest assumption should be in line with the actual average yield over a recent period of years and should take into account the reasonableness of other assumptions. Further, it should be consistent with reasonable expectation as to future experience. Finally, it states that an unreasonably low rate (which is not defined) would in essence establish a contingency fund for which the Internal Revenue Service will not allow deductions.

An additional revenue ruling, 67-365, states that, if the commissioner of internal revenue finds that the assumptions are deemed to be improper, they must be revised. Presumably, the inappropriateness of the assumptions would be determined by the pattern of gains that had been experienced by a fund over a period of years. If a substantial and recurring pattern of gains had been experienced, it would appear that the commissioner would be in a position to require that certain assumptions be altered. A question that comes to mind is whether the commissioner would have the authority under this revenue ruling to require the change of a single assumption, for example, the interest assumption, without allowing the actuary to revise the other assumptions accordingly. There seems to be some feeling that the commissioner would have this authority. However, on the basis of the requirements of Revenue Ruling 63-11 that the interest assumption should take into account the reasonableness of all other assumptions, it would appear that the client should take a firm stand in the event that he is requested to alter only his interest assumption.

The requirements of these two revenue rulings plus discussions and proposed legislation being discussed in Congress make it clear that it is not a totally unreasonable expectation to assume that the required interest assumption may be dictated even more strongly in the future than it is now by legislative action.

There would appear to be justifications to increase the interest assumption because of the current rate of return, because it reduces cost, and because it provides more money to the employer for other means. Perhaps actuaries have been slow in moving to higher interest assumptions, and more consideration should be given to this.

On the assumption that the selection of a higher interest assumption is considered, how is this higher interest assumption selected? Certainly the

prior investment experience of the fund both in averages and in trends should be explored thoroughly along with the prospects for future investment return. The expected future performance should be discussed with the investment adviser or institution responsible for making the investments, and, of course, a review of any guarantees offered with respect to investment performance should be taken into consideration. As was true in the past, a satisfactory contingency margin between the assumed interest rate and anticipated yield should be maintained. The actuary must make his decision whether to base the interest assumption on income only, on income plus realized gains, or on income plus realized and unrealized gains. It would appear to be reasonable to use an asset valuation method which is reasonably related to the basis of the choice for interest assumption.

One way in which to use a higher interest assumption and still maintain a sufficient element of conservatism might be the use of what we might call a step-rate assumption. One obvious way of utilizing such a step-rate assumption would be to use one assumption until the participant attains normal retirement age and a lower assumption thereafter. Another alternative might be to use step-rate assumptions based on periods of time; for example, to build into the calculations one assumption for the next ten years and a lower assumption for the subsequent period. Such an approach might produce an effect upon costs that would be the same as the effect that would have resulted had the actuary used a single interest assumption which he felt appropriate; but the use of such a step-rate assumption might pacify the plan sponsors.

Finally, when he is altering the interest assumption, it would behoove the actuary to examine the other assumptions utilized in the determination of plan costs and to make any adjustments in these other assumptions deemed appropriate as a result of changing the interest assumption.

The final phase pertains to the valuation of assets. A fair amount has been published relative to this subject, but a brief review, or summary, of the most common asset valuation methods might be appropriate at this time. These are the following:

1. Using full market value. The disadvantage of this approach is that the value is subject to the market value of all securities on a single date during a year.

2. A percentage of market value. This approach would tend to smooth the fluctuations between asset values from year to year but is still subject to the same fault as item 1.

3. A moving average of a percentage of market value. This valuation method produces even more smoothing than item 2. It obviously does complicate the valuation procedure, however, and consideration should be given to this.

4. Recognizing appreciation annually based on the expected long-term growth rate applied to the cost of common stocks. This approach would definitely smooth the changes in the value of the assets from year to year. The disadvantage, of course, is that it may tend to produce larger or smaller unrealized gains than might be realistically appropriate.

5. Cost plus a percentage of market. This can be based on a single year or a moving average.

6. Increasing book value by retained earnings (excess of per share earnings over dividends paid). This may be a totally realistic approach toward valuing equities but certainly complicates the valuation method and may well not be warranted.

7. Increasing stocks by 6–8 per cent annually, including dividends and appreciation. Here again, this may be a realistic approach recognizing that historically equities have on the average increased by around 8-9 per cent a year, including dividends and appreciation.

It would appear that the selection of the asset valuation method is dependent upon several factors. One of these is the size of the plan measured in terms of total liabilities. A sophisticated asset valuation method would not appear to be justified on a relatively small plan. A method should also be dependent upon the ratio of assets to total liabilities or, we might say, the funding ratio. Again, if a plan is relatively new, whether it be large or small, a complicated method would not be justified because the effect that any one of the methods would have on the resulting cost of the plan would be relatively slight.

The method should be simple to understand by both the actuary and the client and should be easy to apply. The method proposed to be used should be discussed with the client and should be at least somewhat dependent upon his desires. The actuary should take into consideration the funding method being used, that is, whether he is using a frozen initial liability method or a method for immediate recognition of gains.

The selection of the assumption should be related to the requirements of Revenue Ruling 63-11, which states that any valuation method is satisfactory if it is followed consistently and results in "reasonable" cost. It should further be noted that this ruling states that cost or amortized value for bonds not in default should be used. Finally, it should be recognized that *APB Opinion 8* states that unrealized gains and losses should be recognized on a systematic basis, either by altering the interest assumption or by applying the unrealized gains and losses to the cost. As stated above, if unrealized gains and losses are recognized in selecting the interest assumption, the asset valuation method should also take these gains into account.

The actuary should be cognizant of the relationship between inflation and investments, and he will in the future, if he has not already, be placed in the position of considering new assumptions and approaches in the completion of his actuarial valuations.

CHAIRMAN BLACKBURN H. HAZLEHURST: One of the speakers this morning described interest yields as being composed of two components—a true, underlying interest rate which is constant over time and an inflationary component which is superimposed on the true rate. It may be, if this is true, that the rationale behind our use of low (i.e., 4–4½ per cent) rates of interest is that we are trying to identify and use the true, underlying rate of interest. Nevertheless, even if this is what we are trying to do, inflation is apparently with us for the foreseeable future, and we must come to terms with it and allow for it, when appropriate, in our valuations.

The use of high interest rates which recognize inflation can cause problems in two areas. The first is in a bargaining situation. It may be inappropriate to recognize inflation in the interest rate when it cannot be recognized in the benefits. The second is that the Internal Revenue Service may not be willing to permit the use of high interest rates.

Our experience has been that the accountants have also had various questions about the appropriateness of the assumptions and have insisted on having answers relating to the realism of each individual assumption.

MR. RUSSELL W. THURAU: Webster defines inflation as the "disproportionate and relatively sharp and sudden increase in the quantity of money or credit, or both, relative to goods available for purchase. Inflation always produces a rise in the price level."

To the average wage earner, it is the latter part of the definition–that inflation always produces a rise in the price level—that forces the realization of inflation. And, whether or not higher wages lead to inflation, a rise in price levels will lead to further demands for wage increases. Let us look at the two—prices and wages—and their components briefly.

Although the consumer price index is often referred to as the cost-of-living index, it is hardly that, since it measures *only one* component of living costs—price. It does not account for such items as changes in living levels brought about by the increased ability to produce goods and services, the increased costs consumers face when they upgrade their level of living, or changes in purchasing power which occur when federal, state, or local income taxes are modified.

However, the CPI is an attempt to measure price changes for a typical

"market basket" of goods and services, and, as such, is affected by inflation. Let us briefly review the history of the CPI and its recent warning signals.

As you know, the CPI is determined monthly. Unless otherwise stated, the figures referenced to will be the average of the monthly CPI's for a calendar year.

The average annual increase in the CPI since 1900 has been 2.1 per cent. The increases for 1968 and 1969 were 4.2 and 5.4 per cent, respec-

been running at a lower rate, in our mobile economy competition will likely force higher adjustments in the future.

With respect to any trend as to the assumptions in the areas of yield and salary scales, in our own case, as a general observation, higher rates are more common in both areas today than they were several years ago. The reasons are relatively obvious:

1. Revenue Ruling 63–11 and the general automatic "magic" attached to a minimum of 3½ per cent interest assumption.
2. Employer attitudes, influenced by recent experience, with respect to prospective yields today in comparison with five or ten years ago; generally, employers no longer think in terms of the same yields today.
3. An unwillingness by the actuary to become more realistic with respect to the assumed yield without also becoming more realistic with respect to the assumed salary increases.
4. The impact of inflation, influenced more heavily by the experience of the last two years as observed through the number of plans under which the recent salary increases were running substantially in excess of the assumed rate, as was also the yield.

With respect to including inflation in the salary scale assumption, the atmosphere in some sections is that the IRS position is that salary scales should not include an inflationary element. Perhaps certain reviewers have taken this position in the past or are currently doing so. I am unaware, however, of any place in the regulations that specifically states that an inflationary element cannot be included in the salary scale assumption. What is stated is that "in no case will a salary scale reflecting changes in the compensation of a group of employees during a period of abnormal increases be acceptable." In accordance with that, IRS should accept an inflationary element but not necessarily based on only 1968 or 1969 experience, for example.

If, however, an inflationary element is included, then IRS may request the other assumptions, particularly with respect to assumed yield, also to be less conservative or proof that recurring gains will not result. Revenue Ruling 63-11 states that "it is not essential that each individual assumption used be reasonable. It is merely required that the combination of all assumptions produces reasonable results." If it can be demonstrated that including an inflationary element in the salary scale has not or will not result in recurring gains, IRS should not object to its inclusion.

As to IRS difficulties encountered where we have utilized what we consider to be inflationary salary scales, such as 10 per cent per year graded down to 4 per cent per year with a 7 per cent over-all average, as is the case in every other area of qualification, the difficulties encountered vary from

reviewer to reviewer. I will mention that we have had such scales approved with no questions whatsoever.

The position of one reviewer is at least worth mentioning. His position was that, as a reviewer, he would basically approve any set of assumptions for purposes of plan qualification as they affected only the deductions taken which were the responsibility of the audit division of IRS and, if the assumptions produced excessive deductions in operation, then the audit division could disallow them.

The traditional method of allowing for inflationary salary increases in excess of those assumed has been by the way of the assumed yield; rather than use an "experience" salary projection, a lower projection has been combined with conservative or nonaggressive yield assumptions. During an inflationary period with spiraling salaries, actual disabilities generally run less than assumed; voluntary terminations, although generally in excess of the assumed rate, cannot necessarily be relied on to provide an adequate offset to salary increases higher than assumed, and, hence, a lower-than-expected yield has traditionally been assumed to allow for this contingency.

The necessity for realism, individually, as to assumed yield and salary increases depends upon the type of benefit formula to be used, in addition to various other environmental types of factors related to a specific group.

Whereas, under a flat percentage benefit plan, it may be possible to offset inflationary salary increases above the assumed rate with the realization of an investment yield of 1 or 2 per cent in excess of the assumed rate, generally, under a unit benefit integrated formula, it is necessary to secure higher excess interest yields to offset the same inflationary salary increases not allowed for; and, in the case of excess-only benefits, it may be virtually impossible for any reasonable amount of excess yield to offset inflationary salary increases of merely 2–3 per cent that are not in the basic salary scale assumption.

For example, in one case that we tested, we found that to allow for 2 per cent inflationary salary increases not in the basic assumptions would require only about a 1 per cent excess yield on a flat percentage benefit formula; a 2 per cent excess yield on an integrated unit benefit type of formula; and, for an excess-only type of benefit, over 12 per cent in *excess* yield over the yield assumed to offset the same 2 per cent salary increases not covered in the basic assumptions.

It therefore becomes increasingly important that the greater the degree of integration is, the more realistic the individual assumptions as to salary increases and yield need to be. Obviously, the over-all relationship of salaries of any particular group to the break point is an important considera-

tion in any specific case. Also, if the basic philosophy is to move the break point to coincide with social security changes, there may even be justification for putting a salary scale on the break point.

The case of a benefit formula using social security benefits as an offset presents some interesting possibilities. If the salary scale is realistic, including inflationary salary increases, would it not also be realistic to project social security benefits on an inflationary basis rather than on the present table of benefits? According to the interview with Mr. Myers that appeared in the March issue of *Nation's Business*, there will be political pressures to provide a social security cash benefit level sufficient to replace virtually the *entire* take-home earnings of 90–95 per cent of the workers. If this is true, perhaps, worrying about inflationary salaries and fund yields becomes somewhat academic, and we ought to start concerning ourselves with the potential impact of a social security take-over or how to pay for it.

Now that you have completed your salary scale study for the ABC Company over the last five years, as an actuary you check its reasonableness as to the results produced—and here comes the fun. The starting wage for a male employee, aged 25, is $600 per month, $7,200 annually, and he really has a bright future; because, based on the salary scale developed on the ABC Company experience, he is going to be making $97,500 a year when he retires—that is not the easiest thing to explain to the president of the ABC Company, who is making $50,000 a year. Oh, well, so the results are hard to believe for the males; the female salary scale rates are lower, so let us see what happens there. The starting salaries at the ABC Company for females, aged 20, average $400 per month. Based on your salary study experience, those new female clerks just hired are going to be making $30,000 a year when they reach age 65. Perhaps it is a disbelief in the results translated into such terms as these that has led to a tendency to shave the salary scales from recent experience or to the reluctance of IRS to give its full blessing to such scales.

With respect to any particular employer, a sometimes overlooked but critical question in pension planning arises as to whether or not corporate profits will increase at a rate as fast as salaries. Let us take an extreme example. Your crystal-ball gazing was excellent—your assumptions have been realized precisely for the past thirty years; you have been funding on the entry age normal method, and the normal cost, as a percentage of payroll, has remained precisely at 6.00000 per cent in every single year. Unfortunately, however, you just put the ABC Company into the position of either terminating its retirement plan or going into bankruptcy. How?

You remember that, when you set up the plan, the ABC profit was

$100,000 a year prior to the pension plan contribution and taxes and you set up a plan costing $25,000 that first year. Since then the payroll has grown at a rate of 7 per cent per year, while profits have increased at a 2 per cent rate, so that last year the contribution "profits" were $180,000 and the necessary pension plan contribution was $190,000. Somehow, you just cannot get the board of the ABC Company to appreciate the precision of your actuarial assumptions.

In conclusion, of equal importance or concern with inflationary salary increases is the basic question of whether corporate profits will keep pace with them.

CHAIRMAN HAZLEHURST: It has been suggested that projected salaries using realistic scales may look unbelievable. I think, however, that you must look at what is happening. If your best estimates of future experience produce seemingly outrageous results, then so be it.

For example, the pay of pilots has typically been increasing at 10–12 per cent per year. This, however, includes a large productivity increase. With the advent of the big passenger jets, particularly the jumbo jets, pilots are improving their productivity dramatically in terms of number of passengers carried per pilot. To ignore this can lead to far-reaching errors in plan design and funding.

Of course, while productivity increases vary by industry, it seems likely that competition for workers in most industries will result in pay increases commensurate with other industries.

MR. V. CLARK BEAIRD: In order to give consideration to the interrelationship of actuarial assumptions and to the actuary's role in forecasting pension plan costs, I would like to use an analogy that gives a pension plan physical characteristics and dimension. A pension fund can be considered analogous to a receptacle or a reservoir which holds water. In this analogy, the reservoir would have the following characteristics:

1. It has a maximum capacity. The capacity varies but could be considered to be, for example, 300 per cent of payroll at any given point in time, depending on the plan provisions and the characteristics of the employee group. In other words, the gross actuarial deficiency under the entry age normal cost method could never exceed 300 per cent of payroll.
2. The water in the reservoir is analogous to dollars in the pension fund.
3. Two pipes pour water into the reservoir. Pipe A represents contributions by the plan sponsor and/or the employees. The capacity of input of Pipe A could vary from 0–50 per cent of payroll, but a more typical input from Pipe A might be around 10 per cent of payroll per year; that is, the thirty-year funding cost is 10 per cent of payroll. Pipe B represents yield on the assets of the

fund, and the amount of flow from Pipe B is related to the amount of water already in the reservoir.

4. There are holes of various sizes in the bottom of the reservoir that appear and disappear and through which water flows out of the reservoir. These holes represent payments to participants and beneficiaries.

The function of the actuary with which we are concerned is to make recommendations concerning the regulation of the flow from Pipe A in our analogy. In deciding how far the valve on Pipe A should be opened, several factors should be considered:

a) Objective of plan sponsor. Does the plan sponsor desire that no water be kept in the reservoir; that is, that the flow from Pipe A be just sufficient to provide enough water for a constant flow from the holes in the bottom of the reservoir at any given time? In this circumstance, the plan sponsor would have a "pay as you go" plan. The plan sponsor could also desire to fill the reservoir to capacity so that future contributions after the reservoir is filled would be at the lowest possible level. Or is the objective of the plan sponsor in between these two extremes?

b) The required flow from Pipe A depends upon the actual number and the expected number of holes in the bottom of the reservoir—representing payments to participants and to beneficiaries. In this connection it is necessary to make assumptions with regard to rates of mortality, rates of disability, rates of termination of service, and rates of increase in salaries.

c) Yield on assets, or the expected flow from Pipe B in our analogy, substantially affects the requirements from Pipe A.

d) The level of the water in the reservoir relative to the total capacity of the reservoir at any given time should have a considerable effect on the choice of the other assumptions which are considered in the regulation of the flow from Pipe A. For example, with a low level in the reservoir relatively little flow is produced by Pipe B, and a variation in the actual and the expected flow from Pipe B makes relatively little difference on a year-to-year basis as long as the level of water in the reservoir is relatively low. On the other hand, with a high level of water in the reservoir, Pipe B does produce a relatively greater flow, and, therefore, any variation in the actual and expected flow from Pipe B can make a considerable difference in the requirements from Pipe A. When the reservoir is filled to near capacity, very careful consideration should be given to actuarial assumptions and objectives of the plan sponsor.

e) The ultimate capacity of the reservoir, expressed as a percentage of payroll, should be given consideration by the actuary and by the plan sponsor in forecasting the required flow from Pipe A. At any given time it is possible, on the basis of certain assumptions, to determine the ultimate capacity of the reservoir expressed as a percentage of payroll. However, an expanding work force could serve to increase the dollar capacity of the reservoir considerably, while the capacity as a percentage of payroll might remain constant or even decrease. A decreasing number of participants in a plan also serves to change the capacity

in dollars and as a per cent of payroll. In some cases, an assumed rate of increase in the work force has been utilized as an actuarial assumption to attain actuarial soundness that is not present based on the assumption of a static work force.

For example, in the case of a plan covering firemen in a rapidly growing city, there frequently are substantial actuarial liabilities for past service which can be offset in part by assuming that the contribution rate (which is a constant percentage of payroll) for all newly hired firemen will be greater than the normal costs for newly hired firemen and the excess of the actual contributions over the required contribution for new hires will result in future excess funds which can be used to reduce actuarial liabilities.

It is important to recognize also that an amendment of any plan to increase the benefits immediately increases the capacity of the reservoir. Thus, while the reservoir may be filled to 70 per cent of capacity at a particular time, a plan amendment might suddenly result in the reservoir's being filled to only 30 per cent of capacity.

The purpose of the above analogy is to relate in physical terms the mechanical functioning of a pension fund. It is obvious to me, and should be obvious to any layman, that in my analogy the required flow from Pipe A in the early years of a plan when the level of the reservoir is low will almost certainly change over the years either upward or downward, and, at best, the required flow from Pipe A is based on a sophisticated guess involving long-range assumptions. It should, however, also be apparent that as the reservoir is filled to near capacity and as the number of holes in the bottom of the reservoir become relatively substantial in number and flow of water from the reservoir is sizable, the determination of the flow from Pipe A should then be based on assumptions that are perhaps more precise and that give more consideration to shorter-term expectations.

In one recent case the employer insisted that we prepare computations based on assumed salary increases of 6 per cent per year. We performed this calculation on the basis of assumed interest earnings of $8\frac{1}{2}$ per cent, and the net effect was that the estimated cost of the plan was only slightly greater than the estimated cost based on $4\frac{1}{2}$ per cent interest and salary scales of approximately 2 per cent. One of the interesting aspects of this calculation was the observation that an employee aged 25 with a salary of $10,000 per year had a projected final salary of $102,857 per year and a projected pension of just under $50,000 per year. It appears rather ridiculous to fund a $50,000 pension for an employee whose current salary is $10,000 per year.

Since today's conditions are considerably different from the recent past with regard to the rate of inflation and with regard to the rates of investment yield available, I believe in choosing actuarial assumptions that are

more consistent with conditions that have prevailed over a long period of time and that might be referred to as "conventional"; that is, lower assumed interest rates and lower assumed salary scales than can reasonably be expected based on today's economy. If the use of "conventional" assumptions, such as 4½ per cent interest and 2 per cent salary scales produce estimated costs that are not considerably different from those produced by 6½ per cent interest and 4 per cent salary scales, I prefer to use the former assumptions. While many employers feel that 4 per cent assumed salary scales might be realistic, some of them are also reluctant to fund a $22,000 pension for an employee with a current salary of $10,000 per year.

Just prior to leaving my office for this meeting, I did a little research to determine the compound rate of increase in average salaries over the last

	For 10 Banks		For 10 Corporations	
	Average Annual Compound Rate of Increase in Average Salary over Last Five Years (1)	Variation in Current Year's Cost Expressed as a Percentage of Payroll (2)	Average Annual Compound Rate of Increase in Average Salary over Last Five Years (3)	Variation in Current Year's Cost Expressed as a Percentage of Payroll (4)
1. Lowest	3⅛%	0.3%	2⅞%	0.1%
2. Average	5.0	1.2	4¾	0.7
3. Highest	7½	2.9	6¾	2.2

five-year period for ten of our larger corporate clients and also for ten of our larger bank clients. At the same time, I listed the current year's cost of the plan (i.e., entry age normal cost plus interest on the net actuarial deficiency). The accompanying tabulation shows the results of this research:

It may be noted from the above tabulation that for the ten corporations the lowest increase in the average salary for the covered employees was 2⅞ per cent compounded annually, while the average annual compounded rate of increase for all ten corporations was 4¾ per cent and the highest increase was 6¾ per cent. In most of these twenty plans, the "conventional" type of actuarial assumptions was used; that is, the interest rate assumed varies from 3½ to 4½ per cent while the salary scales vary from 1 to 2 per cent. With these assumptions, it is interesting to note that the relative change in the current year's cost as a percentage of payroll over the five-year period was small. A further explanation of columns 2 and 4 of the above tabulation is necessary. The percentages in these columns represent the range of the current year's cost expressed as a percentage of payroll

over the five-year period. For example, the bank with the lowest variation in its current year's cost experienced a net change of 0.3 per cent of payroll over the period. In this case the cost decreased from 9.6 per cent of covered payroll to 9.3 per cent of covered payroll. The maximum variation was 2.9 per cent for one of the banks. In this case the cost decreased from 9.0 per cent of covered payroll to 6.1 per cent of covered payroll. This was primarily the result of substantial expansion in the bank and the inclusion of a number of additional employees at younger ages. The average variation in the current year's cost for the ten banks was 1.2 per cent of payroll. It is important to note that nine of the ten banks experienced a decrease in cost as a percentage of payroll and that the other bank experienced an increase of 0.7 per cent of payroll for the period. With regard to the corporations, the average variation in cost was 0.7 per cent of payroll. Of the ten corporations, the cost increased for four of them and decreased for six. If we eliminated three of the banks and one of the corporations from the statistics, the maximum variation in cost would be 1.1 per cent of payroll. In all cases where the variation was greater than 1.1 per cent of payroll, the cost decreased over the period covered. The larger variations appear to be the result primarily of expansion in the number of covered employees. The main point of the tabulation is that, in spite of actual salary increases substantially in excess of the assumed salary scales, the estimated cost did not change substantially.

It is highly likely that independent cost estimates by any two actuaries for the same employer would produce somewhat different results in estimated costs for a given retirement plan. Since there are very legitimate differences of opinion among actuaries and employers with regard to the choice of actuarial assumptions and cost methods, it is obvious that there is a legitimate variation in "realistic" estimated costs for any particular plan. Assumptions that are considered realistic by an aircraft manufacturer in Kansas might be considered as highly speculative to a banker in New Orleans. Since a considerable variation in estimated costs will result, depending upon the assumptions and cost method used, the actuary, in estimating costs, should take into account the feelings of the employer with regard to actuarial assumptions and should also take into account the objectives to be achieved. The objective of one employer might be the lowest permissible incidence of cost in the early years with an increasing cost in the future, while another employer might have the objective of a considerably higher incidence of cost in early years with a lower cost in later years. All this variation in cost should be considered within the framework of the Internal Revenue Service Regulations and *Accounting Principles Board Opinion No. 8.*

Our experience with the auditors and their application of *Accounting Principles Board Opinion No. 8* as it applies to actuarial assumptions and

years have resulted in a substantial decrease in the benefit security ratio, especially in plans providing an automatic escalation clause.

In a study which we prepared several years ago for the firemen and policemen of one of the largest cities in the South, we determined that the average rate of salary increase since the early part of this century was just under 5 per cent compounded annually. The study also revealed that the rate of increase over the entire period had been relatively consistent.

We have observed in a number of plans covering firemen that actuarial soundness has been attained over a period of years because of increases in salary. The plans referred to are of the flat benefit type that provide monthly pensions of $150, or some other such amount, for each member. Since these plans usually provide for contributions equal to a flat percentage of payroll, the increases in salaries, and consequently the increases in contributions, have resulted in actuarially sound plans that were not sound a few years ago on the basis of the assumptions used at that time.

MR. CHARLES V. SCHALLER-KELLY: Traditionally, the labor actuary wants realistic assumptions in bargaining, since they lead employers to accept larger benefits. He also, however, has a concern for the security of the benefits promised. Many unions, the UAW most particularly, have required funding of past-service liabilities over a given number of years (often thirty years). Switching to a very high interest assumption can make a mockery of these requirements, in particular since employers are most likely to go out of business at the end of a period of high interest rates.

The problem of realistic assumption is not quite so urgent for final average pay plans, since it can be assumed that a high interest rate will occur at the same time as rapid salary increases and vice versa. The result would net out to much the same cost as a percentage of payroll at a lower interest rate and low salary scale.

I do seriously question whether moving to a very high interest rate (such as 7 per cent) is a real service to a client with a plan of the kind whose prior-service benefits will have to be frequently adjusted in a period of inflation, namely, career average and flat dollar plans. Moreover, it is socially undesirable, since the high interest rate leads to low contribution to this form of savings at a time when the economy requires just the opposite to brake inflation. (These last ideas should not be attributed to the UAW or its economic advisers. It has better ones than I.)

A particular problem arises if one set of assumptions was used at the time of bargaining and much more liberal assumptions were subsequently used for funding the benefits which were bargained. In this case, very sub-

stantial resentment can be expected, and I wonder whether the short-term gain is really advantageous to the client, since it will lead to much greater pressure for "getting our money back" and the benefits subsequently bargained with the more liberal assumptions will have to be funded even if interest rates decline. The situation is worse if costs were actually discussed and relevant in bargaining; in this case it seems to me to be very questionable ethics to liberalize assumptions substantially at the next valuation.

I am far from reconciled to the idea that interest rates will continue at the present ridiculous levels. I think that consulting actuaries should start to use "step rate" interest rates (i.e., high rates for the first few years followed by lower rates later). Insurance companies have been doing this for some time. A single interest rate cannot reproduce the same effect for a wide range of employee distributions.

It would be very helpful if somebody could write a paper on the technical problems involved in step-rate valuations, particularly for funding methods of the projected benefit kind.

CHAIRMAN HAZLEHURST: Suppose that you have a fund yielding 6 per cent and you expect that inflation will run at 3 per cent per annum with no wage increases due to productivity. Further, assume that you have a typical bargaining agreement providing a flat dollar benefit which does not self-adjust to inflation. As a practical matter, you know that pensions are going to be increased by at least 3 per cent a year over the long term and that the fund is going to yield 6 per cent, of which about half represents inflation. What benefit and what interest assumptions do you use in this situation?

MR. SCHALLER-KELLY: I feel that these premises of no productivity increase are not realistic. I would, however, generally favor reasonable assumptions, for example, 4 or $4\frac{1}{2}$ per cent interest, with actuarial gains being used as they develop to provide additional benefits without having to be bargained again as additional cents per hour. These gains should be considered due to the union, because it agreed to the low interest rates and high costs for previous benefits. This is the same as would occur if benefits were funded with fixed cents per hour. This approach would combine security and fairness.

CHAIRMAN HAZLEHURST: Mr. Thurau has observed that results obtained by using a geometric salary scale appear suspicious. My own feeling is that geometric-type scales probably reproduce actual experience. In

certain situations, however, might it make sense to use an arithmetic scale with, for example, a pay increase of a flat $300 or $400 per year?

MR. THURAU: In my earlier discussion, I did not mean to infer that we use a geometric salary scale. What, perhaps, better describes most of our salary scales is that they are a combination of both—part is geometric and part is arithmetic. The end result is a scale which decreases by ascending age, such as 6 per cent at age 25, 4 per cent at age 35, 3 per cent at age 45, and so on.

With respect to any particular group of employees, the relative proportion of the salary scale that is geometric or arithmetic varies; for a "labor" group it would tend to be more arithmetic, if not entirely so, and for a "white collar" group it would have a higher geometric factor.

As you know, under the Tax Reform Act of 1969, that portion of a lump-sum distribution representing post-1969 employer contribution will be taxable as ordinary income. To determine for each employee his portion of the employer contribution and forfeitures under the funding methods generally utilized creates a considerable problem, so that approximate methods may be necessary. To my knowledge, no guidelines have yet been released by the Treasury on how or what methods will be acceptable in determining the "ordinary income" portion of a lump-sum distribution. If they were to allow, as an acceptable method, the ordinary income portion to be determined on the theoretical basis of the actuarial assumptions, would not this then force the use of higher, more realistic, interest assumptions, which, in turn, may force more realistic salary scale projections? The alternative would lead to penalizing employees taking lump-sum distributions by determining too great a portion to be ordinary income.

MR. JAY C. RIPPS: Mr. Thurau has spoken of the apparently ridiculous results obtained by applying certain salary scale assumptions to current salaries. Although I do not recall this myself, I understand through various lunchtime conversations with my associates that starting salaries for college graduates in the late 1920's and early 1930's were somewhere around $700 per year. I wonder whether, at that time, a projection of starting salaries for college graduates of $7,000–$8,000 per year would have been thought equally as ridiculous as some of the results Mr. Thurau has obtained through his projections. Thirty years from now, it may, in fact, be the case that telephone operators, for example, are receiving a salary of $60,000, if the past is any indication of possible salary progressions.

A second point which occurs to me is that our discussions of the impact of inflation on actuarial assumptions has been based on the premise that

inflation will have similar effects on the interest rates and the rates of salary increases actually experienced. That is, we seem to be assuming that continued inflation will cause salaries to increase at a rate faster than they do in the absence of inflation and that rates of investment return will be higher. It occurs to me that, if inflation is defined as an increase in the supply of money and credit in excess of increases in productivity, continued inflation may eventually drive down interest rates and rates of investment return. Thus it may not be at all appropriate for us, in the long run, to assume that salary losses will be offset by interest gains if assumptions are established without anticipation of some level of inflation.

CHAIRMAN HAZLEHURST: If we use actuarial assumptions which are not fully realistic, it seems that we are open to possible challenge by the Internal Revenue Service. Within our firm we have one client who has had deductions of many millions of dollars challenged. The grounds for challenge are simply that the interest rate used to determine costs was one-quarter of 1 per cent different from the rate actually earned. This problem has not been resolved yet, but it poses some disturbing possibilities.

It seems that we have a choice in selecting our assumptions. We can use assumptions which are individually realistic, including a salary scale which allows for inflation and which may therefore be challenged, and an interest assumption which recognizes actual expectations for future investment performance.

Alternatively, we can adopt the more traditional approach of using low interest and salary scale assumptions and of assuming that the unrealism in each assumption will cancel out. This approach, although it has endured for many years, looks as if it will increasingly come under challenge.

My own choice would be to opt for fully realistic assumptions. Then, if questions arise on audit, experience would normally tend to confirm the assumptions. Otherwise, the "unreality" of a low interest assumption must be admitted, permission must be sought to consider simultaneously the "unreality" of the salary scale, and probably a special valuation will be needed to prove that, on an over-all basis, costs compared with those determined on a more realistic basis.

MR. PAUL R. HUDEK: The Defense Department, as well as the Treasury Department, is quite concerned with actuarial assumptions. The Defense Department has promulgated a form calling for a statement of actuarial assumptions as to mortality, interest turnover, retirement rates, and salary scales; a statement of the corresponding *actual* experience rates

for the last five years; and the actuarial gain or loss from each item for those five years.

MR. BEAIRD: Recently an agent of the Internal Revenue Service requested of a client a statement of gains and losses over the last five years, subdivided by the source. In this instance, the client had paid and claimed as a tax deduction the twenty-five-year funding cost. Furthermore, the actuarial assumptions did not include a salary scale (at the insistence of the client and based upon his full knowledge of the implications thereof), and I explained to the agent by telephone that it was very obvious that the deduction was well within the maximum limitation and that no constructive purpose would be served by providing the information that he requested. After a short telephone conversation, I wrote a brief letter with a general explanation of the actuarial assumptions and their interrelationship and their implications in the case in question. The total effort necessary to satisfy the agent was a fraction of the effort that would have been required to satisfy his initial request.

MR. CHARLES B. H. WATSON: The auditing of defense contracts with respect to pension plan costs raises an interesting and perhaps serious question of equity. To the extent that the contract was a current contract of short duration, there is a question of whether it was appropriate to evaluate pension costs on the basis of projected final salary, as opposed to current salary. Therefore, the use of a salary scale could perhaps be called in question.

MR. DONALD P. HARRINGTON: In the Bell System we have dealings with many regulatory bodies, such as the Federal Communications Commission, the State Regulatory Commissions, the Department of Defense, as well as the IRS. With respect to the questionnaire recently issued by the Department of Defense, we have responded by furnishing the information which we ourselves use to determine the appropriateness of our recommended assumptions. Requests for various types of information which we do not use and are either difficult or impossible to determine were not supplied.

Probably some of the interest in pension costs on the part of the Department of Defense derives from the rescinding of the cost disallowance of some of Western Electric's pension accruals. At that time, the Department of Defense disallowed the amortization payments toward the unfunded

period. The appeal of Western Electric before the Armed Services Board of Contract Appeals justifying these charges as proper costs for the current period was unanimously sustained.

In regard to Mr. Winkenwerder's comments relative to the pressure to increase the interest assumption, I would make the following remarks. If all the actuarial assumptions other than the interest rate and wage scales are realistic, and if the wage scales are calculated in such a fashion as to eliminate the effect of inflation (i.e., the current average method described in Mr. Marples' paper on salary scales [*TSA*, Vol. XIV]), then a low interest rate would seem to be appropriate. For, if an estimate of inflation is excluded from the actuarial liabilities, it seems appropriate to be conservative with respect to the assets. The reasonableness of this approach can then be clarified by building from the recommended assumptions to more realistic assumptions by using some general rule, preferably tested for this particular plan, such as the addition of a 1 per cent inflation factor added to the salary scale assumption would allow an improvement in the interest assumptions of about $\frac{1}{2}$ per cent. From this type of approach it should become apparent just what the actuary is attempting to do with the low interest assumptions, given the present regulatory environment.

I would make one further comment in regard to salary scales' incorporating inflation when they are applied to clerical and craft people. In the Bell System we have maintained historical wage statistics during the 1920's and earlier. In fact, some of these statistics were supplied to Mr. Marples for his paper on salary scales. The fact is, clerical and craft people's wages have increased about seven to ten times over a period of thirty to forty years for what has basically been the same type of job. If this trend continues, the startling figures mentioned earlier by Mr. Thurau will come to pass.

CHAIRMAN HAZLEHURST: If the assumptions which we use are not realistic, it seems to me that we have a duty to disclose this fact to our clients in our reports. If we do not disclose how we expect our assumptions to work out, we are misleading our clients. A plan sponsor who sees an interest assumption of 4 per cent in his actuarial report will very likely assume, in the absence of any qualifications, that he has to earn only 4 per cent to keep his plan financially sound. Typically, this will not be true if his plan is final pay plan and if a noninflationary salary scale is being used.

MR. BEAIRD: With regard to the adequacy of actuarial assumptions in the aggregate, I believe that a client should be thoroughly informed in conference and/or by writing, but I have not felt it necessary to qualify each

annual actuarial valuation report with a discussion of individual assumptions or with aggregate assumptions.

Any challenge of a tax deduction which is based on consideration of only one of the actuarial assumptions and which does not consider assumptions in the aggregate should be resisted by our clients, in my opinion. If a revenue ruling results in a practice that is grossly unfair, we should attempt to have such a ruling changed.

CHAIRMAN HAZLEHURST: The Society currently has a group addressing themselves to the problems in the pension plan area. This group is preparing a book covering pension and funding practices. The book may, of course, become so general that it will not offer much constraint from less desirable practices.

An alternative and simpler approach would be to have the actuary disclose exactly what he is doing and what it means. This disclosure process would probably result in some self-developed pressure to use approaches that seem reasonable when disclosed, without in any way resulting in limitations on each actuary's freedom to choose the path which he thinks most suitable in a given situation.

MR. THURAU: One of a number of things which disturb me about *Opinion 8* is its application to companies not having a formal or informal pension plan. As you know, no disclosure is required. It seems to me that disclosure of no plan is more important than certain "nit-picking" on a corporation with an existing plan, as the latter has some charge against earnings for the plan.

If the purpose of *Opinion 8* is in any way related to protecting the stockholders, it certainly does not disclose that when the company with no plan adopts a "reasonable" plan that it will reduce earnings by 10 per cent or so, and, if the company is now selling at 30 times earnings, some potential problems can arise in adopting a pension plan.

Perhaps the only logical defense is that a company not having a plan now will never have one, and the validity of that argument I will not attempt to evaluate.

CHAIRMAN HAZLEHURST: If we select assumptions which we feel to be fully realistic, should we not add some caution by, in some way, introducing contingency funds?

MR. WATSON: It is doubtful whether the question as phrased is itself realistic. "Realism" is not necessarily realistic, as assumptions can only be measured to a certain level of risk. That is, *any assumption* provides

sufficient margin to cover future fluctuations up to a certain level of contingency, and this might not be a conservative level. Still the combined effect is to provide coverage for a certain degree of adverse fluctuation, and this seems to imply a contingency fund of sorts.

MR. WINKENWERDER: I sometimes wonder whether actuaries give as much thought to contingency funds as they should. It would be my thought that virtually all actuarial valuations do establish a contingency fund indirectly due to the method that the actuary uses in selecting his actuarial assumptions. Are we conservative in the selection of our actuarial assumptions through habit, through an effort to protect ourselves, or through an effort to represent adequately to our clients the anticipated long-range cost of a plan? Perhaps we should more often estimate the cost of a pension plan by use of assumptions which we honestly feel might reasonably be experienced. It seems to me that we might then be in a position to measure more adequately the degree of conservatism that we are including in our cost calculations and to analyze more adequately whether we are providing the kind of advice to our client that we should be. The pattern of gains and losses over an extended period of time should provide adequate evidence of whether we are being overconservative with our actuarial assumptions.

My point is that I think we should have a "feel" for the degree of conservatism in our assumptions which will in essence establish a contingency fund and further that we ought to be able satisfactorily to answer the question, "Why are you being conservative in the selection of your actuarial assumptions?"

Hartford Regional Meeting

CHAIRMAN SAMUEL ECKLER: Our topic this afternoon is entitled "Pension Plan Developments." The questions we have been asked to discuss, however, relate mainly to the impact that tight money and inflation have on various aspects of pension plans.

I know that the Internal Revenue Service regulations have a substantial influence on how inflation should be recognized in actuarial assumptions and funding methods but, in discussing the first three questions, I would like contributors' comments to ignore the existence of these regulations.

MR. HENRY N. WINSLOW: I am going to attempt a definition of what we mean by inflation and tight money as they apply today to pension plans.

Inflation is commonly thought of as increases in living costs as measured by the consumer price index. During the last few years the consumer price index has increased rather rapidly. For the purposes of pension plans, however, inflation is not really related to the consumer price index; it is better related to changes in the average wage index. The reason for this is that pension plan benefits are directly tied to wages by final average salary or career average salary benefit formulas or are updated periodically to reflect in part wage levels. The wage index since 1967 has risen at a slightly higher rate than the consumer price index, so that this force causing inflation of pension plan benefits and costs produced a greater rise than those forces causing inflation in the usual sense of the term.

Of less import, except under pension plans covering small groups or closed groups, is an "expense inflation." This is associated with the increased costs, due to inflation, of providing actuarial and administrative services for pension plans.

Tight money today is associated with high yields under fixed income securities. For example, BAA bonds yield now over 8 per cent. It is predicted that these high rates of interest on fixed income securities will last for several more years with only a modest decrease on the order of 1 per cent. Tight money today is also associated with decreasing stock market prices, so that equity appreciation which had in prior years offered solace for potential increases in plan cost due to salary increases may no longer be performing that service.

Tight money also means what it implies, so that employers are probably strapped for funds and might prefer to invest their money in plant or equipment purchases rather than in pension funds, which at the present time might perform dubiously in equities or, in the case of fixed income investments, may return only about 2 per cent better than the annual rate of inflation.

MR. HENRY J. L. FORTUIN: An important factor to consider when contemplating inflationary conditions is the degree to which inflation is actually reflected in equity prices. In the post–World War II years and terminating in 1967, a definite relationship would appear to exist. I think that in the immediate future, the relationships exhibited in the past between inflation and equity prices will continue. As to whether inflationary conditions should be provided for in actuarial calculations, a decision will have to be made on what the expected relationship will actually be for pension funds with substantial equity holdings.

The price paid for and the availability of money establish the degree to which money is tight. In recent years governmental fiscal policies have

not followed the pattern we have been told to expect in inflationary periods.

MR. WINSLOW: I think that inflation and tight money should be provided for in actuarial projections for two additional reasons. First, their inclusion permits a meaningful comparison of the costs under final or career average salary and fixed-dollar pension plans. Second, the usual combinations of actuarial assumptions often implicitly assume that investment yields greater than predicted will offset the impact of increases in salaries greater than predicted. This assumes, however, that full funding of pension plans will occur. Under those plans where full funding is not contemplated for many years or where with tight money it is not possible to fund fully for a time, the plan can be put into an embarrassed position if it has very few assets to produce investment gains when at the same time the accrued liability is growing rapidly on account of wage and, therefore, projected benefit inflation.

MR. FORTUIN: Inflationary conditions have influenced the adoption of plans providing benefits related to final pay. This type of plan successfully overcomes inflation prior to retirement. Variable annuity and cost-of-living plans are attempted to offset the effects of inflation on actual retirement benefits. The former has lost some of its popularity in the last few years, while the latter is attractive to the employee and can be costly to the employer. Either cost-of-living plans must include a defined limit on benefit adjustments, or such adjustments must be related to real investment yields.

In the area of actuarial assumptions seniority salary scales are not sufficient to provide for both merit and general salary scale increases.

There would appear to be general agreement that asset values, especially equities, not related to market give false impressions in pension fund valuations. If market values are ignored in asset valuations, the reasons for buying equities are being ignored. This does not mean that I am suggesting the use of market value but some averaging method which is based on market.

MR. SHEPHERD M. HOLCOMBE: The influence inflation and tight money have on the selection of valuation interest rates and salary scales must be considered in terms of all other actuarial assumptions adopted. I think that a relatively constant difference of about 1–1½ per cent exists between investment yields and salary scales. For example, annual salary increments of 5 per cent could be associated with investment yields of 6–6½ per cent.

MR. FORTUIN: A fixed relationship between salary scales and expected investment yield cannot be universally applied because of the effect interest rates have on retired life annuities. The best set of actuarial assumptions must be adopted for each plan, and Internal Revenue Service reaction to this best set of assumptions is a factor which cannot be ignored in their selection.

For practical reasons, expected changes in the composition of an employer's work force have been ignored in actuarial valuations. Computers, however, provide the practical facility for determining the influence new entrants will have on actuarial projections.

MR. PRESTON C. BASSETT: In our experience the purpose of the pension fund valuation often influences the selection of actuarial assumptions. If the reason of the valuation is to obtain qualification for taxation purposes, the expected reaction of the Internal Revenue Service to the assumptions selected must be taken into consideration. If the valuation is intended to provide long-term cost estimates and only for the employer's use, realistic assumptions can be adopted. Valuations of the latter type are performed periodically only for the larger and more sophisticated clients.

MR. CYRIL J. WOODS: In Canada the Federal Government Public Service Superannuation Plan has traditionally influenced the design of other pension plans. The Public Service plan has recently increased benefits for those in receipt of pension by as much as 42 per cent, and in future all pension benefits are to be escalated in accordance with the Canada pension plan pension index. There is also a noticeable movement in Canada to update career average pension plans. Accrued benefits are increased by recalculating such accruals on the assumption that a recent year's earnings were applicable to this prior period.

On the question of actuarial assumptions to be adopted for pension fund valuations, whether the purpose of the valuation is to provide long-term funding projections or for solvency requirements must be considered. In the former situation, as realistic assumptions as possible should be used and there should be complete freedom to introduce new entrants into the calculations. In the latter, it must be remembered that several provinces have pension legislation requiring the funding of experience deficiencies over a term not exceeding five years. The parties to whom the valuation report is to be made available is another factor to consider when preparing long-term funding projections.

We recently completed a valuation of a large Canadian pension fund,

and we knew that the union involved would be provided with our valuation report. The valuation was initially performed by using an interest rate of 8½ per cent and an annual general salary increase rate of 6 per cent in addition to the seniority salary scale. An annual general salary increase rate assumption of 6 per cent could put ideas into the heads of a group of employees. We were able to produce our initial cost estimates on 4½ per cent interest and 0 per cent general salary increase assumptions.

MR. J. FREDERICK BITZER: The Aetna Life has approximately 125 plans, contributing $25 million annually for basic pensions, which include a cost-of-living feature for employees retiring currently or in the future. Pension benefits are adjusted once a year in accordance with changes in the consumer price index to a maximum of 3 per cent. The plans are funded on the assumption of an anticipated annual increase in the consumer price index of 2 per cent.

MR. ROBERT A. WISHART: We recently studied the cost for one of our clients to provide a 2 per cent annual automatic cost-of-living increment. This plan was fairly old and relatively well funded. The result showed an increase of about 30 per cent in the annual employer cost. After reviewing the results, the employer was not prepared to undertake the commitment necessary to provide for automatic increases but preferred to make improvements in pensions on a periodic noncommited basis.

MR. EDWARD H. FRIEND: It should be noted that the variable annuity method of adjusting pension plan benefits is more likely to be more expensive than the cost-of-living adjustment method, since, over the long haul, equity values increase at a more rapid rate than the cost of living.

MR. HOLCOMBE: Historically, someone in receipt of a variable annuity would have received more than a person receiving benefits under a cost-of-living plan. Since the employer is paying the cost, the variable annuity approach is more costly. Not only is the cost-of-living approach cheaper, it also meets the needs of the employee more directly.

Another form of benefit improvement or escalation which I have recently encountered has been in municipal employee pension plans. When pay scales for employees are improved, pensions in the course of payment are also increased proportionately. Certain former employees who retired ten years ago, such as firemen and policemen, are receiving the benefit of the pay scales required to attract people with contemporary qualifications to these occupations. How can the influence of contemporary oc-

cupational requirements on pensions already in the course of payment be forecast?

MR. FORTUIN: A client of ours employs an economist who has objected to the inclusion of an automatic cost-of-living adjustment in the company pension plan. He argues, and his employer agrees, that automatic cost-of-living adjustments in pension plans are just one more factor adding to

I personally think that this attitude is debatable. The company has been willing to make one-shot adjustments to improve pensions in the course of payment.

MR. WINSLOW: Amortized value is usually appropriate for bonds in a pension valuation. However, under those cases where a high rate of interest is assumed, and this interest rate assumption exceeds the interest yield of the bonds, it would seem appropriate to change from amortized value as a valuation basis to an approximate revaluation of the bonds at a hypothetical market value, under the assumption that the market interest rate was the interest rate assumed in the pension funding.

MR. WOODS: Under long-term funding, why not set an actuarial value on assets using an interest rate equivalent to the assumed earned rate? If, over several valuations, the actuarial value of the assets is consistently over or under the market, you would then change your actuarial assumption as you would any other assumption. In long-term funding current market value has no meaning at all. It does have a meaning when the valuation is performed to test solvency.

CHAIRMAN ECKLER: In long-range terms, I think that market value is the only meaningful objective method of valuing assets. I see no theoretical difficulty in using this approach. Since valuing assets at their book value is more arbitrary than valuing at market, what is the great magic of valuing at book or something close to it?

MR. DONALD A. LOCKWOOD: I think I can provide an answer to those who insist on valuing assets at book value for pension fund valua-

keep the plan solvent. Since the client was interested in minimum and not level funding, we arrived at a relationship between book and market to value the pension fund assets.

MR. FORTUIN: In question 4 we have been asked how the Internal Revenue Service and employers react to realistic interest and salary increase assumptions. The major problem in dealing with the IRS is one of inconsistent treatment from the various branches of the department.

With respect to open years once a funding method is adopted, the IRS will not permit a change. Other actuarial assumptions, however, can be changed where the IRS challenges any one.

Employer reaction to realistic interest and salary scale assumptions is difficult to categorize. I do think an employer will find assumptions realistic if he has confidence in his consultant. I think that, particularly in the area of asset valuation, the introduction of a theoretical valuation basis simply adds one more theoretical aspect that needs explaining.

MR. HOLCOMBE: I do not have specific answers. On the basis of revenue rulings, however, for a new plan the IRS should accept a $3\frac{1}{2}$ per cent interest assumption. For a plan that has been in effect for four or five years and has earned 5 or 6 per cent I have heard that the IRS has thought that a 4 per cent interest assumption is too low. I hope that the IRS would not question the use of salary scales providing increases of $4\frac{1}{2}$ or 5 per cent per annum.

MR. WINSLOW: The IRS may not take too favorably to realistic salary scales. I have heard of one employer located in the Southwest who tried to obtain IRS approval for a set of actuarial assumptions which included a $7\frac{1}{2}$ per cent interest assumption and a 6 per cent per annum salary increase assumption. The IRS turned his assumptions down on account of the salary scale. The employer then resubmitted a new set of assumptions, changing the interest to 6 per cent and the salary scale to about $3\frac{1}{2}$ per cent per annum. For this particular plan the change in assumptions produced no significant change in expected plan costs and deduction limits. The IRS accepted this revised set of assumptions.

MR. HOLCOMBE: I would like to address some comments to the matter of changing assumptions. I recently spoke to the IRS in Washington, and they agreed that, if the local IRS agent wanted you to change your interest assumption, all other assumptions could be changed as well but the funding method could not be changed.

MR. WINSLOW: If one is working with a plan that has been in operation for several years and attempts to add an inflationary type of salary scale, one way perhaps to convince the IRS that this assumption would be appropriate might be to show the IRS that the proposed salary scale in conjunction with the other assumptions would not have produced large gains under the plan during the last few years.

MR. BASSETT: As to all statements on what the IRS is doing, time limits must be applied. I recently spoke to an IRS agent in Washington and was told that a salary scale of up to 3 per cent per year will be approved without question. If the salary scale exceeds 3 per cent, it, along with other assumptions such as interest, will be examined carefully.

MR. WISHART: It seems to me that what the IRS agent is looking for is whether or not your pension fund deductions are too high. One test would be to see whether they were higher than they were before. Tests will indicate that the combination of a relatively high interest assumption of, say, 8 per cent, and a high rate of salary progression of, say, 6 per cent, will produce substantially reduced costs over those produced by more conventional assumptions. With a reduction in the cost of the plan, how can the IRS object? In today's economic conditions, very few corporations want to use a higher salary scale without increasing the interest rate as well. Also, most corporations are looking for lower, not higher, costs.

MR. HENRY E. BLAGDEN: I would like to ask a question of those that are in practice these days. If you construct a salary scale by recognizing promotional increases and then adding an inflation component, you are likely to encounter problems with the IRS. Has anyone used the approach of examining what actual changes have taken place in salaries in the last five years and basing the salary scale on this experience alone? A salary scale providing for substantial increments will result and in theory you are not providing for future inflation.

MR. FORTUIN: The salary scale can be developed by a study of the historical progression of average salaries at various ages. I have used this approach, and it is more acceptable to the IRS than basing a salary scale on the separate elements of seniority and inflation.

MR. HOLCOMBE: On question 5, for this type of plan, especially the Taft-Hartley variety, it is extremely important to use more accurate assumptions so that different generations of retirees will get their proper

share of benefits. Under a unilateral plan the employer may want to be very conservative because he is in a good financial position.

It is commonly held that if you are the management's actuary you should be somewhat more conservative in selection of assumptions and if you represent labor you should be more liberal. On more mature considerations, both actuaries should end up not too far apart. It is in the union's interest not to force the employer into a plan which will increase his costs in the future.

MR. FORTUIN: With negotiations every three years, and a new liability added to the unfunded liability, I cannot remember a situation in which funding had developed to the point where a contingency fund resulted.

I think that it is important that the actuaries from union and management have the opportunity to meet and to know at least what assumptions are at issue and what influence these differences have in terms of benefits.

MR. KENNETH ALTMAN: The New York State Employees' Retirement System has been losing ground steadily in the area of funding because of inflation and retroactive benefit liberalization. Relatively speaking, we are not as well funded as we were ten years ago, even though we use a $3\frac{1}{2}$ per cent interest assumption. Successive liberalizations in the normal retirement age and service requirements for retirement have made our benefit structure extremely liberal. One of our current serious problems is to project future rates of retirement under plans which permit retirement on full-service fractions after twenty or twenty-five years of service. Has anyone had experience in preparing such projections?

MR. HOLCOMBE: In reply to the previous speaker, our firm has had some experience with municipal employee pension plans which permit retirement on half-pay after twenty-five years of service. Employees have been hired in a fairly narrow age range between 25 and 30. The actual retirement experience indicates an average length of service of about twenty-six years.

MR. ROBERT C. OCHSNER: In the December, 1967, negotiations between the New York City Transit Authority and the Transit Workers Union, we were faced with the necessity of estimating the cost of a "service-only" pension. The proposed pension would be payable immediately for life to any employee who retired with twenty or more years of service, regardless of age. The pension was to be equal to 50 per cent of the last

year's total compensation (including overtime) for twenty years of service, plus an additional percentage for each year of service in excess of twenty.

In order to set the retirement age assumption, it was clearly necessary to make some judgment on how many employees would retire at ages well before normal retirement date. Their retirement income would typically be between $4,000 and $6,000 a year under the proposed benefit. Since no social security benefits would be payable, it would normally be necessary for the family to have some other income and it could be assumed that this would normally be provided by the transit worker's taking another job. Since some of the workers did not have transferable skills and because of the reluctance of many employers to hire workers over the age of 40, it seemed reasonable to assume that there would be only a gradual pattern of retirements, with most of the eligible workers staying on the job even if the proposed benefit was bargained for and adopted. Experience with comparable service-only benefits in the uniformed services, both civilian police forces and the military of various countries, indicated a high rate of retirement immediately upon eligibility for benefits. It was assumed, however, that similar experience would not be developed among urban transit workers. This was assumed both because the risk and physical location factors present in the uniformed services were not a factor and because in the uniformed services the concept of twenty- or twenty-five-year service retirement was part of the original "contract of employment," understood and accepted by the parties at the time the employee was hired.

Calculations were made on various types of retirement assumptions, including decremental scales of retirement by age and selective single-age retirement assumptions according to age at entry. All of these had the effect of producing some degree of calculated cost for the proposed benefit, but they all fell short (in varying degrees) of assuming complete utilization of the benefit at the earliest opportunity.

During the final stages of negotiations, the benefit was adopted with the additional condition that benefits would not begin prior to age 50, regardless of actual retirement age.

After two full years of experience under this benefit, it is clear that many workers have in fact taken advantage of it. Typically, workers retired soon after meeting the minimum eligibility requirements. Also, since those who retired tended to be more skilled members of the group, the resulting retirements have placed a strain on the operation of the system, particularly with regard to maintenance work. Those of you who have had

occasion to ride the New York City Transit system would probably testify to that.

More recently, however, a slackening in the numbers of retirements among those eligible has been noticed. This raises the possibility that the early experience may simply have represented a backlog of workers who were anxious to retire. Perhaps the longer-term experience will be much closer to the retirement age assumptions.

It may even be—although this has not been tested—that the postretirement life situations of the first crop of retirees were unsatisfying and unsettling enough to serve as a warning to other employees that retirement at earlier ages, and the consequent need for unrelated and often strange employment, was not to be preferred even though the family income might be somewhat larger.

This situation illustrates the extreme difficulties that an actuary faces when he is forced to make assumptions about future events which are socially, economically, and psychologically linked with events in the community at large.

MR. EDWIN B. LANCASTER: I am not a pension actuary, but I would like to comment on the liberal early retirement provisions contained in municipal employee pension plans. I know of one elected official in an important state who is concerned about this for three reasons. The first is the obvious reason of cost, the second is the serious impact on the skill of the civil service force, and the third is that modifications would have to take place in the civil service structure by hiring people at much higher levels instead of following the traditional pattern of hiring people at the bottom levels and letting them work their way up.

MR. HOLCOMBE: One solution to the problems presented by demands for payment of pensions after a relatively short period, such as twenty years, is to give 100 per cent vesting in a half-pay pension plan but defer payment of the pension to age 60 or 65.

CHAIRMAN ECKLER: The retirement pattern that is being discussed here has not arisen in Canada as yet, but obviously it will very shortly. This is an area, in spite of what I am hearing here, that the taxpayer can understand. The costs inherent in these types of plans must be made clear to the taxpayers, and at some point they will complain.

EFFECTS OF INFLATION ON UNDERWRITING

Rationale of new underwriting approaches (including physical screening as a substitute for medical examinations), automated underwriting procedures, and broad measures designed to offset rising underwriting costs.

Houston Regional Meeting

CHAIRMAN J. EUGENE TAYLOR: One function of an actuary is long-range planning, of which projections based on mortality rates and compound interest functions are the obvious example. A related function is budgetary planning in its broadest sense, taking into account contract payments as well as expenses. The actuary with responsibilities of underwriting management participates in both functions but deals more frequently with the latter. He is responsible for risk appraisals that will achieve a planned balance of future claims and expenses with that portion of premiums budgeted therefor.

Underwriting expenses are included in such budgeting. In addition to the "in house" or administrative expenses, the budget includes the underwriters' selection tools purchased in the form of services from outside sources. These include inspection reports, medical examinations, attending physicians' statements, and MIB services, and the rules and procedures established for the use of such tools are an important part of budgetary planning. The portion of the underwriting budget allocated to these items varies widely with individual companies, depending upon the market serviced and the forms of insurance offered. In a typical company, salaries and overhead expenses would account for 40–50 per cent of selection costs; payments for services would make up the balance, with medical examinations, the largest item, followed closely by inspection services, while attending physicians' statements and impairment bureau costs are relatively small in comparison. To illustrate variation by companies, however, the company with which I am associated is a combination company, and payments to outside sources are more than 60 per cent of our budget, with the cost of inspection services being substantially greater than that for medical examinations.

In our discussion of "Effects of Inflation," we are interested primarily in measures of and countermeasures to inflation—that is, our reaction to inflationary pressures. We, as underwriting managers, must live with the economy which results from the monetary and fiscal policies of the central banking system and the government, but there are steps which we can

take to soften, defer, or cancel the effects of inflation. These countermeasures include productivity increase, efficiency increase, cost control, and

technological improvements.

Inflation is not something that spreads evenly throughout our economy. The measure which is meaningful to all of us is the consumer price index, or its reciprocal, the index of consumer purchasing power. This is a composite compiled monthly of many items, and in a given month some items may decrease and others increase, following supply and demand. While the general direction is largely a result of monetary and fiscal policy, increases in components of the index may be due to imbalances in supply and demand in particular sectors of the economy. An outstanding example is health care, the demand for which has been artificially stimulated by Medicare and Medicaid. The related shortage of doctors is an important cause of a degree of the inflation of underwriting costs.

To illustrate some of the variabilities of price indices, I have calculated the compound rate of inflation in five-year intervals for the consumer price index, and for selected items related to the underwriting budget. From 1950–55 the rate of inflation was 2.2 per cent; it then dropped to 2.0 per cent during the next five years, to 1.3 per cent in the next interval, and then increased sharply to 4.2 per cent for the 1965–70 interval. As you are aware, the increase in the past year has been on the order of 6 per cent. Information on the health care index was not available for each of these intervals, but from 1960–65 the annual rate of increase was 2.4 per cent, after which it jumped to 5.9 per cent for the three-year period ending in 1968. Unit cost of inspection increased during the twenty-year period ending with 1970 at the rate of 5.9 per cent during each of the first two five-year intervals, then by 3.0 and 5.2 per cent in succeeding periods. There is evidence that the cost of medical underwriting information has increased more rapidly than the health care index, so we can conclude that the major components of underwriting costs have increased more rapidly than the consumer price index.

My fellow panelists will be discussing the major items of underwriting

demnity for accidental death; family insurance coverage; insurability guarantees; broadened underwriting classifications, including higher standard mortality limits at the younger ages; mass marketing; variable benefits; and multiline operations.

MR. DONALD J. VAN KEUREN: Although the effect of inflation upon underwriting is the subject which this panel is to discuss, it is rather difficult to separate the force of inflation from many of the other forces which are affecting our work and our times. Some of these other forces are different manifestations of inflation. In fact, it seems a futile process at times to distinguish which are a result of inflation and which are not. And one wonders whether the making of such a distinction is worth the effort.

One might ask, rather, What is the effect of our times upon underwriting? What is the effect of the increasing cost of living, full employment, high rate of interest, diminishing confidence in the future value of the dollar, a leveling-out of mortality rates, and the continuing military operations upon underwriting? We must fashion our operations in response to all these, so why worry about which is caused by inflation and which is not?

It is obvious that, as managers of a business with so wide an economic, financial, and social involvement that everything going on in the world today must affect underwriting, the point at which all of our reasons for existing as insurers is brought to focus on a contract between ourselves and our customers. One reason for attempting an analysis of the various forces is that one such force may disappear, and what happens then? Interest rates are up. I can remember when we tried to convince the United States government that they should issue long-term bonds with a $2\frac{3}{4}$ per cent rate so we could buy them.

There is no one in this room who needs statistical evidence of inflation. If he does not do the family shopping, someone in his family does, and she tells him about the cost of meat, or clothing, or whatever. One set of figures in common use is the United States consumer price index, for urban wage earners and clerical workers. If we use 1957–59 as 100 per cent, then back in 1920 the index was just under 70. Having been alive in the year 1920, I can recall the initials HCL, which were in wide prominence at that time. They stood for high cost of living. In fact, the cost of living was high relative to the years before World War I. After that the index proceeded to drop, and in 1935 it was below 50. Since then it has risen, and in 1969 it was 127.7, having increased by 5.4 per cent over 1968.

This index of inflation means first of all an increase in the cost of everything we do—higher fees, higher wages, higher rent, and other overhead. It also means that larger amounts of insurance are needed for the same

economic protection. Further, it means less confidence in the purchasing price of the dollar in the years to come.

The fee paid a medical examiner for what might be considered a basic examination on an ordinary application was $5.00 in the 1940's, and this had increased to $7.50 by 1950. By 1960 the average fee had increased to $10, and, in a study made in 1968, 50 per cent of the companies had an average fee between $12 and $14 and 40 per cent had a fee of $15 and over; none had a fee of less than $10.

In place of a set fee schedule, my own company, as well as a number of other companies, has tried letting the examiner set his own "reasonable and customary" fee. This step was taken to meet strong and concerted action by examiners against the schedule of fees then in use. The result was the obvious. The average fee started to climb, but at the outset it was not so large as the next-higher fee to which our schedule would have advanced. But the doctors have their means of communication as well as do actuaries, and it is only human nature to want to be as well paid for a service as the next fellow.

I might illustrate what happened by tracing the change in one kind of fee. In 1966 we used a schedule of fixed fees, and the one that I speak of was set at $10. Early in 1967, as a substitute for a $15 fixed fee that we had contemplated for the next upward step, we offered to pay the "reasonable and customary" fee. At the same time we started a draft system where the examiner in effect wrote the company check for the amount due him and credited it to his bank account. This latter point had no effect on the size of the fee, so far as I know, but it is another bit of cost saving that we instituted for accounting. By August, 1967, about six months later, the average fee had risen from $10 to $12.58. In August, 1968 and 1969, the fees averaged $13.50 and $14.12, respectively. Note that over a period of two and one-half years the average fee had risen by 40 per cent. During the same period another fee which was $12.50 in 1966 had risen to $15.26. This fee applied to a larger-size policy of the same series, and we had planned to merge it with the smaller-size policies for medical fee purposes. The two combined reached the $15 mark in late 1969. You might say that we had successfully fought a rearguard action for three years. But the trend of the average rate is still upward.

In addition to the fees we pay our examiners, we also pay a fee to the personal physician of the applicant when we ask him for information in his files. About twenty-five years ago a fairly nominal fee averaging a little over one dollar was sufficient. This fee has also risen. In the early 1960's it had reached an average of $3.65, and in 1968 it averaged $4.84.

Here again, my company has tried out the "reasonable and customary" fee system with gradually increasing averages.

Another source of information needed to develop the basis for underwriting is the mercantile report. Cost figures supplied by the reporting companies show an increase in their average charge from $1.10 in 1920 to $1.80 in 1950 to $4.35 in 1970. These increases have resulted, of course, from increases in their costs of doing business. While these increases have been taking place, the average size of the policy for which they have been making an inspection has also increased. The reporting companies quite properly point out that the average inspection cost per thousand dollars of insurance has not been on the same upward trend. In fact, inspection costs per thousand have actually decreased from $0.75 in 1940 to an estimated $0.55 in 1970.

Expense rates for selection of risk, combining all the functional operations which go into selection, appear in LOMA studies. When they are viewed over a period of years, one has certain misgivings as to the comparability of the different figures. For the purpose at hand, however, to give a general impression, the available figures may serve. In 1946 the selection expense per policy paid for was in the range of $5–$8. By 1961 the selection cost per policy paid for had risen to $25, and by 1967 it was over $30.

It is interesting and very important to observe that the selection cost per thousand dollars of insurance has not increased in this same ratio, for the obvious reason that the average-size policy has increased. The rate per thousand dollars of new business was less than $2.50 in 1947 and by 1961 had risen to only $2.75.

While there are other evidences which the underwriter sees as a result of inflation, in the kind of business he underwrites, characteristics of the applicants, and how his function best fits into over-all company policy, it may be well to stop at this point to review the changes which have been made in underwriting procedures to counteract the rise in cost.

In reference to medical fees, the first countermeasure one thinks of is the nonmedical rules; changes have been fairly rapid over the past twenty years. Looking over the publication *Who Writes What*, one senses that there are companies which fall into three types insofar as their nonmedical rules are concerned—the average, the daring, and the cautious. Although the present type of nonmedical underwriting started in 1921, in 1950 a nonmedical limit of $5,000 at ages under 40 was quite common, with a few daring companies having a limit at $10,000, with many medically examining all cases.

By 1960, a limit of $15,000 at ages 30 and under, scaling down to $5,000 at ages 36–40, was the common practice, with the daring companies having a $20,000 or $25,000 limit, while the cautious companies had a $5,000 limit.

The most recent issue of *Who Writes What* shows most companies issuing up to $30,000 nonmedically, scaling down to $10,000 at ages 36–40 and $5,000 at ages 41–45. A few companies have a $40,000 limit at the young ages. Even the cautious companies go to $20,000.

Changes in the rules governing the ordering of mercantile reports have followed a somewhat similar course, although I do not have *Who Writes What* to fall back on for comparisons over the years. My impression is that changes in these rules have been much more cautious than the changes on nonmedical. There has not been the added stimulus of the reluctant medical examiner urging us to forego an examination. Further, the underwriter gets an uneasy feeling when asked to underwrite an applicant without the benefit of either a medical examination or a mercantile report.

There is some tendency to use the report of the personal physican in place of a medical examination. The average cost is somewhat less, but I do not view this as a cost-saving procedure but as one which may provide more specific information on a case originally submitted nonmedically.

The increased average size of policies and the greater number of applications for large amounts of insurance affect the underwriter in two ways.

Traditionally, my own company has been a combination company, issuing both industrial and ordinary insurance. With the growing average size of the policy, and, more importantly, the inflationary economy, industrial insurance has become a less important part of our operation; in fact, in 1954 we discontinued writing industrial monthly premium policies and in 1964 discontinued writing industrial weekly premium policies.

This does not mean that the underwriting methods used for industrial have been abandoned. Instead, they have been moved up the line to be used for larger contracts. The methods I have in mind are simplified application forms, packaged benefits, broad underwriting classes, the sparing use of medical examinations and mercantile reports, and the acceptance of a somewhat higher rate of mortality. In the home office organization, it means organizing for rapid scanning and movement of applications to an underwriting decision. Teams of underwriting clerks who do this are commonly referred to as the "jet set." I think this is a very apt description of the speed with which the underwriting of small policies is and should be done.

Despite the increase in the cost of underwriting, the effect upon premium rates and dividends has not been commensurable. This attenuation of effect can be attributed to two reasons.

As fees have increased, the countermeasures have been effective in minimizing total costs and the increased average-size policy has served to hold down the rate per thousand dollars of insurance. Second, expenses other than underwriting have increased so much more that they loom much larger in the expense picture. Because they are so much more important in determining premiums and dividends and because, for the reasons just stated, the increases have been fairly well controlled, underwriting costs have been rather lost in the shuffle and do not appear as a major concern in rate making.

Now let us consider some of the other effects of inflation which an underwriter sees.

He is underwriting more term insurance than before. As evidence of this change the *Life Insurance Fact Book* shows an increase from 18 per cent to 21 per cent of total issue between 1962 and 1967 for straight term plans. But this is not the whole story, by any means. The *Fact Book* shows, for 1967, additional term in family policies and in other combination policies making up 20 per cent of issue, so we have for 1967 a total of 41 per cent of issue that is term insurance.

Historically, there has been antiselection connected with the choice of a term plan, and underwriters have been cautious, trying to mitigate the effects. I think that, with the effect inflation has had, by reducing confidence in the future purchasing power of the dollar, a substantial part of this move to term has been without the motivation of antiselection. Consequently the mortality of term and permanent plans should be coming together, and underwriters need not be as concerned with this problem in their underwriting as they have in the past. Many characteristics of our population are changing and so is our social structure. These changes are reflected in the lives which the underwriters evaluate. We are in a period of full employment, and applicants may have more than one job. There are more women in industry. The education period is longer, and there is a tendency to retire earlier. It has been estimated that at present the number of years spent in the labor force is just about the same as the number of years spent out of the labor force, in education and postretirement.

These changes have had their effect on company marketing plans and strategies and certainly vary from one company to another, depending upon the areas served and the character of the sales force. As people have more money to handle, they want more personal service, with the empha-

sis on estate planning. One feature of our inflationary economy is the high income tax rate. Insurance is geared to tax problems, and this is a matter of concern to more and more applicants for life insurance.

MR. CHARLES N. WALKER: I am sure that every company's policy size has changed, but the extent of the change has varied tremendously so that it would be very difficult to generalize about any uniform effect. But I did make some estimates for my own company. I looked at the exam fee, the amount paid for an inspection, the amount paid for an attending physician's statement, and the average medical and underwriting salary cost per application. I tried to make comparisons of those items for 1970 with 1940, 1950, and 1960, to see how well inflation had been offset by the increase in average policy sizes. In the thirty-year period, our average policy size increased seven times its 1940 amount. The examination fees, in the meantime, had tripled, and inspection fees, physicians' statements, and salaries had increased five times, so that over a thirty-year period average policy size more than offset cost increases. But, in the twenty-year period, we just about broke even. Average policy size tripled, examination fees tripled, inspection and physicians' statements increased two and one-half times, and salaries increased three and one-half times. But over the ten-year period, we did not do well at all. The average policy size increased 50 per cent, examination fees increased 50 per cent, physicians' statements increased 100 per cent, and salaries increased 85 per cent. Apparently the movement of policy size has less and less offset the inflation factor in our costs in recent years.

MR. ORLO L. KARSTEN, JR.: I would echo what Chuck just said. In my company in the last five years, the average policy size increased 28 per cent, and the total costs for selection and issue increased 35 per cent, but fortunately the underwriting department costs went up only 24 per cent during that period.

CHAIRMAN TAYLOR: During a 1921 discussion, actuaries of United States companies varied from skeptical to highly critical of nonmedical underwriting. Some of the fears which were expressed pertained to the effect of such action on medical examiners, the effect on the agency force, the tendency to reduce the average policy size, and, of course, the danger of substantially increased mortality. In addition to higher mortality by reason of antiselection they pointed out that there would also be high mortality from such latent diseases as tuberculosis, heart impairment, and genitourinary diseases.

There is a substantial number of papers which have been written by actuaries and published in the proceedings of the two organizations of underwriters and the Life Office Management Association. Many of these papers are pertinent to the subject of this session. A number of contributions pertain to management and cost control; others deal with the techniques of evaluating underwriting tools (inspection services, medical examinations, and attending physicians' statements).

MR. WALKER: Let me insert a prefatory note that some of the developments I want to mention have not come into being because of expense considerations alone. Rather, a number of motivations have been involved, one of which is cost. I will try to note this point as we go along.

One more or less current development is the continuing trend to reduce underwriting costs by the very simple device of simply eliminating the underwriting procedure altogether. For example, there is a noticeable trend toward using guaranteed issue for small pension cases, which will probably be accentuated as more professional corporations and subchapter S corporations come into being. While guaranteed issue is not a necessary feature here, it is a handy merchandising tool. Another is the increasing volume of guaranteed insurability options, both in the addition of new cases and in the rapidly increasing number of options reaching their dates of exercise on in-force policies. It is true, of course, that an option date generates new ordinary business when agents persuade policyholders that larger amounts or lower premium plans than are available under the option are needed. But I suspect that the option eliminates more underwriting than it generates.

But, apart from items which eliminate underwriting, there are several notable developments which have various degrees of cost implications. One of the brighter spots is MIB expenses. These have been reducing over the past fifteen years, and the current shift to an automated file will bring another reduction. This change has been motivated primarily because of expenses, but it carries with it some corollary advantages of faster service and more accurate file searches.

From the standpoint of costs, one of the more dismal areas is attending physicians' statements. The fees charged have increased rapidly and steadily, and some very rough figures from my own company indicate that fees have almost doubled in the past ten years and almost tripled in the last twenty years, and are still climbing.

Two developments should be mentioned. One is the constant and continuing "chipping away" that we do at the usage of physicians' statements. We are all seeking—and finding—ways to use fewer statements, motivat-

ed both by attempts to reduce costs and by attempts to improve service to agents. I would particularly recommend a paper by James L. Compere in the *1968 Proceedings* of the Home Office Life Underwriters Association for an excellent analysis of both the mortality and the expense considerations involved in attending physicians' statements. The other item that I would mention is the newer methods for obtaining statements, including telephone recording equipment and the use of inspection company personnel and microfilm service companies. All these schemes are relatively new and have their own problems and advantages. But what is common to all of them is the added expense they entail—an expense which roughly doubles the cost. These methods are aimed at improving time service (though there may be some hope for a corollary advantage of higher quality information), and they clearly do nothing but worsen the expense problem.

Inspection costs, of course, are composed primarily of the inspector's personal time and so, as would be expected, have fairly well followed general wage scales. They must also be expected to continue to do so. One change developed by the inspection companies is streamlined reporting systems which, for the simpler reports, can reduce the clerical time and hence the cost. The underwriting approach here is a time-honored one. When costs increase, offsetting reductions in usage are sought. If for a

the cost at a $5,000 amount level, then increased inspection rates will have a new "balance point" somewhere above the $5,000 level, which will, hope-

rather a concern that mortality analysis some years later will identify the higher mortality which emerges but fail to recognize it for what it is—a deliberate substitute for expense. Will it, perhaps, be interpreted as a worsening insured mortality or an unwarranted underwriting laxity? Perhaps what is needed is some method for measuring total operating results in terms of the *sum* of the claims and some appropriate expense figure.

One of the newest and more challenging approaches is the development of quite different techniques for obtaining medical evidence of insurability. Two companies—Retail Credit Company and Medical Information Service—are offering service in a number of cities. Rising costs have played a somewhat secondary or indirect role here. More important considerations have centered around the increasing shortage of doctors, with the resulting difficulty in getting insurance examinations done, the awareness that nonmedical limits probably cannot be expanded far enough or fast enough to offset either cost increases or physician shortages, and a recognition that technological advances can and should be brought to bear on selection techniques and the quality of risk appraisal.

At the risk of oversimplification, let me suggest that two somewhat different concepts, each with its appropriate objective, are evolving. One might be described as an abbreviated physical examination, the other as a broad technological screening.

The abbreviated examination is a technique for producing as much of the traditional physician's examination as can be done without using a physician. Instead, a trained technician is used to obtain the medical history, height, weight, girth measurements, blood pressure, pulse, and chemical urinalysis. The remainder of the examination is omitted, since it is beyond the scope of the technician's training. The procedure can be done for slightly more than half the cost of a physician's examination. This abbreviated examination is unquestionably more adequate than nonmedical, both in obtaining a better quality medical history and in producing several of the most frequently encountered and most important risk parameters—build, blood pressure, and abnormal urine findings. The objective here is along traditional lines—to obtain enough information at a low enough cost to underwrite for higher amounts and at older ages than the economics of nonmedical practices will permit. By design, of course, this concept produces less information than the traditional physician's examination, so it is limited to an intermediate band of applications where substitution of mortality cost for expenses can be made properly and safely.

The other concept—technological screening—is aimed at producing a fairly wide range of information, attempting to be comprehensive enough to equal or perhaps even exceed the screening potential of the usual phy-

sician's examination and to do so within the constraints of reasonable cost and minimum use of a physician's personal time. One technique, for example, using only technicians, produces the same information described for the abbreviated examination—medical history, build, blood pressure, pulse, and chemical urinalysis—and with it produces additional laboratory tests, consisting of a timed vital capacity, phonocardiogram, electrocardiogram, hemoglobin, and an SMA-12 blood chemistry (i.e., twelve different blood chemistry determinations). This screening does stay within the economic constraints mentioned, since it can be done for considerably less cost than the usual physical examination.

And, if I may be permitted an actuarial indulgence of offering an opinion in place of the facts which cannot yet be substituted for it, I think that this type of technological screening may produce a better appraisal of mortality hazard than the traditional physical examination. I base this opinion on both the comparisons with and the contrasts between technological screening and the usual physical examination, as would probably emerge as a sort of "average" result over a large number of cases.

Look first at the items which are essentially the same—medical history, build, blood pressure, chemical urinalysis, and observation of visible abnormalities. Build and urinalysis will be identical. The medical history taken by the technician will probably be more complete, because the technician is likely to be more careful and diligent in completing the questionnaire. It will lack the refinement and clarification that the physician can, with his professional skill, incorporate. The blood pressure taken by a technician is likely to be more accurate than that done by the physician, since the technician will lack the incentive to "shave" borderline pressures to avoid the annoyance of a recheck. The physician will be better at observing and commenting on visible abnormalities. For example, he will be better at recognizing the probable cause of surgical scars and thus better able to improve the accuracy of the medical history. He will also be able to make appropriate check for such things as hernia and varicose veins, which the technological screening technique does not attempt to do. So, for these essentially similar items, each technique has areas apt to be better than the other. I would venture the opinion that there will be little difference in the quality of underwriting information with, perhaps, a slightly higher degree of accuracy from the technological screening technique.

The remaining components of these two techniques are, for the most part, not directly comparable, although each has the same objective—supplying additional information about some of the known and reported

impairments and making as much of a search for unknown or unreported abnormalities as time, cost, and applicant's convenience will permit.

In the physical examination, the most frequent abnormalities disclosed by heart and lung auscultation are asthma, emphysema, heart murmur, and cardiac hypertrophy. In the technological screening technique, the timed vital capacity, if carefully administered, will probably identify emphysema more accurately than does auscultation. With respect to heart murmurs, the phonocardiogram must be viewed as a screening device whose function is to identify abnormal heart sounds requiring further investigation. It must also be recognized that the mechanical limitations are such that it will fail to record some heart murmurs. On the other side of the coin, it can and does furnish accurate identification of the timing of murmurs. In the physician's examination, however, physicians can and do fail to hear some murmurs and also sometimes erroneously identify the timing of some murmurs. I rather suspect that on the average the phonocardiogram, supplemented by further investigation as needed, will provide more accurate identification of murmurs than the average of the physician's examinations.

For additional information about possible cardiovascular impairments an electrocardiogram (in every case rather than a small percentage of cases) and hemoglobin and cholesterol determinations are incorporated in the technological screening. Technological screening also produces a blood sugar determination (in addition to the urinalysis) for information about diabetes or possible diabetes and ten additional blood chemistries which, if abnormal, suggest such things as abnormal liver function or abnormal kidney function. Admittedly these blood chemistries also produce some information for which (except in the case of gross abnormalities) the mortality implications are not really known.

In a summing-up of both the comparisons of similar information and the "trade-offs" that emerge from differences in information, it seems to me that the similar items balance to something not far from a zero difference. Among the differing items, the timed vital capacity and phonocardiogram will, in the main, identify several of the most important abnormalities of the heart and lungs with at least as high a degree of precision as will auscultation. Thus any over-all comparison of the kind of risk appraisal which will emerge from these two systems would seem to hang largely on the extent to which the quite different approaches produce warnings of possible extra mortality. On the one hand is the protection to be derived from the electrocardiogram and the blood chemistry determinations. On the other is the medically oriented search of the physician (but limited by cost and convenience factors that we have imposed). Individual instances

will sometimes be spectacularly different. But both are situations where the frequency with which findings of underwriting significance are revealed is relatively low, and the primary question is how often each will do so in the context of the sort of "average" result over a large number of cases to which I referred a moment ago. My own opinion is that the technological screening will do so more frequently and more consistently, so I am led to the conclusion that technological screening will yield more accurate risk appraisal.

Let me finish by calling attention to one other aspect of this fight against expense increases. I have mentioned a number of things where we have been involved with "outside expenses," that is, the efforts to keep in line the prices we pay for purchasing underwriting information from outside sources. I would be remiss if I did not spend a moment on "inside expenses"—our file-handling costs and administrative procedures, other than computer usage and automation. I have no specific description of recent developments to put in front of you, since there is not really anything that notable in the way of a specific development or even a general trend. Rather, what should be noted is a constant effort, very much particularized to the individual company, to refine and to implement changes in administrative routines. I want to bring this up for fear it would be

history is confirmed over the applicant's signature, thus obtaining the usual Part 2 of our insurance application.

Chuck has discussed two different levels of screening as available from

MR. VAN KEUREN: One aspect which has impressed me in the regular medical examination is that, once you get past build, blood pressure, heart action, and urinalysis, the decision is whether or not to get a report from the personal physician. Height, weight, and blood pressure are quite objective measurements which do not require the attention of a physician. The urinalysis does not require a highly trained laboratory technician if the test is restricted to that of the dip stick and a microscopic examination is not required. Heart action is another matter, and I would not trust the report on heart murmur from anyone but a physician.

If we restrict ourselves to ages where only a few have malfunctioning hearts, so few that the extra mortality from missed heart impairments can be absorbed in the expense savings, we can then look upon the usual medical examination as a screening test which does not require a physician and which will determine whether or not we should go to the personal physician.

Without committing ourselves to either type of screening, we have been experimenting to ascertain whether there are electronic devices which could be used to test some of these parameters which affect health. We have in mind a device which could be operated by a person who does not have a medical education but who has been given instruction in the operation of the device.

There is a test which has never been made part of the usual examination but which I think should be, and that is timed vital capacity. With respiratory disease of growing importance as a cause of death, I think it could well be included in a screening test designed for use by nontechnical personnel.

Fears that have been expressed, such as that the tests may be so accurate that they will increase the proportion of cases ruled substandard, do not seem well-founded. If we get too many substandard cases, we can change our underwriting to restore the decimal proportion.

MR. KARSTEN: I want to make a brief comment to underscore Chuck's remarks that increased mortality costs can become a deliberate and perhaps a justifiable substitute for expense. Chuck referred to underwriting expense in particular, but I wonder if agency expense is not another example. We have noticed in the underwriting of large applications that there seems to be much more competition or shopping around, particularly if an extra premium is offered. The gain or loss of a few cases of this type can directly affect the profitability of a branch office or a general agency. As Chuck was saying, I wonder if we do not need some more measures of ultimate mortality costs in terms of the deliberate expense offset.

CHAIRMAN TAYLOR: We have observed nearly two decades of development of insurance usage of computers, into the third generation of computer families, and it has been demonstrated that the computer is able to reduce drastically the cost of many insurance operations. Computer usage has been extended as hardware and systems have become more effective and sophisticated, but relatively few companies have used the computer to perform underwriting functions. Orlo Karsten has played a leading role in developing a system for performing a number of underwriting functions.

MR. KARSTEN: At the outset I want to express my personal conviction that automated underwriting procedures will counteract rising underwriting costs in Northwestern Mutual. I urge actuaries and underwriters to consider seriously automated underwriting for their companies. In my opinion there are inherent advantages which are independent of company size. But, to give you a better perspective, here is some background information about Northwestern Mutual. We underwrite about 110,000 applications per year, almost entirely for individual life policies. The average size is now about $18,000. The underwriting department includes forty-three lay underwriters and a total of nearly three hundred people. There is a separate medical department of forty-one people, headed by seven full-time doctors, who make the final medical decision in many cases.

The company has had an automated policy issue system for seven years. After careful planning and a long period of programming, we now have an automated underwriting system. It began operation in January with five test agencies. Twenty to thirty applications a day are being processed on the computer. The underwriting department has two means of communicating with the central computer, which is an IBM 360 Model 65. An optical scanner is used for numeric input, including hand-written numbers. The basic approach is that answers on the application papers are coded at the time of receipt. The coding process is a substitute for speed underwriting, because minor medical problems are recorded as being insignificant. Thus certain coders are really production underwriters. The computer reviews all company rules and limits and approves clean cases. All others are sent to an underwriter with messages explaining why they could not be cleared by the computer.

The other major sources of input are sixteen visual display terminals located throughout the department. These look like a television screen with typewriter keyboard. Alphabetical data and all underwriting actions including final approval are sent to the computer by means of these

terminals. Thus any changes or additions to the paper file are recorded on the electronic file immediately.

The system has operated very well, and it will be expanded to all agencies this year.

A major advantage of our automated underwriting is that much better service will be provided to agents and policyowners. Each day a computer printout of all pending applications will be sent to general agency offices as a daily status report. The list will be entirely reprinted each day, so our field offices need not maintain files. This service will also eliminate 20,000 telephone calls per year to the underwriting department. I cannot overemphasize the economic benefits which will result from providing better service.

Cost for our clerical operation will be reduced. As I mentioned earlier, only 15 per cent of those in our underwriting and medical departments are making underwriting decisions. The other 85 per cent will be affected. There will be a net reduction of thirty-five jobs, or 10 per cent of the total staff, as a result of the total new system. For instance, we can transfer twelve people who screened new applications to be certain that company rules and limits were observed. Similarly, fewer control clerks will be needed because of internal computer controls, and fewer typists will be needed because the daily status report will be a communication link with general agency offices.

Before explaining further and more significant advantages of this system, I must digress a moment. A management information system has not yet been programmed to analyze data stored in the computer. In the design stage of this project we have discovered that there were one hundred eighteen reports being gathered within the underwriting department. Not only were these reports very expensive, but it appears that at least one-half were unnecessary and that their accuracy was doubtful. Even essential reports, such as the length of time to underwrite and issue were based on a 100 per cent sample; a 2 per cent sample may be statistically significant for our purposes. In short, we are convinced that more meaningful management information will be produced by the computer and that it will be more timely and less costly.

This same type of advantage will emerge in many other areas. For instance, control of delayed cases will be improved. There will be two files, the paper file and the computer file. Thus our entire approach to inquiry—where the case is and what is happening to it—will be changed. Questions can be directed to the computer file on the visual display terminal while work continues on the paper file without interruption.

The topic of automated underwriting has been discussed at previous meetings of actuaries and underwriters. Questions have been raised about justifying the cost of the system because of all the coding required. I have one observation to make in answer to these questions. If a company has an automated policy issue system, very little extra information would have to be coded for an automated underwriting system. The real question is, What benefit does automated underwriting have for the individual company?

Most of us encounter a related question in our underwriting operation. How do we compare the value of underwriting information against underwriting costs? The value of such information can be measured by potential mortality savings. But what about costs? These include not only the direct outlay but the indirect expense of delay and poor service. A comparison between value and cost can be attempted as an interesting actuarial exercise, probably of the armchair variety. I feel quite strongly that only a computer can provide the real answers which informed management must have. In short, I think only the computer has the capacity to give this information promptly and at a reasonable outlay.

There is another interesting aspect of automated underwriting. I think there is general recognition that the computer now plays a central role in the operation of life insurance companies. The capacity of computers was recognized by actuaries, who were among the first to put it to work in our industry. I suggest that underwriters should not be far behind. There is a logical connection between the underwriting and data-processing departments. One creates the new policy and the other maintains it as a company record.

A final implication in our new system is that we are gaining valuable experience with visual display terminals. For the present, terminals are connected by wire cables to the central computer. Eventually the cost for equipment and long-range data transmissions will be reduced. Then it will be feasible to install similar equipment in general agencies or branch offices. When that occurs, there should be a total saving for underwriting expense in the field and home office.

MR. VAN KEUREN: The decision to use computers in underwriting is, first of all, one of company policy with so many administrative functions competing for data-processing and machine time. Priorities must be established. There are also various stages in the over-all underwriting process where data processing can be introduced, whether as a decision already made by the underwriter or as a decision to be made by the computer after consulting all the ratings and governing rules. The trans-

lation of M.I.B. files and comparable company files to data-processing form will certainly be an added stimulation to placing more of the underwriting processes on computers.

In my opinion there are two roles which a computer can play in underwriting. First, it can make decisions. Second, it can recall historical data. For either of these uses, the information must first be in a form which can be manipulated by data-processing machines. The poorest form that it can be in is the kind of handwriting we see on most applications. As applications now come in, I think it is more efficient for a trained clerk to scan down the sheet and decide what to do next than for a clerk to code the information and have it punched up and fed into a machine which will then decide what to do. This is not, however, an insoluble problem. Medical information can be submitted in other ways, such as that which emerges from a decision tree commonly used in mechanized self-teaching programs. Many companies are already using supplementary health questionnaires for specific impairments, and these appear to lend themselves to data-input language.

The use of computers for rapid recall and presentation of information previously stored is a different function and one which we see coming into being in M.I.B.

MR. WALKER: I was interested in Orlo's remarks, because we are also a company which uses a computer for issue, but we have not yet used the computer for underwriting. We are, however, changing our alphabetic index to computer storage, which will require an early input of information.

MR. KARSTEN: We have had a very expensive control system for locating files, and the new system will be much less expensive. The heart of the new system is that as every underwriting action occurs the computer is immediately notified. Now, through programming, the action itself is translated into file location, so location is a by-product of action. As inquiries come in, the location can be determined from the visual terminal quite simply. Also I would comment that most inquiries come in while underwriting action is pending, before the underwriting decision has been made, and in those instances probably the inquiry should be directed to the underwriter. We can determine the assigned underwriter on the computer screen; therefore the service inquiry can be directed to the place where it can do the most good immediately.

CHAIRMAN TAYLOR: The Society's Mortality Committee first published intercompany nonmedical mortality results in its 1952 reports.

During the first decade of such reporting the average difference between nonmedical and medical mortality ratios (aggregate of policy years 1–15) was 5 per cent. In individual years this difference ranged from as high as 11.5 per cent in 1951 to a low of 0.5 per cent in 1956. During the early sixties this margin remained small but increased sharply for the four years more recently published. When divided by policy duration to show separately the experience for the first five policy years, the excess of nonmedical over medical mortality increased in successive years, commencing with that for the policy year following the 1963 anniversary, to 8.8, 14.4, 16.2, and 24.7 per cent. We should avoid firm conclusions from these comparisons of experience of widely differing populations, but the emerging results should cause us to question whether we may be pushing our nonmedical limits too high under our present basis of developing underwriting information.

The Mortality Committee publishes a table showing variations in the range of individual company aggregate experience measured against the composite mortality. In the most recently published report only two companies are within 5 percentage points of the composite for nonmedical business; three companies which had 50.8 per cent of the actual deaths were from 5 to 10 points above, while five companies which had 35.4 per cent of actual deaths were from 5 to 10 points below the composite. The degree of dispersion appears to have increased along with excess nonmedical mortality. If the same companies have been consistently in the above-average group, we can be sure some of us have problems of considerable magnitude.

MR. WALKER: There has been a very perceptible change in the number of very large applications that we are handling. Since we do a large reinsurance business in my company, this is more noticeable to us, perhaps, than to most direct writing companies. I can recall, about twenty years ago, when we were pleased and surprised at the placement of what was represented to me at the time to be the largest single policy that we had ever seen—$1,000,000. I can recall seeing stories about it in the trade press, too.

Contrast that with today. We are presently handling about one hundred and fifty cases a year where the amount currently applied for exceeds $2,000,000. About half of these are ultimately placed. We seem to be handling about thirty-five cases a year with a current amount applied for of $5,000,000 or more, and two or three cases this past year have been in the $20,000,000–$25,000,000 range.

There are at least two cost implications to note here. The first is the

matter of direct costs. These jumbo cases have, of course, quite high expenses. We spend considerable time and money handling them, and the high not-taken rate almost doubles the cost, too. But these costs are more than offset by the amount of expense money the premium makes available. The arithmetic is simple enough—if your average size is $20,000, the $2,000,000 case presumably provides for 100 times the average underwriting cost, and you just do not spend that much, even with high not-taken rates.

The other cost implication is a difficult and uncertain sort of thing. This is the concern about antiselection. Many of these very large cases have been carefully and expertly sold, and the insurance need and justification for the large amount are clear and well-documented. But not all of them. Too many times the motivation and insurance need may not be clear or may seem to be misdirected, or the justification for the amount may be resting so heavily on estimates of *future* earnings or insurance needs as to make you very uncomfortable about approving it *now*. One very simple example may be illustrative. Not long ago we were asked to issue $1,500,000 on the life of a very talented and well-known college athlete. But the application was submitted before he graduated from school and before he had even started to negotiate with a professional sports team.

The question and concern, of course, are how well we are protecting ourselves against antiselection—not only the antiselection or speculation that can occur at the outset if we issue too much insurance too soon, but—what could be just as devastating and even more difficult to predict or control—the speculation and antiselection which could occur later by selective lapsation after insurance needs have diminished or disappeared and policies which should be reduced or terminated are, instead, kept in force.

MR. KARSTEN: I do not have numbers as impressive as Chuck's, but the trend of large applications is certainly noticeable in our company. During the last five years the number of policies of $150,000 and over has risen from 291 to 859. The amount has more than tripled. These cases accounted last year for 11 per cent of our total issues, and the corporate planners say that we are going to see more of these large cases in the next five years. The large application presents problems for underwriters, particularly if it is business insurance or term insurance. There are simply too many opportunities for antiselection. There is the choice of buying or not buying initially. There is also a choice of renewing or not renewing on each anniversary and converting or not converting.

Unfortunately, we do not know much about this area except what has shown up in large-amount studies of the Society. These studies show that there is definitely an antiselection when you get the combination of business insurance and term insurance for large amounts. I think that it is all these opportunities of making choices that are creating the difficulties.

MR. WALKER: The amount of interest in Washington in consumer protection is now at a pretty high level and seems to be increasing. It seems certain that something in the way of regulatory legislation of consumer reporting agencies—including inspection companies—will be forthcoming. Whether this will occur this year or next year is relatively unimportant. So far as insurance company use of inspections is concerned, it seems certain that legislation will speak to two points primarily.

First, we will, by some means, be required to notify our applicants that they may have an investigative report done on them. Precisely what form this notification will take—how difficult, how expensive, how much it will interfere with our operations—is yet to be determined. The Sullivan bill as it now stands would impose very severe requirements. The Proxmire bill, as it finally passed the Senate, did not appear to be too difficult to live with so far as notification was concerned.

Second, we will be required to notify applicants who have been rated or declined as a result of inspection information that such is the case and thereby give them an opportunity to consult the inspection company to question the accuracy of the report.

This certainly means higher inspection costs. If the legislation emerges in the right form, I do not think that it will interfere too much with the operation of the inspection business or our use of inspections, other than the cost increase. But there is, unfortunately, a very real possibility that the legislation and implementing regulations as they emerge will slowly constrain the amount of inspection information that we will be able to obtain.

This proposed legislation seems to have been triggered mostly because of some inadequate practices in mercantile credit reporting. Insurance inspections, in a sense, are merely being swept in. That is not so bad per se, but in the process of being swept in there seems to be an underlying assumption that both types of reporting can be regulated in the same fashion. I do not think that they can be, and I hope we will be able to make that point, so we can get some necessary distinctions made in the manner in which these quite different reporting systems are regulated.

Hartford Regional Meeting

CHAIRMAN GEORGE F. McNAMARA: As all of you know, the underwriting operation of a life insurance company involves a substantial first-year or acquisition cost, even in normal times. Such a cost is a necessary evil if an insurance company is to be successful in keeping its mortality costs within reasonable limits.

In recent years the costs of the underwriting operation have gone up sharply because of inflation in one form or another. This is really not surprising, because underwriting involves the use of manpower. That comes about either directly through the employment of the necessary underwriting, medical, and clerical staffs or indirectly through the use of outside manpower in obtaining medical examinations, inspection reports, and other insurability information.

Many of the rules and procedures employed in underwriting departments were established in days when labor was cheap. The situation is far different in 1970, and there is little hope that we have seen the end of the inflationary trend in underwriting costs. This being so, it is vital that each company look anew at its operations, rules, and procedures. In the experience of each of us on the platform, it has been amazing to note how many changes we have been able to make as we looked at things under a magnifying glass.

We propose to discuss some of the approaches being used or thought of by our respective companies in our attempts to stem or roll back the tide of inflation and to meet the challenges of the 70's.

It should be remembered that, to the extent that new or revised approaches lessen the protective value of underwriting, there will be an

Arthur Hunter commented that this development in Canada had caused actuaries in the United States to give the matter of nonmedical insurance careful consideration. Over the intervening period, but especially in recent years, there have been many developments in providing insurance without an examination by a physician, but the medical examiner has remained a most important factor in the selection of risks.

In 1950 in Sun Life of Canada medical fees began at $4 for a child's examination and $6 for a regular full examination. These applied to Canada. In the United States the regular examination fee began at $7.50. In 1970, for both Canada and the United States, our medical examination forms give the examiner the privilege of naming his fee, with suggested limits of $10–$15. As might be expected, most examiners select $15, but some request and obtain much higher fees. For the large amounts now being issued a good examination by an outstanding physician is worth much more than $15.

The average examination costs in Canada and the United States in my company have doubled since 1950; for 1969 they were $13.65 and $14.67, respectively. The trend is definitely upward, and we see no indication of any upper ceiling.

Since the end of World War II, our industry has enjoyed a period of tremendous growth in new business written and, until recent years, an era of medical plenty. Our demands on the medical profession increased with our growth in business and the phenomenal increase in large policies, but the number of doctors available and willing to attend to our wants has not increased proportionately. The situation has become serious for insurance companies in many parts of the United States and Canada, especially outside the main urban centers. The introduction of various forms of government medical care has further aggravated the medical shortage. The insurance industry must seek ways and means to ease the burden imposed on the medical profession and, at the same time, endeavor to maintain a satisfactory mortality experience. The era of medical plenty is gone, and we may soon reach the stage where medical examinations may be practically unobtainable at a price we can afford.

One of the important methods of offsetting increased medical fees, and at the same time helping to reduce the medical load, is by increasing the risk limits for which one examiner may be acceptable. Our medical director considers, not unreasonably, that the amount of money we are risking, mainly on the strength of a medical examination, should bear some relationship to the physician's skill, knowledge, and record as an examiner with us. Accordingly, we have grades of examiners depending on these factors. In 1950 our best examiners could examine for a risk of

$50,000, but this has been successively increased to $150,000 and, recently, for outstanding examiners, to $250,000. For large amounts, which are so common nowadays, a thorough medical examination by a really competent physician is absolutely essential. We are endeavoring to upgrade the quality of our examiners and to reduce the number of cases involving two examinations.

Another method of offsetting escalating medical costs is by adjusting nonmedical limits upwards. This also reduces the load on the medical profession, provided companies do not at the same time increase their requests for attending physicians' reports. In Great Britain it is common practice to have high nonmedical limits and to obtain a report from the personal medical attendant in every case. This procedure is probably favored by the medical profession, most of whom are paid by the government according to the number of persons on their panel, and they welcome the extra income. In 1950 our maximum nonmedical limit was $5,000, but by 1960 this had increased to $25,000 for certain of the younger ages. Our present limits, which have been in effect for the past two years, are $40,000 to age 30, $25,000 for ages 31–35, $10,000 for ages 36–40, and $7,500 for ages 41–45.

Nonmedical limits, in theory at least, are determined by balancing expected mortality losses against savings in medical expenses. A method of doing this was outlined by Joe Sibigtroth in a paper to the Home Office Life Underwriters Association in 1960.

There is little, if any, information available on nonmedical mortality by amounts; but a study is contemplated by the Mortality Committee. The experience by age is given in the *1968 TSA Reports*, which is mainly, but not entirely, United States experience. A study by the Canadian Institute of Actuaries of Canadian experience was reported in November, 1966. Both of these reports demonstrate very clearly the increasing mortality ratio of nonmedical to medical as age increases. Although the over-all nonmedical experience is about 10 per cent higher than medical, the age group 40–44 showed excess nonmedical mortality of 24 per cent in the Society results and 42 per cent in the Canadian experience. Not only does the percentage mortality increase with age but the cost also increases radically because of increasing mortality rates. This means that nonmedical limits over age 40 must be severely restricted in order to avoid losses and, hence, for a very large and important range of ages, nonmedical applications are not suitable as a replacement for medical examinations and some other means had to be developed.

The future for nonmedical insurance depends on many factors, for example, medical fees, paramedical developments, availability of inspec-

tions, and nonmedical mortality experience. It will be vital to develop mortality results by amounts, as well as by age, in order that we have a better idea of where we are heading.

In summary we have three problems: (1) to find means of controlling increasing costs of evidence of insurability, (2) to find means of easing the demands of the insurance industry on the medical profession, and (3) to maintain satisfactory mortality experience.

I have suggested two procedures: (1) increasing the limits of acceptance for a single examination, depending on the qualifications and record of the physician, and (2) making nonmedical limits as high as possible.

MR. EDWARD G. WENDT, JR.: When we investigated the fee problem in the latter part of 1966, we found that the demand for increased fees was confined to certain sections in the West and Midwest. Since most of our examiners were apparently satisfied with a $10 fee at that time, we did *not* adopt an across-the-board increase. Rather, in January, 1967, we increased our fee for "complicated exams" to $15. All our approved regular examiners were notified individually of this change in practice. They were instructed to submit a separate bill for the additional fee, of up to $5, when they thought the examination was complicated (or particularly time-consuming) and warranted an additional fee.

These approved regular medical examiners complete about 75 per cent of our examinations and are paid weekly by a computer operation. Thus we were able to keep a close watch on how the new program was working. In the first year, 1967, our average fee increased about $0.40 per quarter. However, in 1968 and 1969, the average fee increased by only about $0.20 per quarter. At the present time our average fee for medical examinations is still under $14.

We estimate that we have saved over $750,000 in the last three years by having this fee program rather than a flat $15 fee.

CHAIRMAN McNAMARA: George Wilson, your nonmedical limits seem to be on the high side. Can you tell us what proportion of the Sun Life's business is submitted nonmedically, by number and volume?

MR. WILSON: Below age 10, well over 90 per cent of our business is nonmedical in both countries by policies and by amounts. This decreases with age to about one-third of the business at ages 40–45 by policies but only 15 per cent by amounts in Canada and 10 per cent by amounts in the United States. For all ages combined, nonmedical is used in 73 per cent by policies and 57 per cent by amounts in Canada and in 67 per cent by policies and 39 per cent by amounts for the United States.

the proposed insured before arranging for any examination if he has a history of rheumatic fever or heart murmur. In cases where the proposed insured has such a history, the agent would make arrangements for a full medical examination rather than a paramedical examination.

In addition instructions have been given to the paramedical centers to complete certain additional tests where the proposed insured has a history of certain medical impairments. For example, if there is a history of chest pain within five years an EKG would automatically be secured (as it often would be where a full medical examination is provided).

Before determining our paramedical age and amount limits, we reviewed 1,154 medically examined cases. On ninety-seven of these, or about 9 per cent, the medical examination would pick up valuable information requiring a debit rating which would not have been found without the examination. We believe, however, that eighty-five of these findings would have been picked up on an abbreviated paramedical examination. For example, eighty-two were on account of high blood pressure. Thus it appears that there would be only twelve cases (most of which were heart murmurs) out of the original 1,154 where significant underwriting findings would have been missed by substituting a paramedical examination for the full medical examination. Furthermore, only three of the twelve cases were at ages under 50 (one heart murmur, one arrhythmia finding, and one nervous disorder).

We concluded that most impairments would be discovered by abbreviated paramedical examinations at ages 50 and under and that, if the amount limits are reasonable, the extra mortality cost of missed information would be small, and such cost would be more than offset by the savings in full examination fees and by the reduction in processing time because of the ready availability of paramedical examinations.

In July of 1969, Crown Life and Sun Life of Canada completed a study on the value of paramedical examinations. They estimated an extra mortality cost of about $0.50 per $1,000 at ages 40–45 and a cost of about $1 per $1,000 at ages 46–50. Thus a savings of $7 in medical fees could substantiate an average-size policy of about $14,000 at ages 40–45 and $7,000 at ages 46–50.

The Crown and Sun Life also found that at ages 40–50 a paramedical examination would miss only about 5–10 per cent of the total debits assessed, compared with a full medical examination.

In our initial thinking we considered a $50,000 paramedical limit at ages 15–30 (with lower limits at the older ages) but were thinking of the limit as being completely independent of our nonmedical limit of $30,000 at these ages. Thus a proposed insured could apply for $80,000

of insurance in two bites by furnishing a nonmedical application and a paramedical application. This approach, of course, does not make sense, because the same person requesting a single amount of $80,000 would be required to complete a full medical examination. Therefore, we changed our thinking and adopted paramedical limits for life insurance of $75,000 at ages 15–30, $65,000 at ages 31–35, $50,000 at ages 36–40, $25,000 at ages 41–45, and $10,000 at ages 46–50. In applying these limits, New York Life nonmedical and paramedical life insurance in force for three years or less (including the amount of the new application) would be counted.

After we decided on our limits, we discovered that they were very similar to those recommended by the Canadian Life Insurance Medical Officers Association, particularly at the older issue ages.

In testing the effect of this program, we found that it would eliminate about 60 per cent of the medical examinations now required in areas [redacted]

fullest extent possible under the program.

For new individual health insurance, paramedical limits were also established for monthly income disability plans having a monthly income sickness benefit. For males with a short-term sickness benefit the limits are $1,000 at ages 18–40 and $500 at ages 41–50. On long-term sickness plans the limits are $500 at ages 18–40 and $300 at ages 41–50. These limits were based on judgment and are rather arbitrary but were designed so that they also would eliminate about 60 per cent of the medical examinations now required.

In order to achieve the maximum effectiveness under our program, it was decided to make utilization of the paramedical center mandatory where the proposed insured's home or place of business is within a reasonable distance from the center, say, ten miles or twenty minutes by car, and where there is no medical history of rheumatic fever or heart murmur. Naturally, we expect that this will be difficult to administer and that we will have to allow reasonable exceptions. We believe, however, that the mandatory feature is important largely to eliminate the antiselection that would result if the agent were allowed a free choice of a paramedical or a full medical examination. A procedure has been established whereby our marketing department reviews cases which would qualify on a paramedical basis but had been submitted on a full medical

because (1) our nonmedical limits at these ages are quite substantial and (2) a short form of medical examination is used at these ages which does not call for blood pressure readings or, at the very young ages, for a urinalysis.

Special instructions for paramedical centers were prepared by us before we introduced the program. Such instructions give complete details on what is expected of the medical interviewer and technicians and specify medical histories where further special tests are required. For example, if there is a history of chest pain within five years, a pulse abnormality, heart disorder, or blood pressure elevation, an electrocardiogram is secured while the proposed insured is at the center. We also list the medical histories which require that the urine specimen be sent to the home office or require that vital capacity tests, hemoglobin, or blood chemistry is to be undertaken.

Our paramedical program was introduced initially on January 1, 1970, and was applicable to sixteen of our general offices.

The results, thus far, as to the number of paramedical examinations completed for our sixteen general offices, are quite sketchy, but I do know that in the first month over one hundred paramedical examinations were completed; this number went up to one hundred and twenty-five in the second month and should reach about one hundred and fifty in the third month. From my observations and in talking with our field personnel, I understand that this program has been well received by our field men. Also, after speaking to representatives of the agencies offering paramedical services, I understand that the new program got off the ground without too many problems.

We expect, however, to run into a few snags. For example, some applicants and field underwriters may find it hard to accept substandard ratings based on an examination not made by a physician. Also I should imagine that some physician applicants would object to being examined by a technician. However, I believe that these and other difficulties will be ironed out as time goes by and that the paramedical concept will be recognized as a valuable and convenient underwriting arrangement. We do not have much information about the paramedical age and amount limits of other companies. I do know that some use a flat $75,000 or $50,000 limit regardless of age for individual life insurance when the *amplified* examination is used. Others grade their amounts by issue age with different gradings depending on the type of paramedical examination used. Ranges are very flexible, depending upon each company's underwriting philosophy and cost picture.

If the paramedical costs remain at the $8 level and the use of the para-

medical approach expands, the fee savings realized on nonmedical applications will decrease. Thus in the future we may want to consider lowering nonmedical limits, since savings based on the cost of a paramedical examination would only be able to support smaller nonmedical amount limits. The result may be that eventually the percentage of both nonmedical applications and full medical examinations obtained will be substantially lowered and the predominant underwriting device will be paramedical examinations. It is estimated that in our company full medical examinations eventually may well be required on only about 10 per cent of all applications submitted and that these would be secured only on large-amount cases or at the older ages.

Eventually the paramedical concept may be expanded so that trained personnel will visit the proposed insured either at his home or at his place of business. Another suggestion may be to have a traveling paramedical center service the rural areas. While the possibility of these and other expansions is at present uncertain, I personally believe that the paramedical approach will have a tremendous impact on our future business.

MR. WILSON: We began using paramedical last July in one branch office as a pilot project and subsequently extended its use to a number of other branches. At the time we first used the medical insurance service, the only form available was the complete paramedical, and we have been using this for amounts up to $75,000 up to age 60. In Canada, Medical Data Sciences, known as MDS, opened their services last December in Montreal and in Toronto in February. In both places we are using the simple form of paramedical and the complete paramedical. We are currently reviewing our limits and practices in both countries, since we regard it as extremely important to develop the use of services of this type as soon as possible as a replacement for medical examinations.

In addition, in one medium-size city where there are no other facilities, we are obtaining the simplified paramedical through a clinic operated by three of our approved examiners. They are pleased with the arrangement, because it provides additional work and work interest for their nurses and technicians and additional income. Where a medical examination is indicated, or additional tests required, the technician turns the patient over to a physician. This is somewhat of a pilot project, but it appears to be successful and offers interesting possibilities for the smaller population centers which may not be serviced by the various companies providing paramedical services.

Up to the present time we have not made it obligatory to use paramed-

ical, but we have strongly urged our agency forces in both countries to make use of this service wherever possible. I am very interested in the practice outlined by Jay, and, although there are problems in making a service of this kind compulsory, it appears that we may have to do more than merely encourage its use.

MR. JULIUS VOGEL: In the Prudential our current position is not to make paramedical examinations obligatory.

MR. JOHN GUMMERE: At this time it is our thinking that the paramedical approach will not be obligatory. I do believe that it is of the utmost importance to persuade the field force that paramedical is not only desirable but will not be disruptive to them.

Let me make a couple of additional observations. First, I am particularly interested in the assumption that there will be additional mortality associated with the use of the abbreviated examination. I had assumed that we might get better mortality.

We all remember the startling finding of mortality higher than expected in the borderline area in the 1959 Build and Blood Pressure Study. Some might feel that this was the result of underwriting leniency. Others might look beyond to the examiner. Doctors are very much aware of the variability of the blood pressure in any individual under varying conditions and the difficulties inherent in getting truly precise readings. Furthermore, they tend to be unsympathetic toward the definition of a borderline level which is below that at which they become sufficiently concerned themselves to start thinking in terms of treatment. Some of that higher-than-expected mortality in the borderline area may well be the result of readings shaded downward by sympathetic examiners. I believe that blood pressure determinations made by a technician on an abbreviated examination will tend to be more accurate, and, if underwriters pay proper attention to these more accurate readings, the mortality savings should more than offset the relatively rare items that an abbreviated examination will miss. Mr. Wendt's study does suggest, however, that some sort of upper age limit might be appropriate.

The second point is that within the last two weeks I have heard two actuaries suggest that use of paramedical may actually result in the reduction of nonmedical limits. I also believe that the economics involved will in all probability justify this. Nonetheless, in view of the human relations aspects of working with a field force, not to mention competition, I believe that it is far more likely that such actions will not be taken but that instead we will see fewer increases in nonmedical limits in the future as examination costs rise.

MR. WILSON: I cannot altogether agree that we are likely to get as good mortality experience on the simplified paramedical as we can with a medical examination. I believe that we will miss certain impairments, particularly heart murmurs and adverse respiratory findings suggestive of bronchitis or emphysema, and we may also miss some tumors which would be detected by a medical examination. I believe, however, that with the studies which have been made we have some idea of the extra mortality and can estimate reasonable limits. I am somewhat concerned with the comment that some companies do not propose to use the complete paramedical because they have no measure of the usefulness of this form of evidence in comparison with a medical examination. It is my belief, and that of our medical director, that we are going to face a period of great medical shortage, and we feel that it is highly important to experiment now with every means of obtaining evidence of insurability without the use of a physician. If we do not make some use of the complete paramedical, there is a distinct possibility of losing the opportunity of having this type of service.

The Mortality Committee of the Society has requested that paramedical cases be excluded from nonmedical and medical experience in the current studies. No regulations have been set out as yet for the study of paramedical experience, but it is a subject being considered by the Committee. In my company we are coding paramedical cases by type of paramedical examination in order to be in a position to carry out mortality studies.

MR. HENRY F. ROOD: For about a year our life company has been experimenting with the paramedical technique for acquiring medical evidence of insurability. In each case examined by this method, we have been using the full examination, which includes the applicant's history, abbreviated physical examination, chemical urinalysis, phonocardiogram, timed vital capacity, electrocardiogram, blood hemoglobin, and twelve blood chemistry constituents, such as cholesterol, uric acid, and blood sugar.

To date, we have not required our agents to use this service, but in time we expect to do so wherever it is available. We feel that it offers many advantages not only through savings in cost but from the standpoint of convenience to applicants and better service to agents. The offices are usually located in accessible areas, adjacent to parking; appointments can be made without delay; and the examination results are forwarded to the company on the day on which the examination is completed.

I should stress that our new subsidiary, one of several companies offering this kind of service, considers the data developed as confidential and not available to other companies without approval of the company for whom the original examination was made. At the same time, however, we see in this new kind of data being developed the opportunity for future studies of significance to the industry. While our new subsidiary will not be able to correlate the findings, it may be possible to make the data available for study to the Mortality Committees of the Society of Actuaries, the Medical Directors, and the Underwriting Association.

MR. GUMMERE: Over the years the cost of inspection reports has represented a rather substantial proportion of my department's budget, and accordingly my attention has been directed on numerous occasions to the question of whether we were getting our money's worth.

I am sure that almost everyone present knows of the three primary classes of reports obtained, that is, regular, narrative, and special life. During 1969 the average *billing* for these three types of reports was $4.36, $12.67, and $30.08. Rates have been increased at frequent intervals in recent years, and the foregoing billings represent increases of 20 per cent, 18 per cent, and 33 per cent in the last three years, or 35 per cent, 28 per cent, and 52 per cent in the last eight years.

The question is not really one of the effect of inflation but rather of what to do about it. In this connection I should first direct your attention to Charlie Ormsby's paper published in the *1963 Proceedings of the HOLUA*, entitled "The Economics of Risk Selection with Particular Reference to the Value of Inspection Reports." The basic approach is to evaluate a large number of rated and declined cases to determine the single premium cost of the extra mortality saved directly as the result of the use of inspection reports or a particular type of report. There is little point in my rehashing that excellent paper here, but there are several aspects of the problem to which I would like to lend some emphasis.

In my opening comments I made reference to the average billings for the three classes of reports. I emphasized the word *billings* because these dollar costs do not actually reflect the true cost, for they fail to consider the cost of "transfer" reports. As you know, if an inspector is unable to obtain adequate coverage on an individual, he will arrange for another report at a former address. A study conducted in 1966 by the Procedures and Cost Committee of the Institute of Home Office Underwriters covered about 100,000 reports and showed transfer rates of 9.3 per cent on regular reports, 24.4 per cent on narrative reports,

and 28.3 per cent on special life reports. A further small sample gave some insight on the type of report used in the transfer process. The sample was small, so suffice it to say that not all the transfer reports were of the cheapest variety.

The marginal cost of handling reports from actual ordering through the mail-handling process to the reading by an underwriter is probably rather substantial. In our own studies, however, we have chosen to ignore this factor, if for no other reason than to introduce an element of conservatism.

One last item not to be overlooked is the not-taken rate. Even some people closely associated with underwriting are likely to think that, if an applicant is offered a better deal than he should have, he will grab it. This simply is not true. We can and should assume that in the absence of a report providing protective information, there will still be those who will refuse the more favorable offers than they could otherwise get. This deserves emphasis because the not-taken rate increases rather substantially the unit costs against which the value of protective information is to be compared.

Taking the recent rate increase into account but ignoring the effect of overhead and not-taken rates, we project our new unit costs for regular, narrative, and special life reports to be $5.05, $14.75, and $34.20, respectively. I believe that a further 10 per cent increase in these unit costs would be a conservative acknowledgment of the effect of not-takens.

In any thorough analysis of the value of inspection reports, one must at least ask himself just what he would be giving up were he to obtain a cheaper type of report. Guides to the relative effectiveness of different kinds of reports are (1) the average number of informants for each type of report, (2) the average number of years of coverage for each type, (3) the average number which an inspector can complete in a day for each type, and (4) the relative frequencies of "protective" or "decline" information as reported by the inspection company. It should be remembered that the basic file information in the inspection company offices is available on all cases regardless of the type of report ordered.

I was about to give you my own appraisal of the relative effectiveness of different kinds of reports. Recognizing, however, that the guides which I have mentioned do not take into account the experience of the inspector or variations in classes of business as the face amount increases, and also mindful of Ruskin's definition of "the work of science," I feel that it is perhaps safer to suggest that this is the kind of armchair judg-

ment which an experienced underwriter should make for his own company.

From an underwriter's point of view, perhaps the classic value of an inspection report is the certain knowledge on the part of the agent and usually the applicant that a disinterested third party is looking on. One of the great concerns when considering the elimination of reports is the question of how badly future business will deteriorate. There are two steps which should be taken.

When the decision is reached to stop the *routine* ordering of inspection reports in the agency offices, the underwriter should be given a guide as to when he himself should order a report anyway from the home office. This will probably take into account information in the application or agent's report with particular reference to occupation or evidence of frequent job changes, marital status, beneficiary, accident record, finances, medical history, age (with particular reference to retired or dependent status). In my own company the number of such reports ordered by an underwriter in relation to the total number on which no reports were routinely ordered has varied from year to year in the range of 5–10 per cent.

It has been our own conclusion that our underwriters have been very successful in picking cases where inspections are definitely worthwhile. There still remains the question of what has been missed. Therefore, from time to time we have ordered regular inspection reports on a random sample of cases after issue where no report had been previously ordered. I should also mention that we have emphasized to our field force in the past that we would be doing this.

Just recently we completed an analysis of the findings on such a random sample of 1,248 cases. We found only thirteen cases where the information was sufficiently unfavorable to state that we would have made a different offer if that information had been available. The average age was 24, the average mortality rating would have been 175 per cent, and two were not taken anyway. Had we obtained all these reports routinely, our best estimate is that the mortality savings would have been somewhat less than one-third of the actual cost of the reports. True, the sample is small, but the results are consistent with a couple of other samples in the past.

In the discussion of the matter of inspection reports with other underwriters, it is always well to remind each other of variations in class of business or type of agent among different companies, and some have suggested that we have been lucky because of our superior and loyal field force. These are unquestionably important considerations, and each

company should conduct its own studies in this area. This is nowhere near so demanding a process as the conduct of a regular mortality investigation, and analysis of one or two years' rated and declined cases in a medium-size company is usually enough to focus on the problem.

MR. WILSON: There may be a great deal to be said in favor of judgment ordering of inspections, as it will undoubtedly save a considerable amount in inspection costs. There are, however, two factors which I feel need most careful consideration, the first being the delay caused by ordering the inspection only after the case has been reviewed at head office and the second being the relatively high rate of mortality among young male adults.

In our experience, and in intercompany experience, there is quite a hump in the mortality between the ages of 18–25. It is well known that for this group of lives automobile insurance costs two or three times as much as it does for other adult lives because of the excessive number of accidents. It seems to me of considerable importance in underwriting young male lives that some regard be given to their driving habits and to their general mode of life.

This brings up the subject of drugs and, while we have not had many cases in which they have been a factor, we have had two or three recent ones where protective information was received.

CHAIRMAN McNAMARA: Our discussion has concerned itself with costs involving evidence of insurability. That is only part of the picture, because a substantial part of costs is attributable to home office staffing, particularly in respect to the staffs of underwriters, doctors, and clerks. Reduction of inspection reports and other requirements and the use of nonmedical and paramedical will reduce the size and complexity of the home office staff. But that may not be enough at a time when the trend is inflationary.

When one considers the large volume of work handled by an underwriting department, it is natural that consideration be given to computers or other mechanical means. Perhaps the computer could even handle the risk-appraisal function, which is the heart of the underwriting operation.

MR. VOGEL: The topic of computer underwriting was assigned to me

ically justified reality in our company sometime in the next decade or so, but we have not found a way to make it pay for itself currently.

One of the things that seems obvious is that over the years the unit cost for an hour of clerical work performed by a human being will increase at an annual compound growth rate of, say, 3 or 4 per cent. At the same time, the cost of producing a comparable amount of output by computer will probably decrease. For this reason, it pays for companies to invest in systems and programming effort in order to convert clerical output to computer output. Naturally, companies tackle first the jobs that promise the biggest or fastest return on their systems and programming investment and gradually work down their list of jobs that appear to lend themselves to successful and profitable computerization.

It seems that several companies, including the Northwestern Mutual, the Prudential, and some others, have come to the stage at which underwriting is a logical next job to be put on the computer; in fact, the John Hancock came to that stage almost ten years ago.

In describing the Prudential's experience so far in computer underwriting, I should begin with a little background and explanation. The Prudential is a decentralized organization so far as most line operations are concerned, and our underwriting and issue activities are carried out in nine regional home offices scattered over the United States and Canada. These offices have a considerable degree of autonomy in the working systems that they use, and this was particularly the case before we began using really large-scale computers. Accordingly, by the middle 1960's there were three distinct and incompatible issue systems for ordinary policies being used in the Prudential, each of them being the sole system in effect in one or more of our regional home offices. In 1965 we began to develop a uniform issue system which was to be installed in all our regional home offices. This was a necessary prelude to the unification of our system for administering in-force ordinary policies. The issue system, of course, generates the basic records needed for the ongoing administration of the policies it produces.

When we started working on a new issue system in 1965, we decided to build into the computer system a series of underwriting checks, in addition to the usual things an issue system provides, such as calculation of premiums, preparation of policy schedules, determination and crediting of commissions, creation of valuation and billing records, and so on. The new system was developed over a three-year period and was put into operation at the beginning of 1968.

Under the Prudential's new business computer system, information

keypunched, the cards are entered into the computer, and a number of runs are performed to generate the required output. The rest of my remarks is essentially a discussion of the effectiveness of the system.

Our underwriters, and I suppose this is true of companies in general, not only have the job of deciding whether the applicant is a satisfactory insurance risk but are also responsible for seeing to a host of clerical details, such as the availability of the plan at the issue age and amount applied for, compliance with such government regulations as the New York State juvenile times rule, and so on. We find that the system does a good job of freeing the underwriters from the necessity of watching for such clerical details.

The computer also helps keep track of cases in the process of being issued. There is a facility in the program for furnishing periodic reports to the field staff and to internal management showing the current status of cases in the mill.

The strictly risk-appraisal part of the system, however, has been disappointing so far. When we designed the system, we recognized that risk appraisal was the most experimental feature in it. Accordingly, there was an option built into the system that makes it possible for each regional home office to use it either with the risk-appraisal modules or without them. If an office decides not to use the risk-appraisal modules, it has considerably less coding and keypunching to do in order to enter the case into the system, and, of course, the portions of the program that deal with risk appraisal are not activated.

When the new system was introduced on January 1, 1968, it was our intention that none of the regional home offices use the risk-appraisal modules for a few months while the problems resulting from the rest of the issue system were brought to the surface and taken care of. After a brief initial period, we expected that one or two of our regional home offices would begin to use the risk-appraisal modules and we would then see how well they worked. Actually, in the last two years, four of our offices have tried the risk-appraisal modules, and they have all had much the same experience. They have found that the throughput is disappointingly low.

The way in which our risk-appraisal modules work is to impose a series of validity checks on the information presented to the computer and to identify the cases which do not pass one or another of the checks. Of course, they also indicate which of the checks are not passed. If all the validity checks are passed, the computer proceeds to prepare the output needed to issue the policy and set up its initial records. If one or another of the validity checks is not passed, the computer prints a message indi-

cating the nature of the problem and the case is referred to an underwriter—usually a relatively inexperienced individual with only a limited authority to approve or reject ordinary applications. There are about two hundred and fifty different referral messages available to the computer which are used to guide the underwriter to the problem area. For example, just in the general area of the insured's occupation, the messages are "REVIEW MILITARY RISK," "REVIEW RETIRED RISK," "EMPLOYEE OF ANOTHER INSURANCE COMPANY," "UNEMPLOYED," "RATABLE OCCUPATION," and so on.

Unfortunately, the proportion of cases approved by the computer has been only about 30–35 per cent. This is almost a meaningless figure, unless it is qualified by an explanation of which cases are exposed to the computer underwriting modules. Since our work has been experimental, we have never exposed a cross-section of all our ordinary applications to the computer risk-appraisal modules at the same time. We have tried the modules on different classes of business, and, as would be expected, we have gotten our best throughput results on small juvenile policies and our worst on medically examined middle-aged adults. Even though we have concentrated our trials on those kinds of cases where the throughput should be the highest, we have found that our risk-appraisal modules allow no more than 30–35 per cent of cases to go through without human intervention. I would guess that, if we exposed all our ordinary applications to these modules, we would get a throughput of under 20 per cent.

On the other hand, a feature of our experience that suggests that computer underwriting may ultimately prove of value in the Prudential is the fact that most of the "problem" cases identified by the computer are usually immediately approved by the relatively low-level underwriter to whom the computer referrals are given for screening. We find that the computer and a relatively inexperienced underwriter can, between them, dispose of 80 per cent of the cases. It is only the remaining 20 per cent that have to go up the line to our more experienced underwriters. This, of course, suggests that the logic that we originally built into the risk-appraisal modules was too conservative. Perhaps we can tune the system a little more finely and thereby increase the proportion of cases approved by the computer alone, so that it approximates more nearly the proportion that the computer and the preliminary underwriting screener working together can now clear. This is what we are working on at this time. We may find that it is not merely a case of relaxing some parameters in our underwriting logic. We may have to go further and add additional items of input.

Mentioning input brings up the other and very obvious difficulty

with computer underwriting. Very briefly, we find that the cost of coding and keypunching the risk-appraisal information from an application in order to allow the computer to review it is very comparable to the cost of reviewing the application by an underwriter in the first place. If after the case is exposed to the computer it is more likely to be re-

ferred to a human underwriter anyway, there appears to be no particular saving from the use of the computer in the risk-appraisal function. It may be that we will ultimately have to redesign the application so as to enable it to serve as a punching brief (and thereby eliminate the need for coding) or perhaps even so that it may be machine scannable (and thereby eliminate the need for either coding or keypunching). I am sure, however, that the latter development is very far in the future. Maybe we can advance the time that machine scanning becomes possible by retyping the application before handing it to the computer, but this may prove to be an expensive proposition and it does not seem too attractive to me.

To summarize, then, our experience to date with computer underwriting has been disappointing because of the cost of entering the risk-appraisal information into the computer and the low proportion of cases which the computer allows us to issue as applied for. A possibly encouraging aspect of our experience is that the difficulties which stymie the computer are for the most part so minor that they are easily resolved at sight by an inexperienced underwriter. This suggests that a relatively easy revision of the input instructions or of the programming logic may help a lot.

Despite this somewhat pessimistic report I want to repeat my belief that ten or fifteen years from now we in the Prudential will be routinely underwriting many or most ordinary applications by computer. When

Clearly, the Hancock has more experience in this than we do and has been able to overcome some of the difficulties that still bother us.

My own conviction is that computer underwriting is feasible but that it takes more work to bring it off than we have been able to devote to it so far.

MR. WILSON: Julius, you mention that the Hancock and others have an optimistic view of computerized underwriting. How do you reconcile that with your feeling that it does not pay in the Prudential at this time?

MR. VOGEL: In the first place, I think that, if we work on it some more, our computer program in the Prudential can be improved so as to increase throughput and thereby advance the time when the system becomes economically justifiable in our company. In the second place, there may be a question of exactly what is being measured. As it happens, the Prudential's new business computer system was developed in such a way that the strictly risk-appraisal portion of it could be omitted at the option of the user. This has enabled us to compare the cost of manual underwriting, in the narrow sense of risk appraisal, with the cost of computer underwriting, and we are able to see which system is more economical and which system results in faster service time. In our regional home offices the combination of manual risk appraisal and computer issue has proved to be faster and cheaper than the combination of computer risk appraisal and computer issue.

Perhaps other companies have integrated the risk-appraisal function so thoroughly into their new-business system that the only comparison that can reasonably be made is between the new total system and the old total system that it replaced. Such a comparison may show that the new integrated system is superior to the old one but does not directly answer the question for the risk-appraisal function considered separately. It is this narrow question that we are concerned with in the Prudential.

CONTINUING EDUCATION—DISCUSSION OF TROWBRIDGE REPORT

1. Are the stated reasons for an aggressive program of continuing education convincing?
2. Does the Society have the resources to carry out successfully the continuing education program recommended by the committee?
3. Is the organization of the continuing education effort by actuarial specialty necessary or desirable? Are the suggested specialties areas logical? In which are continuing education needs the greatest? What is the order of priority of areas in which continuing education is to be carried out?
4. What are the relative merits of the written vs. the spoken word for continuing education purposes?
5. Can the universities play an important role in continuing education for actuaries?
6. Can the committee structure of the Society evolve to encompass the continuing education effort and still effectively serve other Society purposes?

Houston Regional Meeting

CHAIRMAN JOHN M. BRAGG: The first section of the Trowbridge report deals with the need for continuing education. Five specific reasons are identified, and they are all fairly obvious. They all come under the general heading of the need for professionals to keep abreast of a rapidly changing field.

The second section deals with continuing education within the Society today. This section points out that many of our present committees are already engaged in continuing education and that the job is really being done in a very large fashion already. It is taking place in such committees as the Education and Examination Committee, the Committee on Papers, the Committee on Review, the Field of Activities Committee, the Committee on Research, and the Committee on Mortality and Morbidity.

The third section has the heading "What Other Professional Organizations Do." It was interesting to note that the Trowbridge committee was unable to find any professional discipline which was farther ahead in this area than our own profession.

The fourth section of the report is a blueprint for an integrated continuing education program. This section recommends that the continuing education effort be organized by subject matter or specialty. For each specialty it recommends that an effort via both the written word and the spoken word be made.

The written word effort includes such things as a literature search, preparation of bibliographies in various subjects, the identification of areas in which the literature is weak, the encouragement of the writing of new literature, and that sort of thing. I might say that for the first time we will have an organized means of encouraging the writing of papers for the *Transactions*, which I think is good.

The spoken effort includes the holding of sessions at Society meetings and the possibility of seminars, separate courses, and so on. It also will involve keeping track of courses that are already being offered by numerous bodies around the country and making the existence of these courses known to our people.

That gives you an idea of what it is the committee plans to do. It is not simply a matter of rushing out and holding a few courses here and there. It is an organized search of the literature, preparation of bibliographies, trying to fill in the gaps where they exist, and that sort of thing.

Section 5 of the report deals with the possible organization for continuing education within the Society tomorrow, and this deals with the committee structure which we are in the process of forming.

The last section of the report, which is one of the most interesting sections, deals with the identification of specialties. The effort has been made to organize this section into specialty groups which are large enough and yet small enough, too, through some kind of optimal size which gives a field which is large enough to appeal to a person yet small enough to be a meaningful source of organized effort.

I might say that there has been a follow-up, a second Trowbridge report. It has not been sent to the members. It has not even been formally presented to the Board of Governors yet, I guess. It has, among other things, changed the specialty identification.

At the present time all seven of the subcommittee chairmen have been lined up. The areas of specialization and the subcommittee chairmen are as follows:

Area 1, Life Insurance and Annuities—Walter Miller
Area 2, Health Insurance—Charles Rohm
Area 3, Retirement Plans—William Dreher
Area 4, Computer Science—Malcolm MacKinnon
Area 5, Research—Dwight Bartlett
Area 6, Economics and Finance—LeRoy Parks
Area 7, Life and Health Corporate Affairs—Geoffrey Crofts

MR. JOSEPH W. HAHN: I think that the Society has done an excellent job in the way of continuing education. In the first place, it has provided

us with some excellent textbooks. Those of us who had to get our life contingencies from Spurgeon are happy to have Jordan to refer to. And I make no apology for saying that I frequently refer to Jordan. Not only are textbooks provided, but they are constantly being revised and improved. When Mr. Wolfenden's book *Population Statistics* was written, it was probably the best in its field, but no one can say that it makes easy reading. The book by Spiegelman is certainly much more comprehensible. What I have said about life contingencies and demography applies equally to the subject of graduation, construction of mortality tables, and other subjects.

A second source of continuing education is the study notes, which are constantly being updated. I applaud the decision of the Board of Governors to make these notes available to those of us who are no longer students. I want also to express appreciation to those members of the Education Committee who give so unstintingly of their time in writing these study notes.

There are also the papers which are prepared by members of the Society, many of which have been used as reference works. Among many others I think of Hoskins's paper on nonpar premiums, Menge's work on preliminary term valuation, Trowbridge's work on pension valuation, and Fraser's paper on the mathematics of the federal income tax law. To other authors of papers who are present I apologize; I could not make that list exhaustive.

Finally, I mention the annual reports of mortality, morbidity, and other statistics, without which we could hardly do business.

An excellent proposal of the Society's Committee on Continuing Education is that responsibilities should be separated by line of interest rather than by function. By having subcommittees for the various lines of interest, we can make sure that no important topic in any line of interest is neglected. This would probably necessitate considerable realignment of committees of the Society. Certainly each subcommittee should publish a syllabus periodically.

As to the *modus operandi* of the subcommittees, it seems to me that each year the chairman should elicit from each member suggestions for changes in the syllabus. When these have been received, they would be circulated among the members and comments invited. Such comments would also be circulated among all the members. All of this consists of homework. Finally, a meeting could be held and differences threshed out. To save on expenses, this meeting might be held in conjunction with the annual meeting of the Society.

Considering this topic of continuing education brought to my mind

the fallacy of lifetime accreditation. Let me give an example. Until a couple of years ago in Texas a person who had been blind for ten years could renew his driver's license simply because he had passed a driving test twenty years before. Here is a personal example. Thirty odd years ago I was granted a doctor's degree in pure mathematics from Rice. My field was functions of a complex variable. Today, in the better math departments in the country, there are juniors who know more about functions of a complex variable than I. I do not think that a man who received an M.D. degree in 1930 should, for that reason alone, be permitted to practice medicine; and what I say about medical men applies to those of other professions—lawyers, public accountants, and actuaries.

I have no solution to this problem. I certainly do not propose that we be obligated to pass the examinations again, say, every ten years. I do not want to have to take an examination in algebra, although I believe I could pass it. I do not want to take an examination in calculus, although I think I could pass it too. I do not want to take an examination on joint life functions, because I think I would flunk it miserably. One possible solution is that we might include in our Guides to Professional Conduct a statement that the actuary should not act as an expert in a field unless he has kept reasonably up to date with the Society program of continuing education in that field.

As a matter of fact, Guide 5 comes very close to saying this. It reads as follows: "The member will bear in mind that the actuary acts as an expert when he gives actuarial advice, and he will give such advice only when he is qualified to do so."

MR. ROBERT W. BATTEN: The Committee on Continuing Education is comprised of many of the most respected of our members, and its report is of the quality characteristic of the work of such a blue-ribbon group. I therefore find it quite difficult to criticize, but I do welcome the opportunity to discuss a few points which struck me as being of particular interest.

The justifications for continuing education as stated in the committee report are quite convincing but are so obvious that to list more than one seems superfluous. Any intelligent man realizes that the completion of a series of examinations, be they high school finals or that set of examinations with which we are vastly more familiar, merely indicates that he is ready for further intellectual challenges. If this is valid in a discipline such as ancient history, it is true all the more in a field such as ours, a field which is of relatively recent origin and which takes on new aspects almost continuously. We all have great respect for our examination

system, but we must remember that a new Fellow's entire course of actuarial study has been painstakingly plotted for him by the Education and Examinations Committee and that, regardless of his intentions, an abrupt transition to self-directed postfellowship education would be difficult, to say the least. The momentum which he has attained must be harnessed and redirected by the Society, albeit with less formal supervision than that to which the new Fellow is accustomed. To say more would be to belabor the obvious. The real question is how continued education can best be implemented.

When we consider that the Society has not in the past intentionally engaged in continuing education per se, it is truly amazing what a large percentage of its activities could be construed as falling into that category. The committee report lists several valid examples of this. I personally feel that the most effective of these is the work of the Program Committee and the Fields of Activity Committee in the development of the programs for Society meetings. I am always impressed by both the variety of the sessions and the expertise with which the various topics are presented. Even with the development of aggressive continuing education by the Society, it will be quite difficult to surpass the effectiveness of the present program format.

The word "aggressive" seems to be a key to the committee's thinking, as evidenced by repeated use in its report. There is, however, a potential "wolf in sheep's clothing" of which we must be aware. It would be easy, perhaps too easy, to tag some of the present Society activities with "continuing education" labels and overnight to claim implementation of a viable continuing education program. This is not the stuff of which the Society of Actuaries is made, and, therefore, I certainly do not foresee such a development. Yet we must keep in mind the fact that the committee's use of the word "aggressive" surely demands more than a mere renaming of already existing programs. It demands an unreserved commitment by the Society of all its pertinent resources, the greatest of which is the demonstrated willingness of its members to contribute their time and knowledge for the betterment of those members whose specialties are in different areas.

It seems obvious that the mechanics of continuing education must be based upon the various branches of actuarial specialties; indeed, much of the impetus behind the committee's formation was created by the realization that it is rapidly becoming impossible for one to be a true actuarial generalist. Without clearly defined delineations of subject matter, the Society would be defeating its very goal. The committee's selection of these specialty areas appears quite well thought out, and their four

basic principles in making this breakdown were kept inviolate by their choices. There will likely be some differences of opinion here involving the groupings, but their order of priority is more susceptible to argument.

I feel that there are two criteria to be considered in deciding where the initial emphasis is to be placed, in addition to the obvious one of which specialty area the membership appears most likely to support. First, since the continuing education system should by no means be considered independent of our examination system, it seems that stress should be placed on those areas in which the actuarial examinations place only minor, or insufficient, emphasis, as well as areas which are coming into prominence so quickly that it is difficult for the examinations to keep pace. Second, I do not feel that we should limit ourselves to the more technical topics, such as risk theory and variable benefits, just to name two examples. Many actuaries have, on their own initiative, already invested a great deal of time in pursuing the intricacies of such topics, and perhaps the Society should lean more heavily toward somewhat more general topics on which all of us have a passing knowledge but on which few of us qualify as experts.

I make these two points to register disappointment that Area 6, Economics and Finance, does not seem to lie in the committee's favor. It is suggested that this area may perhaps be combined with another or even eliminated. This seems unrealistic to me, especially in a period during which more and more aspects of life insurance operations—especially product development and marketing techniques—are so tightly interwoven with the long- and short-term economic outlook. The exposure to economic theory in the examination syllabus seems to me to be minimal, and, although the subject matter appears less specific than that in the other areas, I feel that we would be making a miscalculation if we chose to soft-pedal it in our approach to continuing education. Certainly the format of this very meeting indicates that many influential Society members consider it to be of more than passing importance.

A supplement to the committee report states that the executive director is planning to compile a much more detailed file of Society members and their interests. This proposed poll should produce great insight into the order of priority of topics desired by our members. In addition, relatively new Fellows could be asked to comment on which sections of the examinations they feel should be further developed in a postfellowship educational system; the older Fellows might be asked to state those subjects which have come into prominence in recent years on which there does not seem to be sufficient literature presently available.

Another possibility for taking the continuing education pulse of our

membership is by working through actuarial clubs, which, by the way, are becoming more numerous and more active. The secretary of each club might be made responsible for securing results of a survey of its members and transmitting them to the Society. Several obvious problems arise here, such as duplications and whether or not to allow students below the Associate level to be given an equal voice with a Fellow. With proper controls, however, this device would undoubtedly evoke a greater percentage response from our members.

I tend to concur with the committee's feeling that the written word will probably retain the supremacy in continuing education that has traditionally been accorded to it in actuarial education. Certainly, the symposium, or short-course device, should be quite useful with some of the more complex technical topics; but, even in such instances, preliminary preparation for attendance in these sessions most likely will be handled by requesting written materials from the persons responsible for these areas. The rigors of our examination syllabus reward actuaries with many intangibles, not the least of which is the ability to absorb large amounts of written material quickly and efficiently. This developed trait should not be overlooked in a discussion of postfellowship education. On the other hand, neither do we want to develop the image that we cannot communicate orally with each other. A well-rounded system must incorporate both methods of attack.

Yet, regardless of what weights are placed upon the two alternatives, it seems almost crucial that serious efforts be made to encourage papers in the *Transactions*. In a recent twelve-month period, less than 1 per cent of our members submitted articles for consideration, and barely half of those submitted were actually published. This is a disturbing fact in an organization which prides itself on its scholarly inclinations. Many who attended the recent annual meeting in Boston felt that the quality, quantity, and projected impact of the papers presented were unequaled in Society history. It is certainly to be hoped that an ancillary result of an aggressive continuing education program will be that the phenomenon observed in Boston will become the rule rather than the exception.

Active solicitation of worthwhile contributions to the *Transactions* should come from the company level as well as from the Society level. Actuarial clubs could provide an impetus toward publication by some method of recognition on the local level. The "publish or perish" doctrine has little appeal for any of us, but, as a Society, failure to publish in quality and quantity is tantamount to abdication of our responsibility to ourselves and our successors.

The committee report has accurately observed that the academic

world is not the center for actuarial education, as it is for many professions. Perhaps this will not always be the case, as more and more students are being exposed to formal actuarial training. But, regardless of this, the actuarial schools seem to be logical sites for any seminars or short courses which the Society may see fit to incorporate into a continuing education scheme. Most such schools are in easily accessible areas and can provide suitable facilities. More importantly, though, the publicity generated by such sessions would be a boon to recruitment of actuarial students, certainly one of the major problems facing the Society at this time.

The lack of adequate published material in certain areas brings to mind another potential device which would have the side effect of assisting those schools which have an actuarial curriculum as well as their individual students. Actuarial students often approach me for challenging topics for theses and dissertations. The Society would be performing a major service, it seems to me, if it were to draw up some detailed descriptions of topics which would be suitable for such research projects. These outlines could be distributed to each department chairman. Perhaps the specialists on the continuing education subcommittees could make themselves available for personal consultation with students recommended to them by their actuarial professor. Detailed bibliographies describing the existing publications in various areas would be a handy reference for the students as well. This approach would serve many purposes—it would benefit the students and, in turn, the schools, and hopefully would result in valuable additions to the literature.

The only question listed in the program on which I have not touched is the final one—"Can the committee structure of the Society evolve to encompass the continuing education effort and still effectively serve other Society purposes?" I feel that the key word in this question is "evolve." Certainly the Operating Committee on Continuing Education will find that certain tasks performed by already existing committees clearly lie in its domain. I am sure that Jack Bragg will agree that the inception of his committee's work will be sufficiently challenging, and assumption of responsibilities which are being capably handled elsewhere is not on its immediate agenda.

As this infant committee evolves into what I suspect will be second only to the E & E Committee in contribution to our intellectual growth, it will naturally be called upon to accept duties now performed elsewhere. But, for now, it seems that organization of the specialty subcommittees of the parent committee can begin without an ultimate answer to this question. Perhaps I am being somewhat naïve, but I do not foresee any

major difficulties in a gradual and orderly transition of continuing education functions into the Continuing Education Committee.

In a courtroom, the atmosphere was tense as the judge considered his verdict in the paternity suit before him. Suddenly, he reached into the folds of his robe, drew out a cigar, and ceremoniously handed it to the defendant. "Congratulations, Sir. You have just become a father." Sudden fatherhood is not at all unlike what the Society of Actuaries will be experiencing in the early days of this committee's existence. I carry no torch for any particulars regarding the mechanics of its formation or growth. I do feel, however, that this undertaking ranks second to none in our twenty-one-year history and that failure or only token success would do us great harm. The leadership represented by Jack and his committee is strong, but only with full Society support can its accomplishments further our image as a progressive organization never satisfied with the status quo.

MR. JONATHAN L. WOOLEY: When John Tomlinson, of New York Life, a member of the Committee on Review, asked me to make a few comments on the library, I almost said, "What library?" It has only been a year since I discovered that the library existed, and I found out only recently that it is in New York.

In accordance with what Joe Hahn said about keeping the actuary up to date, the library can be a very important tool in giving the actuary access to recent books and publications. The library is housed and administered by the Insurance Society of New York, and the Society of Actuaries pays $2,000 a year for this service. We budget only $150 a year for new books. Actuarial publications are quite expensive. They run from $10 to $15 per book. It is my suggestion, especially since the administrative fee has been raised to $2,000, that we budget more than $150, in case more than ten new books are desired. We also get some books for review from publishers. These books eventually get into the library.

Our library does have over 2,000 volumes, including a fine collection of foreign actuarial journals. Many of these volumes are of historical interest only, but this is where the $150 comes in to keep our library up to date. Very few actuaries know about the library, or, more importantly, care about it. The library receives about ten requests a month, either by mail or in person, from the membership, and most of these requests are from students of the Society studying for the examinations. Students are the only ones taking any real advantage of the library, probably during the last four weeks before the exams.

It is amazing that we have this potential in the library, especially with

the concentration of actuaries in the Northeast. Some people have said that they do not like to send away for books and then have the responsibility of mailing them back. One positive thing about the library is that an actuary may have the opportunity to, let us say, preview a book before he decides to buy it himself or to have his company's library buy it.

There are many questions that can be raised about the extension of the library, what can be done to promote its use, and so on. I would like to run through these questions and then see what the membership has to say.

What do we want our library to be? What types of books should we put into it? Should they be strictly actuarial or include such things as management, personnel, finance, economics, and the like? Should we encourage the members to use it? Now I will answer that in the affirmative, although increased usage is going to create higher costs. How can we publicize the library more? I have been in the profession for three or four years now, and for the first two or three I did not know that the library existed. Again, how much should we spend on new books every year? As I say, $150 is very small in my viewpoint.

One point that was brought out was that the Committee on Continuing Education, in developing bibliographies of books, could have each one of these books stocked in the library itself. I cannot see any purpose in having a bibliography and not having the books available in the library for the members to use. Also, maybe we can start a program to have members, outside the Committee on Continuing Education, suggest new books to be purchased for the library.

MR. HAHN: It seems to me that we need a catalogue that is distributed to the members. I cannot afford to go up to New York to see what books are available in the library. Incidentally, in addition to the library of the Insurance Society of New York, the library of the Casualty Actuarial Society is also available to us.

MR. CHARLES B. H. WATSON: I would like to say a couple of things about the cost of the library. I could not agree more that we should be spending more than $150 on books. This does not include the cost of any actuarial journals. Actuarial journals are obtained free, since we exchange with most of the actuarial groups around the world; we give them free *Transactions*, and they give us free copies of their journals. For example, the journal of the Institute, the journal of the Faculty, the Scandinavian publications, all come into the library free of charge.

Although $150 a year seems very small, there have been many years when it has not even been spent. In fact, I believe that only three times in the last eight or nine years has the $150 actually been used.

MR. DAVID J. BAHN: The larger companies, with their larger actuarial staffs and greater resources, are traditionally better able to afford involvement by their actuaries in projects of a general and professional nature, while the smaller companies must restrict their staffs to what might be called "production" projects.

Is this situation, if true, likely to lead to dominance of the subcommittees by the larger companies, with the result that some of the topics for which smaller company actuaries could use reading lists, and so forth, would be overlooked by the subcommittee?

CHAIRMAN BRAGG: Every effort is being made to see that this sort of thing does not happen. The first determining factor, of course, is that we must have good men that are going to perform on the job. Beyond that, every effort is being made to get a distribution on these committees, not only between the large and small companies but also by age, by geographical location, and with regard to getting the academic men adequately represented—the professors. No matter what company the man comes from, large or small, we feel that he should have backup assistance if at all possible in his organization, because there will be a great deal of work to be done.

This was, however, a good question to raise, Dave. We certainly are going to try our best to see that the subcommittees are not dominated by any group.

A question has been raised whether other actuarial organizations should be in any way represented on our Committee on Continuing Education. Specifically, for example, there is a question whether the Conference of Actuaries in Public Practice should in any way be represented on the retirement plan aspects of our work. That body, as you know, is largely devoted to retirement plan work.

MR. EDWIN B. LANCASTER: I would hope and urge that we include on the committee qualified members of the Conference (who are not members of the Society) if they choose to serve. As you know, I have represented the Society as one of the three Society representatives on the Joint Committee on Review. That committee is made up of eighteen people, three from each of the six North American actuarial bodies; it is sometimes referred to as the United Nations of the North American

actuarial profession. We are trying to bring together the various actuarial groups.

One of the problems that have dominated and overridden the deliberations of this committee has been a matter of slight suspicion as to the admission standards between the Society and the Conference. The Conference has had a long history of admission by fifteen years of practice and related standards rather than by formal examination. It has been more of an emotional atmosphere that has hindered our work than anything else. I, for one, at least hope that a qualified and willing member of the Conference could serve on this committee. I believe that he could add something to the continuing education work. The members of the Conference came through a little different background from ours. They did not have to go through formal examinations, but many of these people are very well trained. For the life of me, just as a matter of pure numbers, I cannot see how 1,700 Fellows of the Society can be very much weighed down by 150 members of the Conference who came into the actuarial profession by a different route.

CHAIRMAN BRAGG: The second Trowbridge report mentions priorities and more or less recommends the order in which these specialty subjects should be taken up. The recommended order follows. Area 5 is first—that is the research area. That is purely because it is already going on. There is a very active Research Committee under Mr. Lew's chairmanship. The next area in priority is the retirement plan area. The next areas, which are thought of as more or less simultaneous, are life insurance and health insurance. The areas of computers and corporate affairs follow. The corporate affairs area is a grab-bag topic in a way. It includes such things as management science and income tax; there is a controversial point about whether it should include the topic of adjusted earnings, incidentally. Does anybody have any comments on that? I would be interested in them. The next area is economics and finance. I think that there are many people who believe that economics and finance should be earlier on the list. I would like to hear some comments about this—whether you think this is the right order or not.

MR. WATSON: I am not at all sure that the order indicated for going to work in the various specialty areas is as important as one might think. Once an area chairman has been appointed and he has selected his subcommittee members, he is not going to sit around and do his work at a speed governed by the apparent priority of his area. He is going to work as quickly as he can. If there is a question of money—say, his subcom-

mittee wants to sponsor a book—then the question of priority might become important. This will certainly not occur, however, in the early stages of work.

MR. CHARLES V. SCHALLER-KELLY: Concerning the division into areas of interest in the group field, it seems to me that the distinction between group insurance and group pensions is due to historical accidents, such as different tax treatment, which have led to different funding vehicles. It is clear that both survivor benefits and disability benefits could be (and sometimes even here in North America are) provided by either or both of these means and, even if provided under a pension plan, may be term funded or, even if insured, should be prefunded. The relationship is well brought out in Mr. Trowbridge's classic paper on funding of group life insurance.

A more valid theoretical distinction is that between cash benefits, such as pensions, life insurance, survivor benefits, disability income benefits, and the like, on the one hand, and service benefits and benefits in kind, such as medical and hospital care, drugs, dental care, and the like, on the other. For that matter, this latter group could theoretically be extended to group automobile insurance and group-rated casualty insurance generally. The distinction I want to make is becoming clearer as the "reasonable and customary charges" approach becomes more widespread, replacing the fixed schedule cash indemnity.

If we claim any kind of universality to our science, we should not allow our North American training to prevent us from seeing where the real distinctions lie, especially for committees working on further education.

Hartford Regional Meeting

MR. BARNET BERIN: Continuing education is a prelude to a new educational program and to a new direction ultimately within the Society. We should keep in mind what continuing education really implies—a chance to move ahead; a chance to change fields; and, most important, a practical means to avoid obsolescence. Obsolescence is becoming apparent, and it is a grim prospect that can only be mitigated by a good program of continuing education. In a real sense, the Society is helping all of us by tackling this project.

MRS. ANNA MARIA RAPPAPORT: The committee report has spelled out the need for continuing education:

1. The need of all professionals to keep abreast of a rapidly changing field and to acquire and put to use new knowledge as it emerges.

2. The need of actuaries to dig deeper into any of several fields of actuarial specialty, as vocational pressures or individual inclination pushes the actuary to shift his emphasis.
3. The need of actuaries to broaden themselves beyond the areas of knowledge in which they have been especially trained.
4. The need of the older FSA to keep up with the changing syllabus on which newer members have been trained.
5. The need of the new FSA to have a channel along which to direct his further professional education.

I believe that the reasons spelled out in the report are adequate for embarking on a program of continuing education but that there are even more compelling reasons:

1. It is impossible to do a proper job of making business decisions without having an understanding of the real world business environment, including new technical developments, changes in the market place, and changes in the business environment.

2. It is my impression that, in the past, the actuarial education needed for attainment of the FSA has been an attempt to teach the student most of what has been done in the field up to that time. The education has been, in a sense, historical. The student has learned past solutions to known problems. In my experience, particularly in individual insurance, the practicing actuary normally can rely on already structured solutions to the same problems which others have solved before him. In his training he learns the existing solutions rather than how to study the problem and structure new ones. I believe, however, that the pension actuary, on the other hand, must regularly face new problems.

As the scope of actuarial practice is increasing, it will be increasingly impossible to teach established solutions to all problems of major importance. It seems imperative to me that we shift the emphasis of the examination program to one in which we expect the student to apply the methods and tools of the actuary to the solution of problems—and that we give up the idea that an actuary, in his basic training, will learn how problems were dealt with in the past, as if this were a catalogue of what he is to do in the future.

The in-depth presentation of solutions to specialized problems and of the application of the tools to these problems then becomes a problem to be dealt with both by experience and by continuing education. It is, however, essential that the student learn to build his own solution. This type of approach would provide both practicing and new actuaries a way to remain current.

The alternatives to this approach are not very appealing. I believe that the alternatives are (1) more specialized branches of the examina-

tions, (2) increasing the amount of material on the syllabus, and (3) diluting the material.

Any alternative other than continuing education leaves a gaping question: After Fellowship, then what?

In response to the second question, we *must* find the resources. The only way that we are going to find the resources is if the membership is willing to make a real commitment to the program.

It is unreasonable to expect that all the necessary manpower will be supplied by volunteers. Although we have relied very heavily on volunteers in the past, this is a very big new undertaking, and I simply do not think that it is reasonable to expect volunteers to do the job.

I feel that we are talking about four different resources:

1. Manpower to staff an operating committee that will serve on a voluntary basis.
2. Manpower to do needed writing and to plan and teach seminars.
3. Time in the Society office to handle administration of seminars, etc.
4. Money.

With respect to manpower for planning of seminars, I have investigated several continuing education programs of consistently high quality. There are many professional organizations as well as proprietary firms that do a lot of work in continuing education in many fields, such as computer science, legal, and so on. One of the common ingredients I found in any organization whose programs were of consistently high quality year after year was a paid professional who was planning the programs, arranging the outlines, getting the speakers, and so forth. This is not true for organizations running an occasional program.

Seminars can be self-supporting or nearly self-supporting, but additions to the literature must be subsidized. As much written material as possible should be done in book form so that royalties can be paid to the author. It is not reasonable to expect that tremendous amounts of work can be done on a voluntary basis if they are to be of high quality. Royalties per copy should be high, since the potential number of copies which can be sold is limited. The Society should be willing to pay costs and to subsidize such material.

Manpower can come either from within or from without the Society. A survey of the membership might give some indication of who is available and interested in participating in various Society programs, including continuing education and other types of work.

As far as I could determine, at this point the Society is spending very little on subsidizing what we might call continuing education. I think,

however, that the membership must be prepared for an increase in dues; I would guess initially a minimum of $5 or $10 a year if we are to get a meaningful program going.

MR. BERIN: We have two basic problems in this field. First, the Society operates on a completely voluntary basis. If you as an individual do not choose to serve on a committee or cannot attract a position that interests you, we all have lost whatever ability you have to help the Society.

Second, the Society operates on a committee system. I think that the committee system is a very slow, cumbersome way to achieve results. There are times when you simply have to go around a committee, and I do not know that our Society of Actuaries can do that without a permanent, paid staff. I think we are moving very slowly in that direction and that the only real solution is a permanent paid staff.

MR. A. CHARLES HOWELL: In connection with the question of a paid staff, is there a possibility that the university programs will not have a staff which would require a minimum amount of subsidization?

MR. BERIN: I do not know how the universities would respond. Even though most of our material has a theoretical base, a great deal of it is based upon practical experience, particularly the field with which I am familiar—pension consulting. It is very dynamic. It changes all the time. I do not know whether the universities can be leaders in all fields. There are certain fields in which they are natural leaders—operations research is one example. I understand we had a meeting a year ago that was very successful in that particular area. I do not know whether the universities can accept the role. There are ways in which we can bring them in, but I do not know whether they would voluntarily do it.

MRS. RAPPAPORT: I think that co-operation is certainly possible and that there may be much that universities can do. This is by no means going to be the full answer to the problem, however.

CHAIRMAN CHARLES L. TROWBRIDGE: A couple of members of the Education and Examination Committee are here who are very well informed on what the problems are with respect to the resources of the Society working on a voluntary basis. Bill Spare or Bob Johansen, could either of you give us a little insight on the problems encountered in the Society's relying on volunteers?

MR. ROBERT T. JOHANSEN: As chairman of the Education and

Examination Committee, I am very much aware of the problems the committee has had in developing material for its studies. We, as you know, have a very substantial number of study notes, particularly in the later examinations, and we try to get volunteers or we try to call on people to write these study notes. A good-sized study note takes a year or more to prepare, and sometimes we have had quite a bit of difficulty in getting it started. We try to look at our study material constantly to make sure that it is up to date, and yet, when we decide to change something, we have a real problem in getting a study note revised or a new one written. It is a great deal of work to write a study note, and it is—I won't say thankless—but the individual who writes a study note suddenly finds that he has many experts who are willing to second-guess him or point out where he should have done this or that or gone some other way.

When a study note has been written—or at least the outline written—it is subjected to constructive criticism by the committee and by the consultants and then finally worked into shape and published. All this takes time. It requires a lot of work on the part of the individual, including the typing of the final study note, which is up to the author under our present system. If we are to make this program more ambitious, I think the Society would have to increase charges or dues. We already have quite a bit of subsidy in our education program.

We do have a few textbooks, but again it seems to take years to get a textbook written. For some time now the Society, through its E & E Committee, the Home Office Life Underwriters Association, and the Institute of Home Office Underwriters, has been trying to get a new textbook written on underwriting. There is a group of experts working on it, but people who are experts in their field not only have the job of writing a textbook or writing a study note, but they also have their own jobs and many other obligations and requests. The time which they can devote to one of these jobs is often very little.

I have noticed that the number of study notes sold each year, particularly on the later parts, outnumbers the number of students who are taking the examinations, which would seem to indicate that our study notes are serving as a means of continuing education for people who completed the examinations some years ago. We are trying to publicize these study notes and make them known so that they will be referred to by people who have completed the examinations more than a few years ago. We think that we may have to have reviews published in order to acquaint people with the content of the study notes. This is part of our program, and we are also taking a look at the form of the study notes.

MR. BERIN: One of the disappointing experiences, not often discussed publicly, of working on the Education and Examination Committee—and I say this after six years on Part 9E and one year on Part 8—is that people can be mismatched on these committees. Many people get on particular parts for various reasons who have little expertise on these parts. This leads to some of the problems Bob is talking about. Part of the problem of the study notes is that you have to have somebody who is familiar with the material. The Society is slowly moving in the direction of trying to match people appropriately by letting them make their own selection. I think this participant selection is also valid on committee work. All of us should get involved in the future survey where we will indicate our special fields of interest.

MRS. RAPPAPORT: If material in the study notes were published as paperback books rather than study notes, if the name of the author were on it, and if the author were paid some sort of a modest fee or royalty—not a large amount but enough so that it is not a voluntary activity—do you think it would be easier to find people to write this material?

MR. JOHANSEN: We now have the practice of putting the author's name on the study note if he wants it. We are looking into this question of paperback versions of the study notes with the authors' names given. If we were to pay a royalty, we would have to increase the price of the study notes substantially, since at the present time the cost of the study note in no way takes care of the Society's expenses in printing it, mailing it—the postage is quite substantial—and the clerical cost of handling it in the Society's office. Right now we lose money on every one we sell. Incidentally, I think that we will have to increase the price of study notes, particularly in view of the proposed increases in postage rates.

We do have quite a job recruiting people for the examinations. We tend to draft the younger Fellows plus volunteers. If we do not get enough volunteers, then we do have to go through our files of recent Fellows and try to pick people. We do not always know who has the most experience or the most interest in what part. When we have a volunteer, the individual will say, "I am working in such and such an area, or I am interested in such and such an examination," and in that case we can place him properly. We cannot always do this on the people that we draft. So to this extent we would appreciate having some information

MR. BERIN: I am going to propose later—and I will mention it right now—that, when someone becomes a Fellow, he ought to be asked to list voluntarily any particular fields of interest that he is involved in or enjoys—whether 1, 2, or 3, it does not matter. This should go to the Education and Examination Committee or some central pool as a very simple mechanism to spread this information around. You cannot have a good examination if you do not have good interested people on the part committees. When you put somebody who does not know anything about annual statement work on an annual statement examination, you will get simply a verbatim copy of the study notes back again.

This is a problem that we should all be aware of, since we are not going to have a good continuing education program unless everybody who could possibly contribute is going to get involved.

MR. WILLIAM A. SPARE: It was mentioned earlier that the present syllabus is more or less a history of what has happened in the past. I would like to point out that it is often difficult to get a study note written on a new concept. There is often a reluctance on the part of a person to write such a study note, not because he does not have the time, but because for competitive reasons his company may not want to share its secrets, at least not immediately.

MRS. RAPPAPORT: I am not saying that I expect every new solution to a problem to be published immediately. I recognize the business reasons for not publishing much material. There should, however, be a different order of priority so that the student is expected to use the tools and work out his own solutions. One of the things that struck me about the examinations when I wrote them was that basically all the material called for in the examination was a repetition of material which has appeared before in substantially the same form. You apparently do not expect the application of the tools to different kinds of problems, and the student is not expected to use the tools in new ways to structure his own solutions to problems.

MR. SPARE: On the question of recruiting, I know from experience that it is difficult to assign people to part committees solely on the basis of their interests. Although I tried to take into account topics in which persons were interested, I found that too many people expressed an interest in a few topics while no one expressed interest in certain other

topics. I agree that we need more information about the interests of our members and hope that such records can be established.

Lack of time seems to be a major deterrent in recruiting, and hence on the early parts we concentrate on recruiting relatively new Fellows who usually have more time to spend on committee work. For the later parts, especially 9 and 10, we try to recruit persons who have had several years of experience in the field. Here we run into difficulty finding people who can find time to do the work.

MR. BERIN: We should approach 100 per cent of the Fellows each year; to get started, we ought to survey all present Fellows and ask each one what his interests are. In this particular area of continuing education, the Society has to recruit everybody and get everybody involved.

MR. WALTER N. MILLER: I thoroughly agree with everything that has been written and said about the need for a continuing education program in the Society of Actuaries. I am going to be active in this program, and I realize that there is a lot of work to be done and a lot of time and effort that should legitimately be put into a program of continuing education.

There are two things I have heard this morning that concern me. First, I think there have been some suggestions that one of the reasons for a program of continuing education is that it offers a way to make up for some of the mistakes and faults in our basic education and examination system. Now, to me, there are many good and valid reasons for a continuing education program, but this is not one of them. Admittedly, the education and examination system that we have is not perfect, but it does a fairly good job in my opinion—and here I must say that I speak also from the standpoint of having worked for many years on the E & E Committee. But if we do need changes or improvements in the examination system, the place to make them is in that system rather than through a continuing education program.

Second, it is true, when we look at this new program before us, that what we would like to have is the maximum possible resources in terms of time, people, and, as Anna has suggested, money. This is fine if we look at the continuing education program by itself. It is certainly true that offering royalties may attract better people to write study notes, text-

Perhaps in continuing education we may have to go outside the Society and pay to have some materials prepared, but this is not the same thing as getting members of the Society to contribute material on a part-time basis. For that I think the only solution is recognition and appreciation—not money.

MRS. RAPPAPORT: I believe people can be taught approaches and methods of solving problems.

MR. CARL H. FISCHER: I would like to support what Barry Watson said on two counts. One of them is with regard to something new and original in the examination questions. I would agree that you cannot expect research to be done in fifteen minutes on an examination. The second is in regard to the beneficial effect that would be obtained if we paid people to write. Having written a couple of books myself, I will say that writing a book, even when there are royalties, is about the poorest paid occupation that I know of. Barry is completely right, in my opinion, that the recognition that one gets (which, incidentally, the Internal Revenue Service cannot tax) is by long odds the most effective spur to writing. In fact, when I wrote the last book I knew in advance that it would return virtually nothing in the way of royalties.

MR. BERIN: Question 3 is a very long question with many parts, and I am going to break it up.

The report mentions areas of specialty based on several criteria: homogeneous material, sufficient interest, some educational effort required to move forward, and at least one area of interest to all of us. Even a casual reading of the *Transactions* today shows that our written papers and discussions have become highly specialized. However, both the papers and the discussions—and this is a very interesting point—are often felt to be inadequate by those who are deeply involved in a specialty. At present there is no existing machinery for coping with these deficiencies. We have no way of attracting those people who feel that they have additional material or points of view to contribute to an audience. A program of continuing education is a sensible way of attracting these people, keeping up to date, and becoming more professional.

The second part of the question is, Are the suggested specialty areas logical? It would be wise if all of you have a copy of the report to notice one change that we were told about last night. Under Area 1, Individual Life and Health Insurance and Annuities, and Area 2, Group Life and Health Insurance (Private and Public), the comment about restructuring

along product lines has been approved. The areas of specialties 1 and 2 have been changed slightly, and they now read like this:

1. Life Insurance and Annuities (Combined Group and Individual)
2. Health Insurance (Group and Individual)
3. Retirement Plans
4. Computers
5. Research
6. Economics
7. Corporate Affairs

I think that these divisions are fairly assigned.

I would like to see foreign pension plan problems and foreign social insurance programs covered under retirement plans. Under this same category—retirement plans—performance measurement is not clear to me. I would like to know what that really means.

If the Society is going to develop a good program of continuing education, I do not think that this breakdown into seven specialties has to be very meaningful right now. It may evolve because of everybody's interests.

The third part of the question is, In which are continuing education needs the greatest? I feel that the pension consulting actuary has long felt removed from actuarial literature and from the regular programs offered by the Society of Actuaries. I say this with deep regret, and I say this with awareness of the actuarial literature on pensions. This is based upon experience on three of the Society's committees concerned with pensions. I think that a considerable effort is required to bring the pension consulting actuaries back into full participation in the Society.

The last part of the third question is, What is the order of priority of areas involved? Which do we think is most urgent?

The pension actuary, having completed the actuarial examinations, has a striking disadvantage in comparison with his counterpart, who has become an individual or ordinary actuary. This gap between examinations and professionalism should certainly exist—there is no question about that—but I think that the Fellow who goes out thinking that he is an employee benefit specialist or a pension actuary has a tremendous gap that has to be bridged by intensive practical experience.

are fundamental things that a person should know that are not in the literature.

MR. GALFRID L. MELVILLE: I am from Australia, but at one time I did work in the United States. I have two comments. The first is that, back in those days, there was a group department and there was an ordinary department. I do not know whether it has changed since, but neither understood the other at all well. There was great need in those days for an educational program between the ordinary department and the group department as to what each was doing about life insurance. Maybe things have changed now. I am wondering if you should have an area that covered both group and ordinary. Should there not be one area for group and one for ordinary so that the ordinary people could learn about the group and the group people could learn about the ordinary?

The second comment is on the point about pensions, which has been a specialty of mine. Are you asking that you should be better educated for your particular specialty, or are you requiring that everybody who is not in that specialty should be educated to that advanced level? It is true that most of the advanced pension consulting work these days is not written down, and you have to work it out yourself, but you only have to do that if you are in that specialty.

MR. BERIN: I feel that the literature should be brought up to date. I would not inflict it upon anybody who was not interested in that particular specialty.

MR. MELVIN L. GOLD: One area in which we are deficient is the area of judging the operation of a company. We have a great deal of material on asset shares, valuation, and the like, but how infrequently do we get involved in judging the operation of our own company? It is my thesis that the certification by C.P.A.'s is generally worthless and that a report by the actuary to the board on how the company is doing would be much better. In a mutual company that is desirable, too. I think this area of how well we are using our resources, our assets, our capital, is a very voluble area now. You could bring in the question of adjusted earnings and other items, but I think this is one area from which the actuary has shied away so often. It is partly technical and partly managerial and is, I think, one area on which we could concentrate more.

MR. MILLER: Trow, could you tell us a little about your committee's thinking in connection with the restructuring of Areas 1 and 2?

CHAIRMAN TROWBRIDGE: This particular area has been very difficult. We have an area of individual versus group. We also have an area of life insurance versus health insurance, and these are all mixed together. The original report, as you have seen, effectively made a split on group and ordinary lines. Now the committee has reversed itself, and, in effect, has said that it thinks a split between life and health is a better split. The fact that we, in effect, came up with the second recommendation is an indication that there was a great deal of disagreement on this point.

MR. JAMES A. GOBES: My views on these two areas are a reflection of the operation that I am in—group insurance. We find that we are working with combined health and life insurance problems on a group basis, and the people we have talked to are in the same sort of operation as our friend Mr. Melville. The same problems exist today that existed then. There is not as much communication between individual and group as there should be, but I think that it is a very real split—more real than trying to split life insurance, group plus individual, against health insurance. You will find on that basis that you will have some individual members on the life side and some individual members on the health side, and you will have group insurance people trying to keep up with two areas of specialty rather than with one. This was my concern.

CHAIRMAN TROWBRIDGE: Either way you do this you will have some difficulties. Suppose that your split is essentially on group versus individual. The individual line will have many life actuaries and relatively few health actuaries. Those few will be orphans in a specialty that really does not include them. This is the difficulty on that particular split. If you do it the other way round—as the committee now suggests—in terms of health insurance versus life insurance, the man who is left out is the group life actuary. The actuary particularly interested in group life insurance is in with ordinary life actuaries not particularly interested in group.

On the other hand, it is my opinion that the group life actuary, as such, does not really exist. Group life insurance is so mixed up in every respect with group health insurance that, if that man really views himself as a group insurance actuary, he will find a place within health insurance. I am really a believer in the split that we are suggesting now, and I think it will be the better of the two; I certainly, however, recognize the difficulties in both ways.

MRS. RAPPAPORT: I hope that these areas of specialty will not become permanent, separate divisions but rather a means to divide the work up.

I hope that any particular project will relate to a particular topic and that the people interested in that topic will participate regardless of the labels that are attached to them.

MR. VISHWA N. KAPUR: Being a Fellow of the British Institute, I am aware of several differences between its system and that of the Society, and I think that some of the problems can be tackled if we borrow some facets of the system of examinations of the British Institute.

For example, the British system has two levels of examination for the Fellowship—the less advanced level and the more advanced level. The student who intends to go into the pension field has to pass the examinations for the less advanced level of life insurance; similarly, the student who wants to specialize in life insurance has to pass the less advanced level of examinations relating to pension funds. By the time a student qualifies as a Fellow, although he may be a specialist in the pension field (or in the life insurance field), he is not completely divorced from what is going on in the field in which he did not specialize. At a later stage, if he intends to switch fields, all that he has to do is to brush up on his knowledge or to enlarge his knowledge of the other field.

The Society should consider whether complete compartmentalization of its examinations into life and pension fields, as at present, is healthy or not.

I did not make any comments on some of the points which have been touched on earlier, and I think I can add a little something by way of comparison. If a Fellow of the British Institute wants to be up to date in any particular subject, all that he can conveniently do is obtain the latest study material provided by the Actuarial Tuition Service. The courses of the Tuition Service are revised frequently and brought up to date, especially for the later parts. Each course is a collection of commentaries on all the reading on the subject. It does not necessarily respect what is contained in the original papers or the textbooks. It is, however, an exhaustive source of reference to all the available study material on the subject.

For example, a study note on principles of pension funding will not repeat the classical paper of Mr. Trowbridge but will make a reference to it, clarify points of unusual difficulty (if any) in giving a brief résumé of the subject, and name the source where it can be found. I personally found, in going through the study material for the later parts of the Society's examinations, that the material is widely scattered, is available in a disjointed form, and there is no single source which can help you to locate it.

Another notable difference is that the Actuarial Tuition Service in England has as its secretary a senior actuary who is experienced in almost all the fields. The secretary is an extremely helpful person to whom all students can turn in solving their difficulties with the study material. The system of tuition incorporates a set of lesson notes followed by a set of test papers. The students are expected to answer the test papers and send them to the tutor. The tutor corrects the papers and sends them back to the student with all comments. This is done even for the later parts, and the system has been working so well that actuaries of younger generations owe a deep debt of gratitude to the Tuition Service. An actuary who took the examinations several years ago and wants to refresh his knowledge could do so by going through the latest study material on the relevant portions of the subject. He will probably find that he is then as up to date as a fresh Fellow who has just completed his examination.

One suggestion which I think could be considered by the committee relates to collection of material from different companies for incorporation in the study notes. Over the years, the companies have, for their internal working and for the guidance of those who may be doing the work for the first time, compiled some very well written notes and memos elaborating their practices. I personally feel that they can be of immense assistance to the students.

MR. BERIN: I was delighted by an omission in this list. It seems to me that every once in a while at these meetings someone gets up and, with a great deal of enthusiasm, describes why we should have a course in scientific personnel management because that is the answer to all his particular problems. I was relieved when I looked under corporate affairs and did not find anything like that.

MRS. RAPPAPORT: The report strongly favors continuing education through the use of written material. The committee has recommended four things which need to be done:

1. The review of the present literature (both within and without the strictly actuarial journals).
2. The selection of appropriate written material for reading lists or bibliographies.
3. The identification of areas where good written material does not exist.
4. The development of new papers, books, or articles to fill in the holes.

I agree that all these things should be done. Of course, this is a big and long-term undertaking. Because I have benefited from seminars

and other kinds of verbal presentations, and because seminars can be under way faster, I hope we will also use the spoken word in continuing education. I found that listening to a good program for one or two days could get me started and provide me with some information on a new subject area that I knew little about. If it had been up to me to get the information from published sources, especially if these sources were scattered, I probably would never have bothered.

There are different and distinct purposes possible in a continuing education program, and we must separate them in talking about this topic. First, it should provide a basic background and start toward a practical working knowledge in a specialized area. This is for people who have no particular prior experience in that area but who are experienced people who could start on a technical level.

This approach can be handled very effectively by a seminar of two or three days' duration. This approach would be very effective for such subjects as taxation of life insurance companies. Society meetings can never meet this need—first because it is intended that only new developments and original material are to be presented in the discussions. The purpose of Society meetings is not to provide members with background; it is not to help them to know where to go for more material; it is not to give them an idea of the major points in a subject area. I do not think that it should be or that it can be. This is a completely different problem. If a subject was not adequately covered on the examination syllabus or has changed substantially, the practicing actuary is expected to learn the basic material on his own. For a busy person the seminar provides an invaluable start. You can get a great deal out of two or three days. Also, I think the problem is intensified because of inadequacies in the content and the form of the literature.

There is a second need—the need to present new developments to practitioners who are experienced and expert in the existing field. If the developments are well defined and noncontroversial, probably the written word is adequate here. However, if there is controversy, if there are alternatives, or if there are difficult technical problems, an in-depth workshop is probably invaluable.

Society meetings provide a start toward this type of approach. It is a limited start, however, because each session is relatively short. Also, there is no continuity in meeting attendance, and particularly not in session attendance. In a Society meeting it is impossible for the same twenty-five people to sit down and talk about the same problem area for two days. The same twenty-five people are never present at one meeting and then at the next one. Also, in a Society meeting there is always a

mixture of participants in each session. Some are practicing specialists for whom the material presented is too elementary; some are interested because they want to learn the basics, and the material is incomplete and does not make sense; and some are in the middle.

I wish to emphasize that seminars can be set up and started in a relatively short time. I do not believe that it would take a number of years to start and get a seminar program going as it would to get meaningful additions to the literature.

MR. KURT K. G. VON SCHILLING: With regard to seminars, I would like to introduce one word of caution. If you organize a seminar, you should keep in mind that this is a North American body, and the content of the seminar should be geared to our work. If you would have topics which are of interest to both Canadians and United States participants, you can mix them and then subdivide into sections if you have particular regulatory problems. But I think you would get more participation, and better participation, if you would structure your seminars to a broader field.

MRS. RAPPAPORT: I don't know. I feel that one of the beauties of seminars is that, if you have a decent fee attached to them, you can appeal to a very limited number of people in comparison to the total membership and still run a very successful program. Certainly we should not look at only one set of people's needs, but you can be specialized in a way that you cannot be in a Society meeting.

CHAIRMAN TROWBRIDGE: The seminar concept has not been used by the Society to any great extent. We have one notable exception to that—our Committee on Research, which has been operating almost in the framework of this committee's report as a subcommittee in a particular piece of actuarial knowledge, has over the last four or five years put on a seminar program at several universities; they were at Harvard, Duke, Michigan, and Yale. This usually is a seminar of some length. There are a relatively small number of people in attendance. These have been quite successful and have been financially self-supporting, too. So the concept of a seminar is not entirely new to us, although we have not done very much with it.

MR. BERIN: I think that the role the universities play is up to them. Much of what we do has a theoretical base and would be suitable for a university, but nearly all of it involves considerable practical experience. I have more hope for the various actuarial clubs participating in the area

of continuing education. For some of them it would involve a very radical departure from what they have been doing. I think that a seminar involving free discussion could be worked out within the framework of the actuarial clubs—even to the point of adding a traveling group to discuss various topics. With proper encouragement I think that the clubs could be a fertile source.

MR. FISCHER: I think that the universities could play a part in continuing education. There are two kinds of continuing education. There is the highly specific applied subject, which I think most of the discussion is centered around. You probably need leaders in the field—practicing leaders—to handle those. When it comes, however, to the general theory of whatever topics we are studying, the universities can play a role. They have certainly done so successfully in many other fields; for instance, the Harvard advanced management program is very famous. Probably everyone here knows about it.

At the University of Michigan we have had for the last twenty years some very successful advanced management programs—a very general one for any kind of business and a rather specific one for public utilities executives. We have had public utilities executives from every state in the union and from a large number of foreign nations. We have had such a program for Blue Cross executives, also.

I might offer a suggestion on the kind of topics that universities could present. Mathematical topics could offer both introductory and more advanced courses in operations research, numerical analysis, risk theory, and advanced statistics. They could get into decision theory and many other topics of that sort and, of course, computer theory. In the field of business—and if life insurance and pensions are not businesses, I do not know exactly what a business is—there is a large and growing body of management theory, and, after all, life insurance companies do have to be managed.

Regardless of what was said a while ago, we *do* need some scientific personnel management. Don't you all have personnel? Don't you all have personnel problems? We could have cost accounting; we could have

Risk and Insurance which is published by the people in that field. I have noticed in reading these articles, and they deal with all the things that we are and should be interested in, that occasionally there is a reference stating that a paper had been sponsored by this or that foundation. How can we get foundation money to get things written in a field that would be for our advantage?

MR. FISCHER: I have not been as successful as some of my colleagues in getting foundation money, although I have had a little. I think, John, that you have raised a good question of how it can be obtained. I cannot give you the answer off the cuff.

MRS. RAPPAPORT: You ask, "How can we get foundation money?" The first question would seem to be, "What can we do for ourselves?" In response to the earlier point made, other things are done by the Society that certainly are equally if not more important. In those areas we also have to ask ourselves what support we can expect from our membership. I guess the question involves a balancing of to what extent we expect members to make a uniform monetary contribution and to what extent we expect members to make an uneven contribution of their own time and effort.

MR. BOERMEESTER: I rather disagree with your approach. If I have a problem, I am going to look for all possible solutions. If I cannot solve it myself, I will look for help from someplace else.

MR. BERIN: About two or three years ago a few of us tried to stimulate a book on pension mathematics. We contacted half a dozen foundations to see whether we could get any kind of financial support. The answer was always no. They felt that it was too narrow or too specialized. We realized that was so and that we had tried to do something that was extremely difficult to do.

MR. GORDON L. CORNELL: You may be interested in what some other professional bodies have done in this same regard. When the Federation of Financial Analysts decided that they wanted to have a structured examination to charter financial analysts, they affiliated themselves with the Graduate School of Business at the University of Virginia. This has worked out quite well for them. They now have an Institute of Chartered Financial Analysts. The subject of continuing education and the university's role has been one that they have, I think, successfully managed. They have seminars that they hold each year, and they publish

a booklet. The next one coming up is on the investment of life insurance money.

MR. BERIN: Question 6 concerns whether the committee structure of the Society can evolve to encompass the continuing education effort and still effectively serve other Society purposes. I think the answer, at least what we feel, is that it will have to. The nature of our Society is such that we have to rely upon a committee approach.

We need good people, many good people, on committees. I want to suggest formally an FSA pool whereby all new Fellows and all existing Fellows at the time of the changeover would be polled as to their special fields of interest and their willingness to participate. This could serve as a supply for many, many committees.

I think consideration should be given to changing existing committees. A particular committee I would identify is the Committee on Papers. I think our material has become too complex and too specialized to have one committee serve that function. I would suggest that it be separated into subgroups by specialty.

I would also suggest that some consideration be given to the direct commissioning of papers and books by individuals because the committee work involving books and papers is a very long, tedious process.

All of this involves involvement. You simply have to decide whether you want to be involved or whether you do not want to be involved. We are not going to have a reasonably good program unless people get deeply involved.

MRS. RAPPAPORT: I would like to raise a different question for thought. What is the appropriate role of the Society members who are working as committee members? To what extent can we expect, if the programs of the Society are going to expand, that the committee structure can do everything or almost everything that needs doing? Does it need more support, and should that be professional paid support? What is an equitable means for sharing the "effort" among the membership?

CHAIRMAN TROWBRIDGE: I think we have had one little problem throughout this discussion that I will try to clear up. Continuing education in the framework of this committee, simply by definition, is education beyond the Fellowship level. The work of the Examination Committee is essentially qualification of actuaries and eventually selecting out those people who we think meet our professional qualifications. We all agree that somebody who has become an FSA is not really competent in all

areas but he has passed all our requirements. The Continuing Education Committee has no intention of changing those requirements substantially. Of course, they will change as time goes on. That is not the point. What we are hunting for here is an organized education effort beyond the Fellowship of the Society of Actuaries, and the co-ordination between the continuing education effort and the E & E Committee really does not have to be so tremendously great. One thing that appears to continuing education thinkers here is that the E & E Committee is essentially trying to select people, but it is handicapped by not always having good educational material. If the continuing education effort would turn out, in the long run, good material from which the E & E Committee could select in setting up their syllabus, that would take a burden off the E & E Committee that really should not be there in the first place. The E & E Committee is doing this kind of work simply because nobody else is, and they have to do it. But it is hoped that in the long run the continuing education effort would simplify the E & E Committee's job tremendously. They would only have to select material and examine material rather than actually develop material. This is where the real co-ordination between these two committees would come.

Obviously there are other important co-ordination efforts necessary, particularly with the Committee on Papers, as suggested. The Committee on Papers in its present structure in no way encourages papers and in no way goes after papers. It only selects from what it gets. Anna suggested that the Committee on Papers might be broken into specialties. That might be fine, if we were getting enough papers so that it was becoming a burden. When you get a few papers a year, a specialist might have nothing to do.

MRS. RAPPAPORT: I am interested in writing, and I have found that it is extraordinarily difficult to get material published. I have not had a paper published—I submitted one once. It was particularly disturbing that, when I was interested in writing a paper, I could not get any answers in advance to indicate whether my subject was an appropriate one or on what standards a paper would be accepted. Both within and outside the framework of the Society, if you have something worthwhile to say, it is a horribly frustrating experience to try to get anybody to put it into print. The author faces a two-sided problem, developing his material and selling it for publication.

MR. FREDRICK E. RATHGEBER: I think that the Society meetings themselves are a medium of continuing education that we really have not

discussed much this morning. Are we ready to experiment with meetings of the Society which tend to follow these seven courses? Are we ready to have, for instance, spring meetings which specialize in these subjects, where people can get together and discuss these narrower ranges for a period of two days? This is more in the line of what Anna was saying about seminars. I think we do have a mechanism that perhaps we are ready to try.

MR. GOBES: Fred, it seems to me that we are doing that to a certain extent with our concurrent sessions and our workshops. Our workshops do split people into different areas of interest.

I was glad to hear Trow's remarks addressed to the specific question. The feeling of this member of the committee was not one of finding fault in any way with the Education Committee. In fact, to the contrary, we think they are doing a fine job of bringing knowledge to those people aspiring to become members of the Society. Our difficulty is that the newer members are probably better educated on many different topics than the older members. The job of the Continuing Education Committee, as I see it, is to try to pick up or extend to older members the same knowledge and training that the E & E Committee is giving to new students.

One of the very important aspects and concerns was how to get the study notes into the hands of existing members of the Society on a better-organized basis. If you look at the syllabus for the later exams—I can safely say this as a former member of the E & E Committee—you will find that most of the material is in study notes rather than in published material. These study notes are excellent material; they have been very carefully prepared by the members of the E & E Committee and represent a lot of effort. We would like to see this material made available to other people—to existing members of the Society. We also recognize that the E & E Committee is probably the most overworked committee in the Society, and, to ask them to take on the job of educating not only prospective members but retrospective members as well, would be just another straw on an already overloaded camel's back.

MR. DAVID H. WOOD: Is there some reason why new study notes could not be published in the *Transactions* whereby they automatically would be made available to the Society members?

MR. BERIN: It is the surest way of making certain that they do not get read. There is a tremendous logistics problem involved. It is an interesting idea.

MR. JOHANSEN: On the question of the committee structure being used for continuing education, the E & E Committee has over the years been accomplishing its job, which is really the education of new actuaries and not just qualification. We at least try to think of ourselves as educators rather than merely examiners. The purpose of the examinations is to ensure that we have accomplished our aims of education as well as to ensure that the people admitted to the Society are qualified in ability as well as in knowledge.

The committee structure has worked and, I think, has worked well in getting its work done. The quantity of study notes and of other material which has been selected is huge, and it encompasses not just the advanced but the elementary. We are hopeful that the Committee on Continuing Education may be able to help out considerably in the advanced area, and, if that is done, we can easily take care of the more elementary parts.

I do not think that the study notes should be published in the *Transactions*, because some of them are compilations of material that is available elsewhere. Some study notes are elementary and would not advance the state of the art to the practicing actuary, but they are essential to the individual who is studying for the earlier examinations. In addition, study notes are revised and updated every few years, making published study notes outdated.

By way of suggestion, perhaps the Committee on Continuing Education should select its committee members from graduates of the E & E Committee. The E & E Committee in turn will be very happy to act as a basic training ground for prospective members of the Continuing Education Committee.

MR. JOHN K. DYER, JR.: I would like to make one or two comments leading up to the same line of thought that Fred Rathgeber expressed a few moments ago. Over thirty years ago, when I first started attending Society meetings and reading the *Transactions*, both the literature and the meetings were exclusively devoted to life insurance. We never found anything relating to pensions. There was a rash of articles on social security in the middle thirties, but that is the only exception that I can recall. Then, as more and more actuaries began to go into consulting work, there was considerable agitation to have more papers and meetings devoted to subjects of interest to consulting actuaries, pensions in particular. Eventually it turned out that way, and, of course, we now know that there are a great many articles and a great many discussions on pensions. Other specialties have developed, and these have gradually, and often belatedly, been recognized in the arrangements for our meetings and in the papers

written. I am afraid, however, that the end result has been that the meetings now tend to include something for everybody but not a great deal for anybody.

This leads quite logically to the point that Fred Rathgeber made, that perhaps some of our meetings should be organized on a functional rather than a regional basis. Some of our meetings might be devoted entirely to a single, although not too narrow, subject. Those who attended would be specialists and would find a considerable amount of material relating to their specialties.

CHAIRMAN TROWBRIDGE: I now would like to bring us back to what the situation is now. The original Committee on Continuing Education has put itself out of existence simply by recommending a restructuring of the effort along specialty lines. Since the original report was made, the old Committee on Continuing Education has recently made a second report to the Board of Governors. The purpose of this second or supplementary report was to make final recommendations as to the specialty identifications, the question that plagued the committee from the very beginning; and, second, to state our views on how best to effect co-ordination between the new operating Committee on Continuing Education and other Society committees.

Finally, I can report to you that the restructuring of the continuing education effort—and I would call this a metamorphosis from the planning stage to the doing stage—is very well along. We have asked the members to discuss this report today and at Houston. Regardless of the membership's feelings about the report, plans have gone along, and the Board accepted the report some time ago. The new chairman of this continuing education effort is Jack Bragg, who was a member of the original committee and who was the moderator of the panel in Houston. He is an excellent choice in every respect to head this new effort.

The editor of *The Actuary*, Andy Webster, has just written an editorial on the library of the Society of Actuaries. You may have seen this editorial in the March, 1970, issue of *The Actuary*. The rules for the use of the Society library are in the *Year Book*. Obviously, the Society library is a piece of the continuing education effort. The Committee on Review, particularly Mr. John Tomlinson, Assistant Actuary at New York Life, has under advisement the problem of what to do about the Society library. The real question is whether it is needed at all, and, if it is needed, how can it be better used? We have a library; it takes some effort; very

few people use it. We either make better use of it, or we give it up. I think that is the general feeling.

We are not prepared to discuss this topic today, since it was not on the agenda. If anyone has any ideas on what could, should, or ought to be done about the Society library, I am sure John Tomlinson would like to hear from you.