ADDRESS

BY THE PRESIDENT, FRANK MITCHELL REDINGTON, M.A.

[Delivered 27 October 1958]

ANY profession or occupation gives to its practitioners some special emphasis on life; we play one instrument in the orchestra. To play our part worthily we need more than dexterity upon our own instrument, for we are part of the whole. The occasion of this address is a peculiar opportunity, which I greatly value, to stand away from our immediate concerns and to contemplate a wider world.

For some centuries we have been probing the universe with our minds and scientific instruments, and we have discovered wide areas where unsuspected order reigns. The successes of science have been so numerous and so tangible that belief in its authority has naturally become part of our basic attitude to life. It has become one of the invisible company whispering at our shoulders, of whom we are largely unaware but whom history will readily identify, for good and ill, as part of our particular genius.

Science is the translation of the voice of Nature into a language simple enough for our limited human capacities to comprehend. The science of which we commonly think is, I believe, no more than the elementary Chapter I of this translation: exciting, successful, but only the beginning.

What then may we expect in Chapter II?

I suppose the supreme example of the success of Chapter I is to be found in the heavens, where the stars and planets glide along their orbits in passive obedience to the translations of Newton and Einstein. There, at least, we may feel that the rule of law is absolute. But come with me for a moment away from the professional workbench and into the night. Let the dazzle of artificial light fade from your eyes and regard these stars and planets with the gaze of simplicity. To the telescope they may send a message of inexorable law, but to the natural eye they are a random scatter of wild flowers across the three-dimensional meadows of the sky. The ancients may not have suspected the order in the universe, but we, with our microscopes and telescopes, and flushed with our triumphs in Chapter I, may be forgetting the lack of order.

The regiments of the stars are not regimented. The music of the spheres is not the regular hum of the dynamo nor are the words of the song deterministic. The dominant theme is chance and individuality. It is probability, not certainty.

I have chosen the night sky as my illustration, but I could equally have chosen a hedgerow, a cubic yard of the ocean or a group of human beings. The message would be the same though the beauty of the handwriting would be different. Throughout all Nature's processes—and notably those of birth and creation—there are the most elaborate devices to ensure randomness and the scatter of opportunity. The distribution of her progeny is carefully enriched with uncertainty and variation. She is methodically unmethodical. One of the themes of Chapter II is certainly uncertainty itself.

It is becoming clearer that man can translate the voice of Nature into the particular human dialect which we think of as exact science, not universally
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as some may have fondly hoped, but only in those areas which are so far removed from ourselves in time and space that the chance variations are inappreciable. At the extremes, but only at the extremes, probability becomes certainty and it is at those extremes that we have found the material for Chapter I.

If, however, we could slow an atom to walk at our pace we might be able to write its biography. If we could speed the heavens we might be able to issue monthly statistics of the live birth of planets. All our rigid equations would then become flexible statements in probability.

Exact science can handle 6 billions or 6 billionths but the mere six feet or so which contains our happiness has so far largely eluded it. Perhaps the warmer climate of Chapter II will help to soften the ice which grips this problem. Chapter I alone tends to bring with it a feeling of certainty, of intellectual arrogance, of mastery over Nature, of materialism, of absolutism in politics, of discipline towards a common good which we have the temerity to think we are capable of apprehending. Chapter II, as I hesitatingly envisage it, will speak in the quieter tones of probability and uncertainty; will remember the need for the fertilizing rain of opportunity and the cleansing wind of freedom; will sometimes switch off its engines to listen to the voice of Nature. There is a place for both these themes, and no doubt beyond them others will unfold with ever-deepening unités as we thumb the pages of the future.

I have indulged myself in this preliminary scramble to the top of what I do not flatter myself is anything more than a little hillock and have taken a quick glimpse towards a hill which, veiled in mist though it may be, I think to the particular valley where the actuarial workshops lie. The time has now come when I must descend. May I ask you to bring down with you one thought which has specific relevance to much of what I have to say.

The microscope and telescope have their value. They analyse. But the natural eye has a more comprehensive field of vision. It synthesizes. Scientists are taught to keep the other eye wide open when using a microscope. Literally, it is good practical advice; metaphorically, it is a gem of wisdom.

THE RATE OF INTEREST

In this section I shall to a considerable extent speak in the first person singular. I have had inestimable benefit from my actuarial training but I am conscious that in some respects I have allowed it to have a narrowing effect.

I can still recall some misgivings during my earliest lessons in that early subject in our examinations: Compound Interest. To express it now more lucidly perhaps than I felt it thirty years ago, what kind of meaning can we attach to the statement that the present value, at 4% interest, of payments of £1 per annum for twenty years is £13.11s.10d.?

The mathematical equation is familiar to us all, but what physical reality does it represent? Two sets of payments separated by time may be equivalent, on certain assumptions; but they are never identities. For the statement to have physical reality the two parties must be able to invest all their income from the transaction, including any interest as it accrues, promptly and exactly at 4% throughout the whole of the 20 years. This hypothetical situation does not occur in the real world, so that the conception of compound interest, like any other scientific hypothesis, has an element of abstraction. Its meaning is, at least in part, conventional. The technique which results is
useful and powerful: it enables us to compress a medley of varied payments spread over time into one gloriously simple figure. As a basis for contracts between two understanding parties it provides a fair and expressive language. But while it compresses it also suppresses. It suppresses both the individual personality of the series of payments and the underlying assumptions. The gain in compression is at the same time a loss in comprehension.

One factor which unconsciously benumbed my sensitivity to the dangers was the use of the word ‘interest’ in more than one sense. It may be a sort of shorthand to define the quantity of real physical interest in a specific contract, as in the phrase ‘a loan at a rate of interest of 5%’. But if we value that contract at a rate of interest of say 4% then the 4% is a hypothetical conventional figure with no real counterpart.

I suppose that I would always have claimed that I was awake to these differences, but continual traffic along this track deadened my awareness of the qualifications. Day in and day out, I became accustomed to use our basic tool—the compressor of a large array of transactions, varying in amount over time, into a single present-value—with considerable dexterity of hand and considerable absence of mind. I developed the habit of closing the other eye when I used this particular actuarial microscope.

This habit has its consequences. I will use as an example an incident in my own past which I have tried to take much to heart. Some of you will remember the technical section on matching of assets and liabilities in my paper to the Institute in 1952. The importance of that problem had been in my mind for many years but I had turned back before the seemingly impossible algebraic complexity of the aggregate rate of interest buried within the extensive assets of a large life assurance fund. It was in a final mood, almost of anger, that I turned to grapple with the elusive enemy and found with a shock that I was wrestling with myself. The habits of twenty years lay between me and the obvious: that the amount of interest income was a real thing outside myself, whereas the rate of interest by which it was valued was a product of my own mind.

While I clarified my own thoughts by dissociating the real amount of interest from the hypothetical rate of interest, the technique I put forward slips some way back into the rut by evaluating that real situation—the real assets and the real liabilities—with a hypothetical rate of interest. That is still the weak spot.

I have elaborated upon this theme because it has relevance to later remarks and because of the sharp lesson it contains. The danger of the deep rut in my mind was not that it led to wrong answers but that it prevented me from seeing the right questions.

**LIFE OFFICE VALUATIONS**

The distinguishing feature of actuarial work is that we deal with very long-term contracts and we must, therefore, always be alert to reconsider our positions in the light of economic changes. We have clearly not yet discovered how to achieve stable economic progress. At the moment the problem is continuing inflation. However, my purpose is not to analyse or forecast. When I now turn to examine some of the effects of persistent inflation on our affairs it is an examination on the actuarial test-benches. I could equally have taken deflation.
Speaking as we all do in the accents of our playgrounds, I shall take my illustration primarily from life office valuations, though much of it is relevant to pension and other long-term funds.

The valuation of the liabilities on a cautious basis is the main single factor in the sound conduct of life assurance. It is a tracer system which enables us to follow the course of our premium rates on their long journey into the unknown future. Without it, optimism or cupidity might well tempt us along the primrose path whose precipices are so peculiarly distant. Critics of the large reserves of life offices should take a little trouble to acquaint themselves with the past history of listening to their own voice. Nothing I say must be interpreted as any weakening of this principle.

A cautious valuation of the liabilities necessarily leads to a slow emergence of surplus, but this need not be to the disadvantage of the with-profit policyholder since the valuation basis however severe ultimately releases the surplus. Taking the fund as a whole the reward of this particular abstinence is always reaped. Whether or not the individual policyholder receives a fair deal is not at all a question of the strength of the basis: it depends on the way the resulting surplus is distributed. A severe valuation basis can give equitable results if the bonuses are in line with the emergence of surplus: for example, if they increase with duration.

The British life offices have mainly developed a tradition of declaring uniform reversionary bonuses though with a number of variations and refinements. This tradition is not, like a cautious valuation basis, an absolute principle. It is a reasonable practical expedient in a shifting and complicated world. There is a great deal to be said for it: it is simple, economical and intelligible to the public. Moreover, taking the rough with the smooth, it has been reasonably equitable.

If inflation persisted, the difficulty would be that the rough and the smooth might persistently fail to balance. Monetary expansion, leading to an influx of inflated new business, shifts the balance in one direction: against the older policyholder. It keeps the fund young so that the reward of abstinence is deferred and in continual inflation it is continually deferred.

I have referred so far to the technical basis of valuation, but similar problems arise with free reserves such as contingency funds. We can regard a contingency fund as an amorphous whole or we can regard it as an aggregation of individual reserves which are accumulated during the lifetime of the policy and which should be released towards the end. There is a distinct difference between these two approaches which becomes of practical importance in a period of continuing expansion.

The reasonableness of several of our practical approximations is linked in many ways with the rhythm of inflation and deflation in the currency. If we are not careful it may be the wrong rhythm. We must be watchful that generations of policyholders who may already be affected by the depreciation of currency are not also affected by our internal problems of expanding funds. It is true that investment in equity shares and other inflation-sensitive assets could be a substantial offset, but only if we are prompt to benefit the affected generation. If we are too slow, then this potential corrective would mainly benefit the following generations and itself become an aggravation of the waves of inflationary disturbance which surge through our affairs.

I have so far followed our traditional route through this problem, but as I write I am conscious that I am wrestling not only with the problem but with
my preconceptions. I want therefore to switch to a different approach of wider generality.

Our valuations attempt to answer two questions at the same time—‘Are we solvent?’ and ‘Is the surplus fair?’ These questions are not always answerable in the same breath. We further complicate the situation by dissociating the valuation of liabilities from the valuation of assets. We not only lose relevant information by using our compressor, but we use different systems of compression for the assets and liabilities. You will know what I mean when I say that I sometimes feel that we try to eat the valuation meal with a glass knife and a rubber fork. This comment is even more relevant in some overseas territories where legislation incorporates fundamentally contradictory principles.

Because of this dissociation of assets and liabilities, a well-established life office tends to build up strength on both sides of the balance sheet so that it can face a high or low rate of interest without undue disturbance. The outcome is that, while our edifice is strong, it has some of the rough austerity of an early Norman church. I believe that the future could hold for us a different tradition with more supple and graceful strength—shall I say, a Perpendicular tradition.

I believe that a fruitful way to search for new insight is to refresh our thoughts with the basic facts and not to be too hasty to compress these facts into a single present value. A schedule with two columns of figures showing for each future calendar year (a) the expected net outgo under the life assurance contracts, and (b) the expected income from the existing investments, would illumine the heart of the life office concerned. The construction of such a schedule would indeed raise many problems, but they are all explicit or implicit in our present valuation systems, and if we have not met them before it is time we did, because they reside in our house.

I must not be misinterpreted here. I am not advocating change. But in a number of ways the world around is on the move and we too must be alert. ‘The wisdom of winter may be madness in May.’

PRIVATE PENSION SCHEMES

I shall deal only briefly with a few aspects of private pension schemes, because unfortunately they are entangled with the subject of national pensions which I shall deal with later. In speaking of private schemes I emphasize that I refer to both self-administered and insured schemes. Insured schemes come more frequently before the public eye, and few outside our profession may realize that the self-administered system is of equal magnitude and importance and has indeed a longer tradition. The history of self-administered pension schemes in this country is a great tribute to the actuarial profession, because it is largely under our guidance that this long and fine tradition has been created with almost complete freedom from official control.

Two questions are in the air: the solvency of private pension schemes and the preservation of pension rights on change of employment. Solvency is a subject which should be approached with a gentle tread, for there are other important and fragile qualities in the vicinity. I do not know a completely satisfactory definition of solvency, but even if one is assumed to exist then many schemes which are solvent on that definition at one point of time would immediately be rendered insolvent by an increase in the level of wages.
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Pension schemes are not to be regarded as a rigid railway track to a fixed destination. The target is continually shifting, mainly because of changes in wage levels, but also because of changes in mortality, interest, expense and tax.

Pension schemes can therefore be more happily regarded as homing on to a distant and moving target under the guidance of the actuarial radar tracking system. Whether a scheme will be successful or not is only in part a question of where it is now: that is to say, its current degree of solvency. It is also largely a question of the power of its driving force to bring it curving on to track in due course. The main driving force is the ability of the employer to fulfil his obligations and to increase his contributions whenever necessary. Solvency is therefore often inextricably bound up with the resources of the employer.

The practical problems arising out of the preservation of pension rights have been carefully examined in the report of the Spratling Committee issued by the Institute and the Faculty in March 1957. There is no need for me to add to that report. As to the basic idea of preservation, it is not primarily an actuarial matter. Certainly there is nothing in the actuarial philosophy towards pension schemes which operates against preservation, and for myself I am sympathetic. Again, however, I would plead for a careful approach. Preservation and solvency are bound up with each other. They are both connected with the rate at which an employee’s pension rights accrue and the nature of those rights.

A clumsy assault, however well-intentioned, on these two problems could damage the flexibility which has been operating continuously in favour of the members of private schemes, and never more so than in recent inflationary years. I am convinced that the gentle nursing by the actuarial profession possesses qualities unknown to legislative surgery.

NATIONAL PENSIONS

The problem of national pensions and their relationship to private pensions is difficult and disturbing. The main cause is that there are two different systems of organizing pensions, with different purposes, methods and justifications. They also need different disciplines. I propose briefly to compare the two systems, to examine the position of a state scheme under each of them and then to comment on current proposals in the light of this general examination.

The two systems

The first system, which I shall call ‘saving-in-advance’ has its origin in the simple fact that when a person decides to make provision for his own old age he must save and accumulate his savings. It is the system which is given organized expression in the great majority of private pension schemes. The purpose is to prepare for a need which will arise in the future.

The system calls for a long exercise in thrift and it is necessarily slow to mature, but it brings the reward that a large share of the heavy burden of costs is borne by the productivity of the assets in the accumulating fund.

The discipline required by this system is financial: to ensure that adequate contributions are charged and that the accumulating fund can be and is carefully preserved. I shall sometimes refer to ‘funded schemes’ when I wish to stress this aspect of a savings-in-advance scheme.
The second system, which I shall call 'pay-as-you-go', has its origin in the equally simple fact of life that when an individual reaches old age and is in need, somebody else must help. This everyday situation is the origin of most state schemes, including our own, and dictates their structure. Each generation pays, not for its own pensions, but for the pensions of previous generations, and in its turn relies for its own pensions upon the next generation. The purpose is the opposite of saving-in-advance. It is to meet a need which has already arisen.

The system does not call for an appreciable fund. It is expedient in nature and unlike the other system it requires little financial discipline because the costs arise immediately. It does, however, require the discipline of honest presentation because without saving-in-advance there disappears any true justification for promise-in-advance. If we save in advance then we can fairly promise in advance, but if we pay as we go then we should only promise as we go.

I have run through the main features of the two systems, obvious though they may be, to emphasize the fundamental contrast. The antithesis could hardly be more complete. I turn to an examination of state schemes under the two systems.

The state and a saving-in-advance system

There can be no question of trying to turn the present state scheme into saving-in-advance. The double burden of continuing to pay as we go for current pensions and at the same time saving in advance for our own would be intolerable. If, above the level of the present scheme, the state were to enter the field of pensions by the method of saving-in-advance then the disciplines and the consequences should be accepted. For example, a national scheme with no benevolent external employer to provide past-service benefits would necessarily be slow to mature, so that it would be many years before the resulting pensions could be anything but trivial. Politically it is an unappetizing dish. But the biggest doubt about a state saving-in-advance scheme is whether the state would, or could, or even should, maintain the integrity of the accumulated fund without which the whole conception makes nonsense. The fund, which would be enormous for even a moderate state scheme, must be a real fund invested in real assets additional to those which would otherwise have been created; for if the income of the fund should be used as it arises merely to meet current expenditure, and the so-called investments are in fact nothing more than Government paper receipts, then the productiveness of the fund is a fiction. The interest earnings on an unproductive fund of this nature are merely a dangerous disguise for taxation, which is itself a dangerous disguise for concealed contributions.

But for the assets to have reality, two most difficult and unpleasant political tasks have to be faced: consumption must be reduced and large numbers of workers must be switched from consumption industry to capital industry. Not only ought the scheme to start this way but its integrity would have to be maintained throughout all the fashions and passions of the future. One rapacious or hard-pressed generation and all that would be left of the scheme would be the permanent skeleton of the promises that had been given without the flesh to make them live. The promises are indestructible but the funds are not.

This is more than a question of the good faith of governments, even though that is a question which it would be foolish to ignore. Any government must
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give priority to claims other than the integrity of a pension scheme: for example, the national existence itself in time of war, and national production in time of economic crisis.

It may not be easy to appreciate these difficulties facing a state-funded scheme, when that is the system on which the extensive edifice of private schemes has been erected. We forget perhaps that private schemes have taken more than fifty years to grow to their present volume and that if they had all been introduced overnight they would have disturbed the economy in much the same way as would a large state scheme. Moreover, an individual scheme is introduced at an opportune moment when employer, and such employees as join, are prepared to accept the financial discipline it imposes on them. There are many things in life that can only be done gradually and opportunistically if they are to be successful: for example altering the direction of a growing branch, of a river, or of an economy. I believe that genuine saving-in-advance pension schemes are among these things.

The state could of course run a funded scheme with very small benefits for the whole community (although the administrative difficulties would be severe), or it could run a large funded scheme for a small section of the community (although it does not do so for its own employees). But a state could not fund a large scheme for the whole community unless there was a wave of resolution among its citizens comparable to that evoked by war. For myself I do not find these thoughts realistic and I find nothing in the history of this country or any other to encourage them.

There are peculiar dangers attending a funded scheme if for any reason it should fail. In a fully mature pension fund the interest income from the assets may be as large as, or larger than, the income from direct contributions. If a state scheme, or part of one, is planned on the optimistic assumption that interest will be received, and this income fails in fact to materialize, then the ultimate costs of that part may be double the original estimates.

These dangers are all the more insidious because the existence of a fund, however inadequate, conveys a false sense of well-being and postpones the appreciation of danger.

The state and pay-as-you-go schemes

The history in most countries follows the same pattern. There is, first, public assistance for those in need. As the practice becomes widespread, the feeling of the stigma attached to charity grows and in due course the grants are made universal. Then the words 'scheme' or 'plan' are used and soon it becomes customary to talk of national pensions 'as of right'. A practice which starts as ad hoc assistance turns gradually into a firm promise. The redistribution of current resources turns gradually into a commitment to redistribute future resources. During this period of growth the development has one unpleasant aspect. The voters of one generation are establishing increasing rights for themselves over their children's income. Whenever there is an increase in the present state pension, the elderly pay nothing towards it and only the young pay throughout their full working life. Taking our generation of voters as a whole, we pay only half price for any increases in the state pension which we vote to ourselves.

There is of course another side to the picture. The motive has, in fairness, been, not so much greed, as the desire to meet the genuine needs of many of the elderly, coupled with the reasonable aim of establishing a pattern of
pension prospects round which we can shape our individual affairs. Neverthe-
less, the system, if such it can be called, is lacking in principle and in any
natural discipline. What checks are required to prevent the abuse to which it
is so manifestly vulnerable? I would suggest two general criteria and one
basic principle.

The first criterion is that any increases, under this pay-as-you-go system,
should be related to the reasonable needs of the elderly. It would clearly be
quite unconscionable for one generation to vote for itself luxury increases in
pensions at half price to itself and the rest at the expense of following genera-
tions and then to speak of them as pensions ‘as of right’.

The second criterion is that any development should be gradual. The lack
of principle in the system is modified by the processes of time. The longer we
pay contributions the more reasonable it becomes to feel that the country has
an obligation to us in return.

Before I state the basic principle itself let me illustrate the point in everyday
language. It is fundamentally wrong for me to say ‘I want to receive a larger
pension than the one I am paying to the present pensioners, but I propose to
do nothing about it. I shall leave the burden to the working population in the
future, but, to ensure that they honour it, I am putting it on the statute-book
now.’ I say flatly that that is wrong. The essence of the principle is therefore
that we should not now promise ourselves increasing pensions in the future if
they lead to increasing costs. Examining the point more closely, by ‘increasing
costs’ should we mean increases in absolute costs or in costs expressed as a
percentage of earnings? It is perhaps not unreasonable to plan that a given
percentage of the national income should be diverted to old age pensions,
and therefore I would put forward the principle that a state pay-as-you-go
plan should not now promise benefits which increase in the future if the
consequence is that contributions, expressed as a percentage of earnings, will
increase in the future.

I believe that such a principle is a necessary restriction, and so far as I can
see is the last barrier, against unlimited promises. I would underline it in
different language. It is not unreasonable to expect a future generation to do
as we have done, but do not let us try to commit them to pay more of their
income for our benefit. Time may well prove that more has to be done, but
let the future make its own decisions.

THE PROPOSALS OF THE LABOUR PARTY
AND THE GOVERNMENT

I turn to consider the proposals of the Labour Party and the Government in
the light of the examination I have made. I do so in some difficulty, because it
was decidedly inconsiderate of the Government to introduce a White Paper
thirteen days before this address was due. I also do so with some hesitation,
because I want to avoid even the appearance of engaging in party politics.
Nevertheless, the work of the actuary is mainly concerned with long-term
obligations and in that sphere he has a professional duty to the community:
to protect the future against the ravages of the present. If he sees that
happening he should not pass by on the other side. It is in that spirit, and that
spirit only, that I make my comments.

I must stress, however, that I am speaking for myself alone; that I am not
attempting to deal with such important questions as social justice between
different sections of the community; that I am not attempting a grand verdict.

It is pertinent perhaps first to remind you that while the Labour Party and the Government are now greatly concerned about the growing deficiency in the present national scheme, all Government Actuaries from Watson onwards have persistently warned the country in their official publications that exactly this situation would arise, and every actuary has known that they were right.

**The Labour Party proposals**

Spokesmen of the Party have very properly sounded a note of caution about the estimates attached to their proposals. To their words I must add a clear professional warning. Estimates of a partially funded scheme—I emphasize the word 'funded'—which stop at 20 years have little relevance. If contributions are being collected in advance for benefits which start at age 65 and continue to the end of life, then a large fund accumulates over many years as a matter of course whether the contributions are adequate or not. The question the actuary has to ask is not whether a large fund is accumulating, for that is obvious, but whether that fund is commensurate with the liabilities which are accruing unseen. These are the reefs on which our professional lighthouse is built. In 1911 H. W. Manly presented a paper to this Institute in which he followed the history of a funded pension scheme where the value of the pension promises exceeded the value of contributions.

To bring his illustration up-to-date I have had calculated an example of two pension funds similar in type to a state fund. The two funds are built up from the same contributions and are identical except that whereas the first gives benefits actuarially equivalent to the contributions, the second gives benefits 25% higher.

The graph on the following page shows the development of the two funds and amply demonstrates the inadequacy of 20-year estimates of the fund as any indication of what is to come.

The authors of the estimates in the Labour booklet do indeed cast a brief glance into the more distant future, and they conclude that 'it would be many years before the fund would show a deficit'. These words are sadly familiar to the actuary.

The fund in the Appendix to the Labour booklet would appear to show a deficit on current income at about the same time as the second fund in my example. If this is so—and there are other indications to support it—then the proposals conceal a heavy and growing burden on the more distant future. The Labour Party would be wise to reconsider the estimates before too solid a superstructure of hope is built—in all good faith—on unsure foundations.

I have referred so far only to the financial estimates in the Labour proposals. However, my most serious apprehensions are about the ability of any state to run a true funded scheme. I may be wrong in the views I have expressed, and if the proposal was merely to make an experiment I would feel no right to comment. But the great danger, and the one on which I feel compelled to speak, is that the Labour proposals would give firm undertakings now on the assumption that the hazardous experiment of a funded national scheme will in fact succeed. I beg the Labour Party, in the national interest, to examine the long-term obligations to which they would commit the country on the assumption that their experiment of a fund succeeds and again on the assumption that it does not.
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Example of two Pension Funds

BASIS: population, stationary on E.L.T. 11 (M) l_x column; interest, 4% per annum; contributions, uniform from start of scheme (or age 18 for new entrants) to age 64; death benefits, nil; pension benefits, Fund I, the actuarial equivalent of the contributions; Fund II (dotted line), benefits 25% higher than Fund I, but with no change in contributions. The funds are expressed as a percentage of the ultimate value of Fund I.

The Government proposals

Examination of the Government proposals is easier because there is no attempt to accumulate a fund. The proposals are therefore a plan for the allocation of part of the national income, now and in the future, to old-age pensions. In so far as it brings the national scheme under realistic discipline it is to be welcomed.

The feature which I regret is that the promise now of increasing pensions depends for its fulfilment on increasing percentage contributions in the future. This is a breach in the principle which I have already tried to enunciate. The future will surely need some principle to stand in the way of unbridled promises and I can think of no better. I appreciate that the breach is not large and that the root of the trouble lies, not only in the scheme itself, but even more in the increasing age of the population with its consequence of increasing cost of pensions. Nevertheless, I feel that the Government should carefully consider the gravity of the precedent they are creating.

I hesitate to make this comment because the Government scheme is a delicately balanced whole and I can see no easy solution. There are, however, possibilities the disadvantage of which may be less than that of an increasing contribution: for example, a gradual increase in the pension age as recommended by the Phillips Committee, or the creation of a small and temporary fund by equalizing the contributions over time instead of planning for increasing contributions.

As in the Labour proposals the estimates in the Government White Paper cease at the end of 20 years. The position is different, however, because the
Government scheme is not funded and the particular dangers to which I have referred in the Labour scheme do not arise. Nevertheless, while the Government estimates appear to be in balance, they should be carried beyond 20 years however speculative the results may be, because of the rapidly rising cost of graded pensions, and also because of the termination at the end of 20 years of the planned increases in the rate of contribution. I appreciate that the static limits of £9 and £15 become increasingly unrealistic as time goes on in the light of the basic assumption—on which the scheme is balanced—that earnings will increase by 2% per annum. It might not be a disadvantage, however, if this feature were brought nearer to the front of the stage.

CONTRACTING-OUT FOR PRIVATE PENSION SCHEMES

Both the Government and the Labour Party express the strong desire that private pension schemes should not be damaged by their proposals. I beg them not to imagine that the sincerity of their wishes is alone enough to solve the problem, for I doubt whether a permanently satisfactory solution exists. The subject is one of appalling complexity and I can do no more than make one general comment.

The fine balance of most private schemes is very different from the crude instrument of a state scheme, with its inevitable element of redistribution between sections of the community. These differences are likely to lead to perpetual difficulties between the authorities and private schemes. State schemes have a habit of shifting their ground as time and exigencies press, and contracting-out is likely to run into broken water all along its course. An arrangement which is initially satisfactory may well terminate in disappointment to employee, employer and the state. I would ask all politicians not to base their plans or raise public hopes on the assumption that there is a workable solution to this obdurate problem before they are sure that it exists.

I must not close this subject of national pensions without a strong warning to both the Government and the Labour Party that the burden on the country's actuarial manpower is likely to be so severe that considerable delays in implementing changes are inevitable. The problems both of policy and of detail can be extensive and individual to each scheme. Already many actuaries in Life Offices are, and will be for some years, heavily engaged in the problems left behind by the 1956 Finance Act. The picture is still too cloudy for precise comment but I am more likely to be understating than overstating the difficulty.

THE ACTUARY HIMSELF

At the beginning of this address I wandered off into some nearby hills. Since then I have taken you into the valleys—some of them dusty and noisy with the traffic of the world. I had hoped to finish with another brief escape, but there is time for nothing more than a turn around our own garden. That at least we should have, because the actuary's danger may lie in too close preoccupation with his particular techniques. His real strength lies elsewhere: in a broad training whose firm roots are in mathematics and statistics, but whose branches reach out into commerce, investment, administration and all the bustle of humanity. It is not the tools he uses which make a great craftsman. It is the way he feels and thinks. Those qualities do not grow in isolation, but they do grow in the Students' Society and our meetings here; they grow in our families
and among our friends and colleagues. The times have passed, except perhaps for a few of us, when it was felt necessary, for the sake of the integrity of our contracts, to hide behind a cloak of mystery and infallibility.

We are now ready to dispense with the cloak and to say freely—and we are better for saying—that the actuary cannot foretell the future. He cannot break the laws and see through the infinite cloud of probabilities that Nature interposes between us and what is to come. What he can do and does is to sense the wide-ranging possibilities that the future may have in store and to make them a living part of the present where decisions are made.

Dispensing with the cloak, we still have to communicate with the layman. We might learn from the example of the young child who runs to bring us a handful of heads of flowers. The actuary talking to the layman should remember to include a stalk for him to grasp.

Finally, I turn my back on the hills, the valley and the garden. Over the door of the house I see the Baconian motto which I have consulted so often, and sometimes anxiously, while preparing this address. But always, I have received the same answers. The tradition which is handed to us is something alive, something to be added to, and what any one of us adds must, for better or worse, be part of himself.