TRANSACTIONS OF SOCIETY OF ACTUARIES
1955 VOL. 7 NO. 18

VOL. VII MEETING NO. 18

TRANSACTIONS

JUNE, 1955

GROUP LIFE INSURANCE WITH PAID-UP VALUES

ROBERT G. ESPIE

DEFINITION

GROUP Life Insurance with Paid-up Values, also known as "Group Paid-up" or "Group Paid-up and Decreasing Term," is a form of group life insurance having the following characteristics:

1. Periodic contributions by employees, determined from a schedule, are applied as single premiums to purchase paid-up insurance amounts which are cumulative.
2. Term insurance is purchased by the employer in an amount equal to the balance of the scheduled total group life insurance, over and above the accumulated paid-up purchases.
3. Usually the paid-up insurance carries a privilege of cash surrender value after termination of employment.

HISTORY OF THE PLAN

The first major plan of group life insurance with paid-up values was designed in 1941 to fill the needs of a large midwestern farm implement manufacturer. This company had an employee benefit association which offered death benefits, subject to contributions by members at a level rate. Very substantial reserves had been built up by the association and the problem was the disposition of such reserves for the advantage of the members when the association's death benefit activities were being terminated in favor of a group life insurance plan.

The solution was to allocate the reserves equitably to the members and use them to make an initial purchase of paid-up life insurance. At the same time, it was decided that subsequent contributions should be continued at substantially the same rates and should be used to purchase further increments of paid-up insurance. The employer agreed to pay the cost of the supplementary term insurance.

Other employers were attracted by the idea of a group life insurance plan under which employee contributions were applied to buy paid-up insurance, and the following years of wartime saw the establishment of a dozen or so plans, usually covering large groups. Later, the plan's popu-

larity was further enhanced by the realization that the accumulation of paid-up insurance during an employee's working years furnished an excellent nucleus for a program of continuation of group life insurance for pensioners.

With the advent of peace and the return to more stable conditions, the paid-up plan has continued to catch the imagination of group insurance purchasers and it has now become a well-established form of group life insurance. To illustrate the growth of the plan, the following table has been taken from the files of the Aetna Life Insurance Company:

GROUP LIFE INSURANCE WITH PAID-UP VALUES

End of Year	No. of Group Policies in Force	No. of Employees Covered	Volume of Paid-up Insurance	Volume of Total Insurance
1945	16	95,586	$ 32,656,195	$ 170,728,361
1946	52	145,335	37,443,893	365,693,367
1947	122	173,405	44,826,998	444,786,154
1948	188	194,546	53,853,346	491,718,768
1949	256	205,155	63,193,596	521,075,449
1950	316	231,157	74,610,404	616,621,540
1951	391	268,179	89,294,681	747,051,803
1952	494	302,502	103,188,086	859,279,800
1953	635	350,432	118,967,436	1,020,944,700
1954	787	366,169	134,634,758	1,153,154,800

Some idea of the stature of this plan may be gained from the fact that on December 31, 1954 only 12 companies had more than $1,000,000,000 of all kinds of group life insurance in force.

BENEFITS PAYABLE

Contributing employees are covered for death benefits which are equal to the total insurance determined from the schedule and which are comprised of the accumulated paid-up bought by employee contributions plus the term insurance bought by the employer. These death benefits are payable without any restriction as to cause or place of death, other than that the insurance be in force.

Former contributors who have purchased paid-up insurance, but who for one reason or another are no longer covered for term insurance, are similarly covered for a death benefit which is payable without restriction as to cause or place of death but which is limited to the amount of paid-up purchased.

Contributing employees who become totally and permanently disabled while insured and before reaching age 60 may be covered for either of two kinds of permanent and total disability benefit:

a) Premium Waiver Disability Benefit.—Subject to continued receipt by the insurance company of satisfactory evidence of disability, the amount of term insurance in force at date of disablement will be continued for life without the payment of further premiums by the employer or further contributions by the employee.

b) Lump Sum Disability Benefit.—The entire amount of scheduled coverage, paid-up plus term, becomes payable to the employee upon receipt by the insurance company of satisfactory evidence of disability.

The disability coverage is limited to disablements which occur while actively employed and covered for term insurance, because in the case of the premium waiver there are no premiums to waive for the paid-up insurance retained after termination of term insurance coverage, and in the case of lump sum benefits the determination of disability is considered impractical for unemployed persons.

The old style of so-called "Installment P.T.D." providing for payment of installments reducing the face, with termination of installments upon recovery, is not used—the possibility of recovery from disability would necessitate complicated and perhaps arbitrary rules for splitting the payments made between paid-up and term portions.

Contributing employees who terminate employment are given the privilege of surrendering their paid-up insurance for cash at any time at or after termination of employment. Allowance of a surrender value before termination of employment would defeat the basic purposes of the plan: many employees would draw out their surrender values from time to time and would arrive at retirement with only insignificant amounts of fully-paid insurance; the employer's cost would not reflect the effect of large accumulations of paid-up on the term insurance portion of the coverage; and the insurance company might find itself more in the role of sponsoring an unsatisfactory banking operation than of establishing a worth-while group life insurance program. Furthermore, an insurance company with a large volume of this business on its books and correspondingly large reserves for paid-up insurance in force would constantly face the hazard of a very damaging disruption of its investment program if employees could, acting individually or in concert, draw down their surrender values at will. The allowance of surrender values after termination of employment is desirable both for its sales value and for its value as financial assistance during periods of unemployment; but surrender values are neither necessary nor desirable while employment continues. In fact, an ill-conceived provision for allowances of cash values before bona fide termination of employment might even result in the money being used for the financing of concerted work stoppages.

Typically the cash surrender value available at termination of employment after less than five years participation in the plan is the return of 100% of the employee's contributions; after five years the cash value is the greater of 100% of contributions or a tabular cash value equal to the full reserve less a nominal surrender charge. The number of years required to qualify for the tabular cash value and the amounts of surrender charge may vary between insurance companies, but the minimum return of 100% of employee contributions is an integral feature of the plan. The prospect of a substantial cash value provides part of the incentive to the employee to make contributions in the rather substantial amounts normally required.

SCHEDULES OF TOTAL INSURANCE

The choice of a suitable schedule of total insurance involves the same principles as in the case of conventional group term insurance, with a few special considerations arising out of the basic nature of the paid-up plan. The typical schedule will usually be the familiar "salary schedule" with amounts of insurance equal to pay for a year or a year and a half, determined by earnings classes on a basis which precludes individual selection either by the employee or by the employer.

Some considerations which are peculiar to group paid-up are:

1. The minimum acceptable amount of insurance is affected by determination of the minimum acceptable amount of contribution for paid-up.
2. The maximum acceptable amount of insurance per $1,000 of earnings is affected by practical limitations on the amounts of contribution payable willingly by employees.
3. Earnings classes should proceed by increments which will not involve unacceptable increments in pay deductions. At the lower ranges of pay this means practical increment maxima of $1,000; at the upper ranges the increments may be higher. This consideration is of more importance under a paid-up plan than under a contributory term plan because of the higher contribution rate per $1,000 of insurance under a paid-up plan.
4. A disadvantage that term-of-service schedules have, of requiring increased deductions at a time when pay may be remaining constant, is even more noticeable under a paid-up plan than under a contributory term plan.

SCHEDULES OF CONTRIBUTION RATES

The rate of employee contribution has become standardized at $0.30 per week or $1.30 per month per $1,000 of insurance. The general acceptance of this rate, and the limitation of deviations from it, involve the following considerations:

1. The rate must be high enough to be effective. If the contribution rate per thousand is too low, accumulations of paid-up purchases will not be rapid enough to make a favorable impression on employer cost and the employee may arrive at retirement with an inadequate proportion of his insurance fully-paid. In the light of these objectives a contribution rate of $1.00 per month per thousand of insurance should probably be considered as the minimum.
2. Although the cash value features of paid-up plans seem to render quite high contribution rates acceptable to employees, there is obviously an upper limit of acceptability. Moreover, the contribution rates should not be so high as to result in the paid-up accumulations exceeding the scheduled amount after a comparatively short period of contributions, since the complete elimination of term insurance would wipe out the element of participation by the employer. A different type of limitation of maximum contribution rate arises out of the fact that, as is normally the case with permanent insurance, initial expenses tend to exceed initial expense margins; therefore, an undue proportion of income devoted to the purchase of paid-up could mean an undue drain on surplus of the group policy and of the insurance company. A quite separate measure of the acceptable upper limit of contribution rates is that a successful group plan should obviate unfavorable comparison with insurance bought "on the outside," which in fact means comparison with Ordinary whole-life premium rates. The combination of all these considerations has, for one company, led to the adoption of an upper limit of contribution rates of $1.50 per month per thousand of coverage, with higher maximum rates for older ages at entry.
3. The rate may be graded by age at entry into the plan. Employees who enter the plan at older ages will contribute for a shorter period before retirement and their contributions will, on the average, buy less paid-up. As an equalizing factor it may in some cases be desirable to graduate the rates by age at entry into the plan, as in the following example:

Age at Entry into Plan	Contribution Rate per $1,000	
	Monthly	Weekly
Under 40	$1.30	$.30
40–49	1.95	.45
50 and over	2.60	.60

If the problem of equalization is limited to the staff at installation date, the graded scale may be applied only to such original members of the group, with future eligibles subject to a fixed rate such as $1.30 regardless of age. It is not customary to have a rate that rises for an employee with attained age, since ability to contribute is more dependent upon earnings rate than upon attained age—in most cases which employ a graded contribution scale, age at entry determines the rate for original insurance and all subsequent increases.

4. The rate should be related to the amount of insurance. Even though it might seem that the rate could easily be related to earnings, the principle that a group plan must be obviously equitable argues against variations in contribution rates among employees who have the same face amounts of insurance.
5. The contribution rate may be applied to something less than the total schedule. If the amounts of insurance are distinctly in excess of annual earnings, a rate based on amounts of insurance may be an unacceptably high proportion of such earnings. In such cases it may be advisable not to require contributions with respect to the first x thousands of insurance. For example, the following schedule is based on $1,000 "free" insurance combined with contributions of $1.30 per month per thousand on a conventional one-times earnings schedule:

Earnings Range	Amount of Insurance	Monthly Contributions
Less than $2,500	$3,000	$2.60
$2,500–$3,500	4,000	3.90
$3,500–$4,500	5,000	5.20
$4,500–$5,500	6,000	6.50
$5,500–$6,500	7,000	7.80
Over $6,500	8,000	9.10

6. Contribution increases should occur at times of earnings increases. If an increase of contribution falls at a time when there is no pay increase, the result will be a drop in net take-home pay and the group insurance plan will be a source of irritation rather than a builder of good will. Similarly, if the increase of contribution on moving from one earnings class to the next is disproportionately large, there will be an unfavorable effect on employees.

Despite the fact that its standard contribution rate is more than twice the traditional maximum of $0.60 per month per $1,000 for conventional contributory term plans, the paid-up plan has been very successful in

attracting the support of employees. Most employees seem, in fact, to regard the cash value feature as more than an offset to the increased contribution rate. Younger female employees, for example, for whom conventional contributory term insurance may be relatively unattractive at any contribution rate, will normally give quick acceptance to the paid-up plan because "if I die my mother gets the insurance; if I leave to get married I can get all my money back."

A major obstacle to acceptance of the standard contribution rate of $1.30 per month per $1,000 seems to be reluctance on the part of insurance salesmen and employers to ask employees for such an amount. The plan is not yet sufficiently well known for insurance salesmen and employers to realize that employees will not balk at a comparatively high contribution rate if it is coupled with a guarantee of at least 100% return at termination of employment. As has been said in this respect, "$1.30 a month per $1,000 is hard to sell—except to employees."

In practice, the rate of acceptance of paid-up plans by employees tends to average better than 90% of those eligible.

PREMIUM RATES

A. *Paid-up Insurance.*—The rates at which employee contributions are applied to buy paid-up are compounded of mortality, interest, and loading. The mortality and interest rates should be conservative because the 100% cash value feature dictates that gains from mortality and interest, with perhaps a slight gain from surrender charges at later durations, should eventually be sufficient to look after expense charges assessable to the paid-up portion of the coverage, while any redundancy can be returned through the experience-rating or dividend process. The most common basis currently is 1941 CSO mortality and 2.5% interest, although the American Men Ultimate Table is also in use. Loading is customarily limited to a factor of $(1 + \frac{1}{2}i)$ for immediate payment of claim with no specific margins for expenses.

In the early years of an individual employee's group insurance history it is immaterial whether the premium rate be a combination of most probable factors plus specific overhead loading or conservative factors and no loading, since the 100% cash value feature means that the whole premium has to go into reserve in either case. In the later years the overhead costs are financed either by the specific loading over most probable factors or by an inherent redundancy of conservative factors with no loading, although the latter method tends to defer the emergence of margins since it implies higher reserve values.

For example, after 10 years' contributions of $100 per year by an

entrant at age 30, the reserve at CSO 2.5%, where the premium basis is (1.0125)A_x at CSO 2.5%, will be $1,099.76. In the 11th year excess interest earnings of 0.5% on the initial reserve would amount to $5.50 and a mortality gain of 25% of the expected death strain would be $1.68, which means that $7.18 could become available for expenses on the accumulated paid-up purchases and the $100 contributed during the 11th year.

Except for the difference in reserve values and the cost of maintenance of the accumulated paid-up, this has the same effect at that time as the use of most probable factors and overhead loading of $7.18 of gross premium. Expense and other charges assessable against the paid-up portion of the policy should be within 7.0% of paid-up premiums in the 11th policy year, and thereafter the absolute margins from interest should continue to improve with increasing reserves.

For group life insurance the classical basis of age determination is "age nearest birthday at the beginning of the policy year." For paid-up purchases throughout a policy year the use of the same age-determination formula would only be appropriate if the rates were based on age $x + \frac{1}{2}$. An alternative method is to compute ages on the basis of the birthday nearest the middle of the policy year, which has the advantages that the rate appears more favorable, the rate continues to be appropriate throughout the entire policy year, and the probability of surrender age being different from purchase age is reduced: it has the disadvantage of being different from the orthodox group insurance basis.

Age determination for surrender purposes and age determination for purchase purposes may follow different rules. While it is impractical to have a premium basis which would involve a change of premium rate during a policy year, and therefore the premium age must be based on policy year, the determination of age for surrender value may take place many years after separation of the individual from the group and perhaps after the group policy has undergone several changes of policy year. It is practical, therefore, to base the surrender value on the age nearest birthday at date of surrender even though this may be inconsistent with the last purchase age.

Frequency of premium payment is of course not a problem for rate purposes since each contribution is a separate and distinct single premium and not an installment.

B. *Term Insurance.*—The rates for purchase of term insurance are generally the same as the corresponding rates for a conventional term plan (although they may be decreased by a half-year of age if the age for determining paid-up purchase factors is taken in the middle of the policy year instead of at the beginning).

Since the paid-up premium initially contains no effective margin for expenses, one of the functions of the term insurance premium is to finance the expenses of the paid-up insurance during the early years of the plan. For this purpose the old "T" rate (based on AM(5) mortality and 3.5%, loaded $1.70 per thousand and 6.5% of gross) normally provided abundant margins at all common average ages. The new "U" rate (based on 1941 CSO mortality and 3%, loaded 10% of net) provides much slimmer initial margins for a young group, even with the extra charge of $0.15 per month per thousand on the first $75,000 of volume.

C. *Extra-Mortality Groups.*—Where the nature of the group is such as to warrant an expectation of above-normal mortality, the term insurance rate may conveniently be loaded by adding a constant dollar or number of dollars to the annual rate per thousand at each age as is customary with conventional group term policies. The rates at which employee contributions are applied to buy paid-up are most readily loaded for extra mortality by rating the ages one, two, three years, etc. Where ages are rated for this purpose it is convenient to rate the reserves and cash values similarly so that the rated policy can enter into uniform paid-up calculation processes by the simple device of rating the office year of birth.

ADMINISTRATION

The most difficult problem in administration is the means of giving effect in the term insurance premium to the continual decreases of outstanding term insurance that arise through continual accumulation of paid-up.

Where the group is large enough to justify the use of averages, it may be convenient and practical to set up a system of having the employer pay an approximate term premium monthly with an annual reconciliation to a more exactly calculated figure. One such method which has been found to be practicable runs somewhat as follows: (1) From an inventory at the beginning of the policy year determine the "initial ratio" of monthly term premium on initial net outstanding term insurance to initial monthly rate of employee contributions; (2) the application of this ratio to the monthly collections of employee contributions then becomes the tentative employer monthly term insurance premium remitted to the insurance company each month with the employee contributions; (3) as of the end of the policy year a "final ratio" of monthly term premium on final net outstanding term insurance to final monthly rate of employee contributions at the end of the year is determined using the same ages as for the initial ratio; (4) the average of the initial and final ratios is then applied to the actual paid-up contributions collected during the year, to get a

"true" term premium; (5) the difference between actual term premium remittances and "true" term premium is then refunded or charged to the employer. The adjustment will normally amount to less than 5% of the year's term premium and will normally mean a settlement payment to the policyholder. This method gives reasonable credit to current accumulations of paid-up by averaging the net term premium rate per dollar of employee contributions at the beginning and end of the year, and gives reasonable effect to fluctuations of volume during the year by applying the averaged factor to actual contribution collections during the year.

The above method will also look after the billing of term premiums for employees who, in effect, are covered for noncontributory term insurance under a group paid-up plan, if such employees form a fairly small and fairly stable proportion of the total insurance. If the "term-only" group is a substantial part of the total, or is subject to considerable fluctuation of volume, it may be necessary to apply separate premium billing techniques.

Under this plan the employer forwards contribution collections during the policy year to the insurance company in bulk each month, unidentified by employee. (It is not necessary for the insurance company to be advised currently of changes in individual amounts of insurance.) At the end of the policy year the employer submits an inventory by employee, showing the amounts contributed by each, and the total scheduled amount in force for each at the end. This inventory, which includes the contributions of those who terminated during the year, accounts for the total of the monthly unidentified remittances during the year and gives the insurance company the basis for its annual calculations of accumulated paid-up and corresponding term coverage for each employee.

The calculation of current year paid-up purchases per employee is readily performed on punched cards after the close of the policy year, the current year purchases being mechanically added to the previous year's accumulations to get a new cumulative figure. Simultaneously the current and cumulative figures of employee contributions are recorded for cash value purposes and for balancing out totals. The results are then listed by employee and a copy of the listing is sent to the employer.

This listing, called a "booklist" because its separate sheets are bound together for convenience of handling, fulfills a number of functions. Firstly, it gives the employer a ready reference of the amount of accumulated paid-up insurance and contributions for each employee. Secondly, by listing and tabulating the current contributions of each employee, it shows that the insurance company has in fact applied all the employee money sent to it. Thirdly, the "booklist" being open to inspection by employees, the employees can keep themselves informed of the progress of

their accumulations of paid-up insurance, and the distribution of individual annual statements of account to each employee, once thought necessary, can be avoided. Fourthly, a microfilm of the "booklist" kept in a safe place provides an adequate history record and enables the insurance company to keep record files at a minimum.

Terminations, including deaths, are reported by the employer to the insurance company as they occur, the termination notice showing the amount of contributions during the current policy year and the mode of termination. This notice is accompanied by the employee's request-for-insurance card, which thereafter is kept in the insurance company's file as long as necessary. Cash surrender checks or reduced paid-up certificates are sent from the insurance company on the basis of this information and in the case of retained paid-up insurance all further transactions are usually direct between the insurance company and the ex-employee.

To avoid the uneconomical handling of small amounts of residual paid-up, it is usually provided that the cash value option becomes automatic at termination of employment if the paid-up is then less than some fixed amount such as $100 or $150. Since, despite all precautions, some employees will disappear from employment without trace, the employer is customarily asked to enter the Social Security Number on the termination notice—later application for social security benefits may give the insurance company a means of locating a person to whom a cash value or death benefit payment can be made.

As indicated above, the administration of a paid-up plan is largely carried on by the employer while the employee is actively working. The employer normally secures and retains the employee's request for insurance and issues the individual certificates and certificate riders.

EXPERIENCE-RATING AND DIVIDENDS

The comparison of the claims experience under paid-up cases with the premium charges gives rise to the basic problem of experience-rating or dividends, depending upon whether the policy is nonparticipating or participating. If the history of a case indicates that premiums have been redundant it may be desirable to allow an experience refund or a dividend. If the future prospects of the case indicate that the tabular premium rates are likely to be redundant for the foreseeable future, it may be desirable to allow a rate reduction for future insurance purchases.

It is not the purpose of this paper to discuss the theory of experience-rating and surplus distribution, but rather this part of the discussion will be limited to the practical problems after an experience-rating or dividend formula has been adopted.

Since the employer in effect guarantees the coverage and tends to

bear the burden of the excess cost when actual results are less favorable than premium assumptions, it may very reasonably be held that he should be granted the benefit of any favorable experience results, subject only to the condition that the operation of the plan should not result in a net profit to him. On the other hand, the employee makes a very substantial cash "investment" in the coverage and it may not seem equitable to convert his contributions into paid-up insurance at conservative rates unless he is sometime to be given the benefit of whatever conservatism may have been incorporated into the original rates.

At the one extreme, there might be no separation of accounts between employer and employee funds, all experience refunds, dividends, etc., being credited to the employer. At the other extreme, the emerging surplus might be carefully separated into the portions arising from employer money and from employee money, the portion arising from employer money being credited directly to him, and the portion attributable to employee money being distributed to employees in the form of a bonus addition to all paid-up amounts outstanding under the policy. At this extreme, although a "contribution" method of distribution might result in a variation of bonus according to amount of past contributions (for loading gains) and amount of reserve (for interest gains) and amount of insurance at risk (for mortality gains), a system of granting bonus additions proportional to paid-up in force gains in practicality what it loses in theoretical equity.

An intermediate solution to this problem, particularly suitable to nonparticipating policies, is to separate employee funds from employer funds to an extent compatible with practical economy and then allot the surplus attributable to employee-bought paid-up in the form of an improvement of the purchase rates for future employee contributions. This method has the practical advantages that it avoids the expense of granting small additions to a large number of ex-employees and it is simple to bonus the paid-up purchase factors for contributions made in the ensuing year.

If the paid-up and term accounts are kept separate in the experience analysis, it is inevitable that at the outset of the experience history of the group the paid-up insurance section of the experience accounting must throw up a deficit, since the entire amount of employee contributions must be set up as a reserve even if there are no claims, and yet at the very least there will be a charge of premium taxes against the paid-up account. In fact, even if there are no claims in the first year of operation the gain from mortality in the paid-up account will be in the range of 0.5% of paid-up premiums for the year, which, added to excess interest

earnings at a rate of 0.5% for an average of a half-year, would yield a margin of only about 0.75% of paid-up premiums in the first policy year; obviously, any realistic assessment of expense charges would be in an amount greater than the 0.75% of paid-up premiums above indicated for the first policy year and so a deficit must arise in the account. It therefore becomes necessary to hold back out of margins in the term insurance account enough to finance the deficit in the paid-up account. The deficits so required to be financed out of term insurance margins should decrease from year to year as the gains from mortality and interest operate on continually larger and larger paid-up accumulations—in typical cases the paid-up account may be currently self-supporting after ten years of operation and thereafter the "loans" from the term insurance account to the paid-up account may start being repaid. As a corollary to this type of experience-rating or dividend accounting, it is obvious that there is a limit to the size of acceptable employee contributions per thousand of total insurance since many expense charges to paid-up account are proportional to size of paid-up premiums; if paid-up account deficits are too large in proportion to term insurance account margins, the policy will have an unsatisfactory combined result and may cause a strain on surplus for too long a period. The employer, too, may be dissatisfied if rate reductions are not forthcoming after a period of low loss ratios, and will probably fail to understand why abnormally high contribution rates by employees should impair the financial effectiveness of the plan.

VALUATION OF LIABILITIES

For the purposes of the Annual Statement a number of different kinds of liabilities peculiar to this plan have to be considered:

1. The paid-up insurance accumulations form the principal item of liability. These accumulations, for any particular group policy, may readily be valued by tabulating as of the last policy anniversary the amounts in force at each age and the corresponding year-end reserves. Transactions between the policy anniversary and December 31 are valued by applying average factors to convert into year-end reserves the paid-up premiums, the death claims, and the cash surrender values from policy anniversary date to the end of the year.
2. Reserves for paid-up insurance must also take into consideration any excess of guaranteed cash values over tabular reserves at least on an approximate basis.
3. A substantial item of liability on term insurance account will be the reserve for incurred and unreported claims, which will usually be

estimated by analyzing past patterns of actual delays between incurred year and presentation of claim. For the paid-up account a similar reserve will be related to the net amount at risk.

4. For cases where premium waiver claims have been established, the usual reserve is in the range of 75% of the face amount of the term insurance involved. It is not strictly necessary to hold a similar reserve in respect of the net amount at risk under the corresponding paid-up insurance, since the reserve basis is supposed to reflect ultimate mortality. Nevertheless, the establishment of such a reserve based upon 75% of the net amount at risk is conservative and may result in more orderly emergence of surplus.
5. Where the term premium is calculated on an approximate method with reconciliation after the close of the policy year, under conditions which normally generate more return premiums than additional premiums, it will be necessary to hold a reserve for term premium settlements. This reserve can be approximated by applying to the term premiums after the anniversary a ratio whose numerator is the net returns paid during the calendar year reduced by the portions accrued during that calendar year and whose denominator is the amount of term premium after the anniversary in the preceding calendar year.

UNDERWRITING

A satisfactory plan of group life insurance with paid-up values must in general have all of the basic characteristics of a satisfactory plan of conventional contributory group term insurance. Considerations which are peculiar to paid-up plans or which specially reinforce the need for the basic characteristics include the following:

1. The cash value and other features of paid-up plans are not sufficient to obviate the need for a bond which transcends the desire to have group life insurance. Also, the policyholder must be in the position to deduct contributions regularly from pay; he must be in a better position than his employees to determine what is the best plan for them; he must be in the position to supply the requisite facilities for accurate, careful accounting of employee money; he must be able to pay, and have a business reason for paying, the costs of the term insurance portion of the plan. These considerations emphasize the need for the usual employer-employee relationship.
2. The policyholder must have adequate accounting facilities. It will be his job to keep track of employee contributions from month to month, and to make a consolidated report of such contributions at the end

of each policy year. The amounts contributed are large and warrant careful accounting so that no dissatisfaction will arise many years later.

3. The policyholder must have a real expectation of long-continued corporate existence. If the plan does not stay in force for many years it will not achieve either of its basic objectives of keeping employer cost down and providing adequate postretirement coverage.
4. Since the common method of premium billing for term insurance assumes that the initial ratio of term premium rate to employee contributions rate will remain reasonably stable during the policy year, it is necessary that the group be large enough to be reasonably free from gross fluctuations during the year.
5. Because the plan tends to generate more expense per thousand of insurance than conventional term insurance, it is necessary to secure an economical minimum average per employee and minimum volume per case. For this reason one company has adopted a minimum average of $2,000 per life for smaller cases.
6. The comparatively high overhead expense per unit of coverage means that it is uneconomical to account for small paid-up contributions per year. Furthermore, very small paid-up contributions will not result in enough paid-up insurance to warrant keeping in force after termination of employment or enough paid-up insurance at retirement to take reasonable care of pensioners.
7. The probationary period must be chosen with an eye to the employment situation of the particular business. A probationary period that is too short may mean the unnecessary expense of paying too many cash value checks to employees who terminate after a short period of service. If the period is too long, the chance of accidental death may lead to the embarrassment of an uninsured death. It may also mean that the first paid-up deduction is so large a decrease in take-home pay as to discourage participation. Normally acceptable probationary periods run from three to six months.

As with all plans which do not have long traditions behind them, considerable pressure from insurance salesmen and employers will be exerted in favor of unusual features, some of which may have real merit but many of which will be unable to stand the tests of time and practicality.

A common suggestion is that the employee contributions be set at a very high figure with the objective of converting the correspondingly high cash value at retirement into an annuity settlement option, thereby forcing the plan into the mold of a pension plan. At first glance such a suggestion seems to have merit since it means that the plan can fulfill

insurance functions during active years and annuity functions after retirement. In practice, however, difficulties arise:

1. A contribution rate high enough to result in real pension values at retirement age will be too high to be acceptable for insurance purposes at issue. The objectives of a rate low enough to compare obviously with ordinary life at issue and high enough to produce a satisfactory endowment value at retirement are incompatible.
2. An excessive contribution rate will have the additional disadvantage of accumulating paid-up insurance to a point in excess of the face amount of scheduled insurance, thereby removing the essential element of employer participation in cost.
3. Conversion of the cash value at retirement into an annuity settlement option destroys the plan's function of providing death benefits after retirement and leaves a big gap in the employee welfare program.
4. Introduction into the policy of a guaranteed settlement option at retirement generates an expense which has no corresponding value to the purchaser of a death benefit, and the options themselves would have to be subjected to the extra conservatism which is a necessary feature of group pension calculations.

Another common suggestion is that the plan be issued on an employer-pay-all basis, a sort of "noncontributory paid-up plan." While this idea has the surface appearance of merit, it has very serious disadvantages:

1. Under the present Federal Income Tax laws the amounts so expended by an employer for permanent insurance for his employees must be considered as constructive additions to the taxable income of the employees concerned. In addition to the effect of increasing the base for withholding income taxes and paying social security taxes, such payments may effectively change the base rate of pay for overtime rate calculations, unemployment levies, etc. The accounting effect is apparently such as to make it pointless for the employer to pay the contributions for paid-up—he might just as well increase pay and establish a contributory plan.
2. Difficulties arise in the drafting of provisions for continuation of paid-up contributions during temporary absences from work without pay, *e.g.*, temporary lay-off, leave-of-absence, prolonged absence for sickness, absence under circumstances which must surely lead to approval of a premium waiver disability claim, etc.
3. Employers will object to a plan which allows short-service employees to leave employment and withdraw employer-contributed funds. The alternative of deferring the "vesting" qualifications gives rise to the

problem of paying short-term withdrawal values to the employer with possible undesirable effect on the tax status of employer premiums for short-service employees, plus the likelihood of an accumulated income tax impact on the employee at the time of vesting.

4. Continued payment by the employer of both the term premiums and the paid-up contributions will result in a monthly employer cost per $1,000 that will always compare unfavorably with the cost of a conventional group term plan; continued exposure to unfavorable cost comparisons will decrease the persistence of master policies.

A third fairly common suggestion is that the contribution rate be set at a point which will exactly produce a given amount of insurance, say, $1,000 at retirement—particularly if the paid-up contribution is to come out of employer funds. An objection is that the proper amount of the contribution rate cannot be set exactly, since the future holds promise of interruption of contribution, of changes in premium rates for conversion of contributions into paid-up insurance, and of possible experience-rating or dividend distribution applicable to such premium rates. Besides, the provision of a minimum death benefit after retirement can be achieved more directly and more simply by a continuation program for insurance after retirement (see "Treatment of Pensioners," below).

At the other side of the standard level of employer liberality is the suggestion that the employee contribute for term as well as for paid-up, with the 100% cash value feature applicable only to the paid-up portion of his contribution. This variation of the standard plan is analogous to the device of allowing cash values based on a fraction—say 80%—of employee contributions. Besides the extra complications involved, such devices vitiate the basic appeal by which a conventional paid-up plan draws from employees a contribution high enough to have a satisfactory effect on employer cost and to provide adequate proportions of fully-paid insurance at retirement or termination of employment.

REWRITE FROM CONVENTIONAL GROUP TERM

Since there are more eligible prospects in the ranks of employers who now have conventional group term insurance than in the ranks of those who have no group life insurance at all, it becomes advantageous to give careful thought to the problems of rewriting from the conventional to the paid-up plan.

The obvious advantage of a rewrite is that the underwriter knows what the experience has been and the company may already have established reserves against delayed claims, against contingencies, and against fluctuations in the claims rate. With such knowledge the underwriter may

be able to paint a clearer picture of probable future net costs than where no previous experience history is available. A further advantage is that such rewrite gives the insurance company an opportunity to sell something of value to the employees and to the policyholders, and the insurance salesman an opportunity to earn a new commission, on a case which may not have been susceptible of further new business development on a conventional term basis.

The most satisfactory basis of rewrite is as usual the simplest; the employees are informed about the new plan and are advised that it will become effective—and the old plan will be discontinued—if 75% of eligible employees sign up.

The alternatives to such a simple and clean-cut decision are not satisfactory. If employees are to be offered the choice of remaining on a contributory term basis or subscribing to paid-up there would be continuing dissatisfaction on the part of employees and beneficiaries, who would use hindsight to prove that they had been misinformed, and there would be confusion of contributions on a scale which no life insurance company could tolerate for money subject to return in full. At best, contributory term insurance can be retained only for a specific, "closed," subgroup of total group, *e.g.*, those over age x at issue of the new group policy.

The problem of rewrite from noncontributory term is much greater since it involves asking employees for contributions where none have been asked before. This kind of problem may be easier if the old schedule is capable of increase, since the employee then has a *quid pro quo* of getting more insurance by paying money. If not, a makeshift solution may be to apply the new plan only to new hirings. As a further step, the granting of future schedule increases and the allowance of employer-financed insurance after retirement may be made contingent upon the employee's participation in the paid-up plan.

In almost all cases the complete break with the old plan will prove to be much the best course.

TREATMENT OF PENSIONERS

Although a well-designed plan will result in the typical employee arriving at retirement with fully-paid group life insurance of a satisfactory amount, it is undeniable that inadequate amounts of paid-up will have been accumulated by those who retire in the early years of operation of a plan. For such employees special devices are necessary.

The logical preparation of a plan for handling postretirement coverage for retirements of the plan's early years requires first that a determina-

tion be made of a satisfactory amount of postretirement insurance. Among considerations for such determination are the following:

1. The theory of using group insurance as a means of continuing earnings for a period of a year or so logically requires that the amount of group life insurance be reduced at retirement. Reducing the amount of coverage from something in the range of a year's earnings to something in the range of a year's retirement income means for a typical retirement a reduction to a point near one-third to one-half of the final amount of preretirement insurance.
2. Whereas in the case of a typical active employee group insurance may be part of an over-all insurance estate designed to cover, among other things, the completion of a program of house purchase and the completion of an education program for minor children, the typical retired employee will have fewer obligations of the type normally protected by a life insurance program. It should therefore be unnecessary to provide him with as much insurance protection as may be desirable for an active employee.
3. A key element of a good continuation program is that the employer should be able to amortize the cost of lifetime insurance over the period of the employee's working years. As in the case of annuities, so in the case of group life insurance for retired employees, the entire amount of the employer costs should be paid prior to retirement date. A well-designed plan of group life insurance with paid-up values will normally result in the typical employee arriving at retirement with something between one-third and one-half of his insurance fully paid.

The net of these considerations seems to indicate that a program of continuing one-third to one-half of the preretirement coverage should be satisfactory.

The employee who is less than 20 years away from retirement at the time of the installation of the paid-up plan will not have sufficient time to accumulate an adequate proportion of his group life insurance in the form of paid-up. For him, special devices are needed and such special devices may readily be integrated into a paid-up plan:

1. The simplest and most popular device is for the employer to continue sufficient term insurance after retirement for such employees so that their total coverage, paid-up plus term, will equal the desired one-third or one-half of preretirement amount. While this means that the great bulk of the postretirement coverage for the man who retires immediately will be in the form of term insurance, it is obvious that

term insurance will play a decreasing part for each successive wave of retirements in the future. After about 20 years no term insurance should be necessary for further retirements and the financial problem becomes one of running off the outstanding pension list at that time.

2. As a device for helping the present older staff to accumulate adequate amounts of fully-paid insurance before retirement, a scale of paid-up contribution rates increasing by attained age at effective date of plan can be applied to the original staff. Higher rates of contribution will usually be acceptable to older employees on the staff at date of issue, but the employer who chooses such a device should recognize that he may be making his older employees purchase their own "prior service" paid-up insurance in a manner which he might not be willing to consider for a group annuity.
3. Methods (1) and (2) above may be combined in varying proportions; they are not necessarily mutually exclusive.

It is common to provide that any term insurance being continued for a pensioner under a group paid-up plan will automatically cease if the retired employee should surrender his paid-up insurance. (While it is possible to consider a pensioner as an employee for group insurance purposes during the period for which term insurance is continued after retirement, the retired employee must necessarily retain the option of choosing "terminated" status in order to acquire the privilege of surrendering his paid-up insurance.)

PRELIMINARY TERM INSURANCE

In some instances it may be advisable to precede participation in the paid-up plan with a period of participation on a conventional term basis. Such a preliminary term period may be adopted to avoid the bookkeeping costs of heavy employee turnover after a short probationary period but prior to the achievement of a presumably permanent status; or it may be desired in order to spread over a period of years the increase of employer cost occasioned by the change to paid-up.

The difficulties with such an arrangement may be great enough to influence a decision to allow employees to enter the paid-up plan as soon as they have completed the probationary period. If the preliminary term insurance is noncontributory an embarrassing situation arises when by reason of having graduated from temporary to permanent status an employee is asked to contribute substantially for insurance formerly granted free. Depending upon the form of the contract and the applicable state laws, it may be necessary to grant a conversion privilege at the end of the term insurance to any employee who elects not to contribute

for paid-up. The transition from free preliminary term insurance to contributory paid-up at the end of the preliminary term period may be more acceptable to the employee if a substantial increase of group insurance is granted at that point; this means in effect that it may have been necessary to provide employees with inadequate amounts of group insurance during the preliminary term period.

Provision of preliminary term insurance on a contributory basis also has difficulties. The employee who terminates employment after having contributed for paid-up insurance may be quite unable to understand why he is allowed to get back all of his contributions for paid-up insurance but is unable to get any value out of the contributions he made for term insurance. If, as is usual, the preliminary term insurance covers employees of a very low average age, a contribution rate of $0.50 or $0.60 per month per $1,000 may be considerably more than the real net cost of such insurance, with a subsequent "profit" to the employer. It may be difficult to convince the short-term employee that the employer's "profit" on preliminary term insurance is more than offset by his "loss" on the term insurance portion of the paid-up plan and that the employee is getting a fair deal. On the other hand, any attempt to solve the "profit" problem by reducing employee contributions for preliminary term insurance to a point where they form only a part of the real net cost will usually run afoul of the fact that such contributions may be so small as to be barely worth the collection problem and too great a contrast with the subsequent paid-up contribution rate.

As an alternative device for making a gradual transition from the cost of contributory term insurance to the cost of paid-up and for a different solution to the continuation problem for older initial staff, in at least one case the conventional contributory term plan has been retained unchanged for all employees at and above a fixed age (55) at the date of issue of the group policy. This device means a slightly lower employer cost for changing from term to paid-up, the employer cost for providing postretirement coverage for his older staff is no worse than was contemplated under his term plan, and the paid-up plan gradually takes over the entire burden, although at a slower rate than under a standard paid-up plan.

Any plan which combines regular paid-up for some employees with either contributory or noncontributory term for others will lose in simplicity of premium billing, policy drafting and proper maintenance of employee status.

As with the special devices for rewriting from conventional term to a paid-up plan, it will usually be found that the simplest and most direct

solution, namely adoption of a standard paid-up plan without "frills," will be much the most satisfactory in the long run.

COMMISSIONS

Because of their somewhat greater complexities, group paid-up plans are often considered harder to sell than conventional group term plans. Furthermore, it is more or less traditional in the group business that the salesman's remuneration should increase as the annual premium amount increases, although not usually in direct proportion. If, therefore, a company has a typical commission scale providing commission rates which decrease as the amount of premium becomes larger, it is simple and convenient to apply such a commission scale directly to the combined total of term and paid-up premium.

Where a policy is being rewritten from a conventional term plan to a paid-up plan, the solution is not so obvious. One method is to allow on the new policy the same commission amount as would be allowable for a similar increase in premium income arising out of rewrite from a term plan to a more liberal term plan. To counter an obvious defect of such a commission basis, and to encourage the sale of paid-up, it is sometimes stipulated that the minimum commission for such a rewrite will be the amount of commission that would be payable on the paid-up contributions if the case were entirely new. A third alternative is to treat as new business paid-up contributions plus any increase of term premium arising out of liberalizations of schedule. In practice, fairly elaborate rules have to be worked out reflecting company policy with respect to the kind of business it wants to place in the three basic situations of no previous group insurance, previous group insurance with the same company, and previous group insurance with a different company.

POLICY DRAFTING

The considerations which guide the draftsman of a group policy must of necessity be reviewed in the light of the special features of group paid-up. In particular, the provision of permanent equities dictates greater care than is necessary for a one-year term type of contract which may be lapsed and replaced. Some of the points of difference, or of different emphasis, include:

1. The contribution rates must be stipulated specifically; variation at the choice of the employer subject to a specified maximum is not allowable.
2. The definition of insured status must be drawn carefully to distinguish between insureds who have the privilege of surrender and those who

haven't, those who are covered for disability benefits and those who aren't, etc.

3. For a paid-up plan it becomes even more important to preserve the premise that the contract is solely between the employer and the company: paid-up contributions do not become premiums for paid-up insurance unless and until they are paid to the insurance company.
4. The provision for surrender values must clearly stipulate that nothing is available before termination of employment.
5. If the term premium is based on the paid-up collections during the month it may be necessary to allow a grace period longer than 31 days.
6. The contract will have to provide specifically for the continuation of paid-up insurance in the event that term insurance under the plan is discontinued.
7. The experience-rating or dividend section will need to specify how any dividend or experience refund is to be divided between employer and employee.
8. The contract should reserve to the insurance company the power to change, after a stipulated number of years, the rates at which employee contributions are applied to purchase paid-up insurance and the cash values arising out of such purchases.

As usual the employee will be given a certificate which will spell out for him the principal features of the contract which are of interest to him. It will also be necessary to have a certificate for the employee who retains paid-up insurance after his term coverage has ceased.

CONCLUSION

Although the plan has had a comparatively short existence, it has amply demonstrated by its success in the companies which have offered it, by its acceptance on the part of employees and employers, and by the number of insurance companies which have added it to their repertory, that it is clearly marked for a prominent place in the group insurance picture. Apart from its advantages to employees and employers, it has the effect of reintroducing into group life insurance operations an element of investment which tends to offset the imbalance of tremendous group volumes on the term basis. It has inherently low lapse rates. While it has not yet been exploited amongst unions, it may be that unions will find advantage in the freedom with which an employee can move from one employer to another and still arrive at retirement with a substantial amount of insurance fully paid. Unions and employers alike should find it to their advantage to have a plan under which pensioners can be in-

sured but costs can ultimately be limited to the active staff. Many employers find the paid-up plan to be a solution to their desire to charge the cost of insuring pensioners against the operations of the active years in which pension benefits accrue rather than to defer such costs until after retirement: increasing knowledge of the proper financing of pension plans gives rise to exemplary analogies along such lines by drawing attention to the cost accounting principles which are violated by deferment of pensioner costs until after retirement.

Obviously, this plan is not expected to replace conventional group life insurance. Nevertheless, its very existence is a demonstration of the ability of the group insurance business to develop new policy plans to meet the needs of the insuring public. If the experience of one company can be taken as a guide, the paid-up plan must be recognized as having a great future.