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Life Insurance Funding of Business Buy-Out Agreements

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LIFE INSURANCE FUNDING OF BUSINESS BUY-OUT AGREEMENTS

RALPH R. NEUHOFF*

Business buy-out arrangements seem to exert a fatal fascination for some people. While under the spell of what seems to be an opportunity to get something for nothing, they sometimes accept buy-out plans that will not bear analysis. The purpose of this Article is to examine buy-out agreements funded by life insurance with particular reference to the forms commonly sold.

The effect of the elapse of time will be traced, tables and graphs showing the more fundamental relationships will be presented and discussed and the mathematics of the situation will be set forth. It is hoped that by substituting disciplined thinking for possibly vague surmises the reader may more easily evaluate the particular arrangements which come to hand.

I. THE NEED FOR BUSINESS BUY-OUT AGREEMENTS

Businessmen long ago discovered that, in the case of a small enterprise, the death of one of several participants may result in a substantial loss to the enterprise as a whole and to the family of the decedent. After the death of one of the principal managers, the family will no longer have the advantage of the decedent's earning ability, nor will they, in many instances, be able in any real sense to step in as co-owners and managers of the enterprise. Frequently, it will be advantageous for the surviving or remaining owners to buy out the interest of the decedent, not only because of unacceptability of new persons as joint managers of the business, but also because of a disinclination to pay out substantially all of the earnings of the business which the family of the decedent might demand as partial substitute for his salary. There are many other advantages which stand conceded.

Obviously, life insurance is exactly what is needed in a case like

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this because, by pooling the risks of the various persons, those who die prematurely are benefited by a payment, to their successors in interest, of something which they did not earn, but nevertheless, legally and morally are entitled to receive. This is, of course, the philosophy underlying all life insurance which has been called "the greatest mother in the world."

For a business buy-out plan to be adopted there should be a binding written agreement, presently entered into, calling for the purchase of the business interest of the first associate to die at a price which should be either fixed or capable of being made certain. The purchase might be by individual survivors from the estate of the decedent or it might be by a corporation or a partnership.¹ In this Article it is assumed because it is usual, that the entire interest of the decedent is to be covered; however, some plans do not necessarily provide for purchase of the entire interest in all events. If a corporation is involved, this interest will almost always be represented by shares of stock. Of course, the interest might be a partner's share in a business enterprise.

The contractual aspects of business buy-out agreements have been adequately covered by other authors.² This Article will concern itself with the economic aspects of these agreements.

II. WHO SHOULD CARRY THE INSURANCE?

There is no inherent reason why the corporation should carry the insurance instead of the stockholders or vice versa. Moreover, contrary to what some persons suppose, the amount of insurance actually needed is not affected by the choice of one mode as against the other.

Once it is decided that a policy of a given size is required, a corporation generally can obtain the insurance more cheaply than an individual. Generally individuals would pay premiums from funds received from the company, either as compensation or as a dividend, with a resultant income tax on the individual. Moreover, payment of the

1. Purchase of the interest of a deceased partner by the firm or by the surviving partners presents its own problems under INT. REV. CODE OF 1954, § 736.
2. See generally, GURKIN, *How to Use the Close Corporation in Estate Planning*, in 2 LASSER'S ESTATE TAX TECHNIQUES 1467 (1958).

premiums by a corporation, rather than by individuals who are stockholders, may seem to be less burdensome than personal payment, even though the parties are aware that the corporation will not be allowed an income tax deduction for the payment of the premiums.

Well informed sources have expressed to this author the opinion that, in the vast majority of instances where business buy-out insurance is procured, if a corporation is involved, the insurance will in fact be carried by the corporation rather than by the individuals. Accordingly, the discussion in this Article is devoted mainly to situations where the insurance is carried by the company. For purposes of explanation of the economics involved, however, reference will first be made to the simpler case of "cross insurance" by individuals.

The legal difficulties which may exist in connection with the carrying of a life insurance policy by a corporation for the purpose of supplying funds to purchase the stock of the decedent will not be emphasized in this Article because it is felt that they have been adequately dealt with by other authors.³

III. HOW THE PRICE IS FIXED

The written agreement should contain provisions for fixing the price

3. See Appleman, *A New Approach to Buy-and-Sell Agreements*, 30 TAXES 821 (1952); Bowe, *Meeting Life Insurance Tax Problems*, 5 J. AM. Soc'y C.L.U. 80-87 (1950), in *Monthly Digest of Tax Articles*, Feb., 1951, p. 1; Danzig, *Taxes—Insurance—Stockholder-Survivor Agreements* (pts. 1-2), 28 TAXES 213, 290 (1950); Davis, *Business Purchase Agreements*, 94 TRUSTS & ESTATES 284 (1955); Gutkin, *supra* note 2, at 1479; Hammonds, *How to Buy Out a Co-Stockholder*, 28 TAXES 565 (1950); Kehr & Zafft, *Tax Planning in Business Purchase Agreements, with Sample Clauses*, 1958 WASH. U.L.Q. 398; Kimbrough, *Buy-Sell Agreements*, 97 TRUSTS & ESTATES 925 (1958); Kopp, *Insurance in Estate Planning*, 95 TRUSTS & ESTATES 772 (1956); Laikin, *Survivor Purchase Agreements, and Taxes*, 97 TRUSTS & ESTATES 880 (1958); Mannheimer, *Insurance to Fund Stock Retirement and Buy and Sell Agreements*, N.Y.U. 9TH INSR. ON FED. TAX. 77-102 (1951), in *Monthly Digest of Tax Articles*, April, 1951, p. 67; McDermott, *Buy-Sell Agreements, Corporations and Partnerships, Intra-Family Annuities*, 45 ILL. B.J. 489 (1957), in *Monthly Digest of Tax Articles*, June, 1957, p. 34; Rappoport, *Corporation Stock-Purchase-Insurance Trust Agreements*, 29 TAXES 835 (1951); Ray & Hammonds, *Tax Aspects of Business Purchase Agreements* (pts. 1-2), 89 TRUSTS & ESTATES 368, 448 (1950); Redeker, *Business Insurance Agreements*, 93 TRUSTS & ESTATES 386 (1954); Stern, *Determination of Price in Close Corporation Stock Purchase Agreements*, 13 RUTGERS L. REV. 293 (1958), in *Monthly Digest of Tax Articles*, March, 1959, p. 1; Swados, *Death and Nonsense: The Decline and Fall of the Buy-Sell Agreement*, 26 FORDHAM L. REV. 189 (1957). See also Neuhoff, *Significant Developments in Estate Planning Law During the Past Year*, Life Insurance Selling, April 1959, p. 26.

for the contemplated purchase. There are two methods which are frequently used. They are:

1. The price is agreed upon and stated in the contract with provision for periodical review of the situation and change of the price from time to time by supplemental agreements. Sometimes there is provision for arbitration if the parties cannot agree. In practice it has been found that the parties are likely to neglect the task of periodically reviewing the situation.

2. The price may be fixed by a formula which is stated in the contract, such as the book value with certain safeguards, more or less elaborate, as to how the books shall be kept and what shall be included in computing the book value. Here the draftsman is met at the outset with one fundamental question, namely, whether the proceeds of the life insurance policy on the first to die should be included in determining the book value. If the intention is to exclude these proceeds from the book value, except to the extent of the cash surrender value of the policy, this may be done by providing in the contract that the book value shall be taken as of the last day of the month preceeding the month in which the death occurs. On the other hand, if the intention is to include such proceeds, then provision may be made to compute the book value as of the last day of the month in which the death occurred.

IV. SHOULD THE PRICE TAKE INTO ACCOUNT PROCEEDS OF INSURANCE ON DECEDENT'S LIFE?

Many business buy-out agreements are written in which the price to be paid to the successor in interest of the decedent is fixed without regard to the gain which will occur upon the collection of the insurance proceeds on the life of the first to die. It is the thesis of this Article that in almost all cases this method is unfair to the successors in interest of the participant who dies first. It is further suggested here that the injustice referred to cannot be cured, except in a very few cases, by utilizing an unrealistically high value in fixing the price to be paid for the business interest.

A related question is this: Should the cash surrender value⁴ of the

4. The term "cash surrender value" is used for the benefit of nontechnical readers. It is, of course, equivalent to the term "cash value" used by the insurance

insurance on the survivor or survivors be taken into consideration in fixing the price? This sometimes happens in the case of "cross insurance" but it is less frequent in the case of insurance carried by the corporation. Unless this is done, however, it would seem to be impossible to draft a buy-out agreement with a fixed amount of insurance that would not, as time goes on, tend to operate unjustly by underpaying the successors in interest of *A*.

In order to discuss the theory underlying this aspect of business buy-out insurance, a case of cross insurance is considered first since the problem can be seen more easily there than in a case where a corporation carries the insurance.

The usual cross insurance agreement where there are two equal owners, whom we shall call *A* and *B*, is as follows: *A* and *B* insure each other's lives, and each pays the premiums on a life insurance policy, the amount of which is equal to the value of the other's business interest to be purchased. When one dies the insurance is collected and used by the other to buy the interest of the decedent from his estate or other successor in interest. The family of the decedent, *A*, ends up with the proceeds of the policy on his life and nothing more, and *B*, the survivor, walks away with the entire business. Sometimes *B* is permitted to buy from *A*'s family the policy which *A* had been maintaining on *B*'s life, paying the cash value therefor.

The arguments usually advanced in favor of giving to *B*, the survivor, the proceeds of the policy on *A*'s life are: (1) The arrangement is fair because it was not known in advance whether *A* or *B* would be the survivor; and (2) *B* owns the policy and, therefore, he is entitled to collect the proceeds and retain them.

The first argument is not persuasive. The same argument could be used to justify disposing of the business interest by a throw of dice provided that the dice were true cut and were thrown so that chance was operative as to who would win.

The second argument on first blush seems more impressive. It is true that if *B* insures the life of *A* and does so with his own funds in order to be able to buy out *A*'s business interest on his death, he should be entitled to the benefit of his bargain, and if by reason of *A*'s premature death there is an economic gain, this belongs to the person who paid the premiums, namely *B*. However, it should be noted that this argument

does not take into account all of the factors. At the same time that B agreed to insure the life of A, A agreed to insure the life of B; if the premiums on both of these policies are the same, it would have been just as easy for A to insure his own life and B to insure his own life. If such had been the case and A had died first, as we are now supposing, the economic benefit arising from the premature death of A *would have enured to the benefit of the family of A*. The family of A would have received the same amount of money as proceeds of the policy on the life of A that they will now receive under the cross purchase agreement from B. But there will be one great difference, namely, that with a cross purchase agreement in effect, B turns the proceeds over as the purchase price of the business interest which is thereupon transferred to B *without any further consideration*; whereas if A had merely insured his own life, his family would have received the same amount of money that we have provided they should receive from B, and *in addition* they would own free and clear the one-half interest in the business which A owned at the time of his death. Stated in these simple terms, it is obvious that the decision to cast the purchase of the insurance as cross insurance, rather than individually owned insurance, operates to make a free gift of the business interest from the family of the decedent to the survivor.

Has A's family been justly treated? It is possible on theoretical grounds to argue that they have. But, has A done as well as he could have done with his money? Obviously not, under the hypothesis used. This can be illustrated by the following examples.

Assume that A's family has the right to receive from B the cash surrender value of the policy on B's life which is no longer needed by them as insurance. Assume also that A and B are each thirty-five years of age and are equal owners of a business worth \$100,000 which will not decrease in value by the death of one. Each buys \$50,000 of insurance on the other.

A. First Example

Case I: Buy-out agreement entered into. A dies at end of fifth policy year.

A's family will receive from B:	
for one-half interest in the business	\$50,000.00
cash surrender value of policy on B's	
life (Table III, column (b), line 6)	4,092.50
Total	\$54,092.50

Case II: Buy-out agreement not entered into. *A* insures own life.

A's family will receive:

proceeds of policy on <i>A</i> 's life	\$50,000.00
value of one-half interest in business by hypothesis	\$50,000.00
Total	\$100,000.00

The difference is as follows:

total in case II	\$100,000.00
total in case I	54,092.50
	<u>\$ 45,907.50</u>

It might be urged that the assumption the business would be worth its full book value is unrealistic. This might well be true, but if *A*'s death occurs early, it would be hard to imagine a case where the business interest of *A* would sell for so little after his death that *A*'s family would fare better by having a buy-out agreement of this type. In the example, if *A* took out insurance on his own life, the business interest would have to sell for less than \$4,092.50, when the book value was \$50,000.00 (eight cents on the dollar), for the family to fare worse than they would under the buy-out arrangement.

B. Second Example

Assume, however, that both *A* and *B* live a long time, such as thirty years, so that *A* is now sixty-five years old.

Case I: Buy-out agreement entered into. *A* dies at the end of thirtieth policy year.

A's family will receive from *B*:

for one-half interest in the business	\$50,000.00
cash surrender value of policy on <i>B</i> 's life	
(Table III, column (b), line 26)	28,288.00
Total	<u>\$78,288.00</u>

Case II: Buy-out agreement not entered into. *A* insures own life.

A's family will receive:

proceeds of policy on <i>A</i> 's life	\$50,000.00
value of one-half interest in business, by hypothesis	50,000.00
Total	<u>\$100,000.00</u>

The difference is as follows:

total in case II	\$100,000.00
total in case I	78,288.00
	<u>\$ 21,712.00</u>

Here *A*'s loss is not as great as it was in the first example. The smaller loss is entirely due to the larger cash surrender value of the policy on the life of *B*.

It might be supposed that in the second example the loss of \$21,712.00 due to cross insurance may be offset if the business interest unexpectedly shrinks that much. This would be a shrinkage of more than 42%. But, even so, the shrinkage would not offset the loss, as is shown by the following example.

C. Third Example

Assume, as before, that A and B are equal owners of a business having a book value of \$100,000. A and B agree that the survivor will buy out the decedent at book value of \$50,000, but actually the market value after the death of A will be \$25,000 (one-half of book value). Each insures the life of the other for \$50,000 and A dies at the end of the fifth policy year.

Case I: Buy-out agreement entered into.

A's family will receive from B:

for one-half interest in the business	\$50,000.00
cash surrender value of policy on B's	
life (Table III, column (b), line 6)	4,092.50
Total	\$54,092.50

Case II: Buy-out agreement not entered into. A insures own life.

A's family will receive:

proceeds on policy on A's life	\$50,000.00
market value of one-half interest in business	25,000.00
Total	\$75,000.00

The difference is as follows:

total in case II	\$75,000.00
total in case I	54,092.50
	<u>\$20,907.50</u>

The family of A loses in both the first and third example, but the loss is \$25,000 smaller in the third example because the market value of the business interest was \$25,000 less in that example.

It is only where the cash surrender value of the policy on the life of B exceeds the market value of A's one-half interest in the business (lives being, nevertheless, insured at book value) that the family of A will benefit in a buy-out plan constructed as the one above.

This is illustrated by the third example above. By inspecting Table III, column (b), we find that the cash value of a policy taken out at age thirty-five reaches \$23,783.50 at the end of the twenty-fifth year (age sixty) and reaches \$28,288.00 at the end of the thirtieth year (age sixty-five). Accordingly, A's family cannot expect to break even, in the third

example, by buy-out arrangement of the type supposed until *A* nears his life expectancy.

A will be slightly better off if the insurance is taken out at a later age, e.g., forty-five, because the break even point is reached sooner.⁵

While it is usual for a gain to result if the insured dies before his expectancy, which is of course the essence of life insurance, it is unique to so arrange the matter that the family of the person whose life is insured does not benefit at all but some other person makes the gain.

Assume that the contracting parties recognize the inequity of reflecting to *B* all of the difference between the proceeds of the policy on the life of *A* and the cash surrender value of the policy on the life of *B* and have decided that it should be equally divided between *A*'s family and *B*. This means that \$22,958.75, one-half of the gain in the first example, must be made available to *A*'s family, but *B* is in no position to do this if he intends to utilize the entire insurance proceeds to pay for the \$50,000 business interest owned by *A*. He would have to find elsewhere the sum of \$22,958.75. He could, however, if the total amount of insurance were large enough, divide the gain with *A*'s family and still have enough to pay for *A*'s interest in the business. This will be discussed more fully below in connection with insurance carried by a corporation. As will be seen from that discussion, the amount of insurance necessary, at the inception of the plan, to permit *B* to share with *A*'s family the gain upon the collection of the proceeds of the policy of insurance on *A*'s life, will be exactly twice the value of *A*'s business interest. The same amount of insurance is required whether it is carried by the corporation or by the individuals, if the equities are to be preserved. It might be felt that *A*'s family should not complain because they are underpaid on the life insurance if they are being overpaid on the value of the business interest. However, as was demonstrated by supposing a reduction or shrinkage in the value of the business interest to one-half, the injustice remains in the picture; it is simply cut in half. Therefore, it is not mathematically possible to correct the inequity to *A*'s family by overpaying for the business interest unless the amount of insurance is deliberately made to equal twice the actual value of the business interest after the death. In that case, as is demonstrated below,⁶

5. See Table IV column (c).

it will precisely compensate *A*'s family, as long as there is no cash value accumulated on the policy on *B*'s life. It will also be seen, by comparison of the examples where *A* died at the end of the fifth year and the examples where *A* died at the end of the thirtieth year, that the length of time that *A* lives is not the controlling factor. There will be an inequity regardless of how long *A* lives unless the amount of insurance bears the proper ratio to the buy-out value of the business interest, and the cash value of the policy on the life of *B* is properly taken into account.⁷ It would, of course, be possible to state that the value of the business interest was \$100,000 knowing full well that it was only \$50,000 and then to take out \$100,000 worth of life insurance on both sides.

There is only one fair solution to the problem of who should benefit from the proceeds of the insurance when *A* dies. Since there were two participants in the arrangement and each of them put up the same amount of money, any gain arising in their dealing with the insurance company should be split equally between them.

The matter seems clear enough when the choice is between individually owned policies on the insured's own life or cross insurance on the life of an associate; but the usual case involves a corporation which will own policies on the lives of the various owners. It is believed, however, that the treatment where a corporation is involved should be the same as indicated for cross insurance. Since any expenditure by a corporation having, for example, equal stockholders, *A* and *B*, would in essence be borne equally by *A* and *B*, there is no reason to single out *B*, the surviving stockholder, and confer upon him a large benefit while holding *A* to strict account and giving his family only dollar for dollar of what he owns before his death.

The writers in general blandly ignore this injustice here. But there are exceptions. Hirst states: "[N]or can we ignore the proceeds in the calculation of the value of the stock; that would be an obvious injustice as indirectly both men contributed equally to the premiums needed to carry the Keyman Insurance."⁸ Warren and Surrey refer to this situation and state: "[T]his aspect has led to the comment that the reality of the cross insurance program is that it operates to donate the partnership interest of the decedent to the survivor without cost, thereby penalizing

the decedent's beneficiaries. See Neuhoff, Business 'Buy-out' Life Insurance, *Missouri Law Review*, volume XV, number three, (1950). Stated otherwise, it might be said that the arrangement is a gamble with the survivor winning the business interest."⁹

Probably, the best course is realistically to analyze the situation and particularly to point out to the participants the probable results in the event death occurs (a) prematurely, or (b) after both participants have lived their life expectancy.

V. HOW MUCH INSURANCE IS NEEDED?

Assume now that two owners, A and B, each own one-half of the stock of a corporation and that they desire to enter into a buy-out agreement. They want the agreement to be funded by insurance policies to be carried by the corporation on the lives of both, the corporation to buy the stock of the first to die. Assume again that A dies first.

The ratio of insurance to the value of the business interest funded will, generally speaking, be the same regardless of the dollar values involved. Therefore, demonstrations will presumably be valid not only for the amounts stated in them, but for other amounts as well.

Before one can decide upon the amount of insurance that will be needed, one must make a policy decision as to whether the estate of the decedent is to be allowed to benefit from the collection by the corporation of the proceeds of the insurance on his life. At this point assume that it is desired to reflect in the price paid the increase of the assets of the corporation, which will arise from the collection of the proceeds of the life insurance on the decedent.

The formula to determine the amount of insurance needed where the interests of the various participants are equal and there is no cash value to the policy on the life of B, the survivor, is as follows:

$$x = \frac{b}{n - 1}$$

where *b* equals the value assigned by the participants to the entire business interest exclusive of life insurance policies; *n* is the number of

9. SURREY AND WARREN, *FEDERAL ESTATE AND GIFT TAXATION CASES AND MATERIALS*, 554 (1956). See also Gutkin, *supra* note 2, at 1433.

participants; and x is the amount of insurance required to purchase the interest of the decedent.¹⁰

If there is a cash value to the policy on the life of B , then the formula, if the other conditions are assumed to be the same, is as follows:

$$x = \frac{b}{(n-1)(1-c)},$$

where c equals the cash value of a policy expressed as a percentage of the face value and b , n and x refer to the same items as before.¹¹

A. Business Interests Valued at One Hundred Per Cent of Book Value

1. No Cash Value Accumulated

Assume that A and B are equal owners of a business, the total value of which is \$100,000, and that there is no cash surrender value to

10. Formula is derived as follows: The assets after the death of one owner will be: $b + x$. The share of decedent in these assets will be expressed:

$$\frac{b+x}{n}$$

But the amount of insurance x on A must be equal to decedent's share in the assets. Therefore,

$$\frac{b+x}{n} = x.$$

Solving for x we have $b + x = nx$; $b = nx - x$; $b = (n-1)x$;

$$\frac{b}{n-1} = x.$$

Expressed in words, the amount of insurance on life of A necessary to buy out his interest on his death, if the proceeds of the policy on his life are to be included in the calculation of value, is the total business interest divided by one less than the total number of owners.

11. Formula is derived as follows: The assets after death of one owner will be:

$$b + (n-1)cx + x.$$

The share of decedent in these assets is expressed:

$$\frac{b + (n-1)cx + x}{n}.$$

But x , the amount of insurance on A , must be equal to the share of decedent in the assets. Therefore:

$$x = \frac{b + (n-1)cx + x}{n};$$

$$nx = b + (n-1)cx + x;$$

$$nx - x = b + (n-1)cx;$$

$$(n-1)x = b + (n-1)cx;$$

$$(n-1)x - (n-1)cx = b;$$

$$(n-1)(x - cx) = b;$$

$$x - cx = \frac{b}{n-1};$$

$$x(1-c) = \frac{b}{n-1};$$

$$x = \frac{b}{(n-1)(1-c)}.$$

the policy on the life of *B*, the survivor. If these values are substituted in the equation

$$x = \frac{b}{n - 1},$$

the solution of the problem would be:¹²

$$x = \frac{\$100,000}{2-1} = \$100,000.$$

In order to demonstrate that this answer is correct, namely, that the lives of *A* and *B* must each be insured for \$100,000 (which is the total value of the business interest and *twice* the value of *A*'s business interest), a schematic balance sheet of the business is useful:

Business assets, <i>net of liabilities</i>	\$100,000
Proceeds of insurance on life of <i>A</i>	100,000
Cash surrender value of policy on <i>B</i>	Nil
Net Worth	\$200,000

A's one-half interest equals \$100,000.

The company will require \$100,000 cash to pay for the stock of *A* in the above example. It will utilize the cash received from the insurance company, which is exactly \$100,000.

If the usual procedure had been followed and the insurance on the life of *A* had been written for only the value of his interest, exclusive of the proceeds of the insurance, a schematic balance sheet of the company would appear as follows:

Business assets, <i>net of liabilities</i>	\$100,000
Proceeds of insurance on life of <i>A</i>	50,000
Cash surrender value of policy on <i>B</i>	Nil
Net Worth	\$150,000

A's one-half interest equals \$75,000.

It is obvious that the company will have but \$50,000 with which to pay for the interest of *A* which, upon the above hypothesis, would be worth \$75,000 after the proceeds of insurance on his life are collected. Therefore, if *A*'s family is entitled to receive only \$50,000, they will be penalized in the amount of \$25,000, or one-half of the value of *A*'s busi-

12. If there were four owners the solution would be

$$x = \frac{\$100,000}{4 - 1} = \frac{\$100,000}{3} = \$33,333.33.$$

Proof: When *A* dies the company will have assets of \$100,000 plus \$33,333.33 (proceeds of insurance on *A*'s life) or a total of \$133,333.33, 1/4 of which is \$33,333.33. This is exactly the amount of the insurance on the life of *A* carried by company or carried in equal thirds by the other stockholders.

ness interest. By the same token, *B*, who previous to the death of *A*, was the owner of one-half of a business having a total value of \$100,000, is now the sole owner of a business which is worth \$100,000. Here *B* has picked up \$50,000 in value, merely by being the survivor, which is no mean achievement. The source of *B*'s \$50,000 accession in value is as follows:

<i>A</i> 's family's interest in collection of proceeds	\$25,000
<i>B</i> 's interest in collection of proceeds	25,000
Total	\$50,000

2. Cash Surrender Value Accumulated but Not Utilized

It might be suggested that the foregoing is an extreme example because it is assumed there is no cash surrender value to the policy on *B*. Therefore it is now appropriate to state a case where a substantial cash surrender value has been accumulated. Assume *A* dies at age sixty-five, the end of the thirtieth policy year. It will be remembered that the formula in this case is

$$x = \frac{b}{(n-1)(1-c)}$$

From Table I, column (a), line 14, we find that the cash surrender value of a policy amounting to \$100,000 at *A*'s death is \$56,576 or 56.576 per cent. Accordingly, *b* equals \$100,000; *n* equals 2; *c* equals 56.576% or .56576; and

$$x = \frac{\$100,000}{(2-1)(1.00-.56576)} = \frac{\$100,000}{.43424} = \$230,287.40.$$

A schematic balance sheet would then read as follows:

Business assets, <i>net of liabilities</i>	\$100,000.00
Proceeds of insurance on life of <i>A</i>	230,287.40
Cash surrender value of policy on <i>B</i> (56.576% of 230,287.40)	130,287.40
Net worth	\$460,574.80

A's one-half interest equals \$230,287.40.

This amount should be paid to *A* and would be exactly equal to the life insurance on *A*.

The company would continue to own the policy on the life of *B* with a cash surrender value of \$130,287.40. It is indicated below that the need for these astronomical amounts of insurance can be obviated, in part, by utilizing the cash surrender value of the policy on the survivor, or survivors, as a source of funds to pay *A*'s family.

Now assume that the usual practice had been followed of having the insurance on the life of *A* amount only to *A*'s one-half interest in the business, namely, \$50,000, and, as is frequently the case, no recognition is given to the cash surrender value of the policy on *B*'s life. A schematic balance sheet would then read as follows:

Business assets, <i>net of liabilities</i>	\$100,000
Proceeds of insurance on life of <i>A</i>	50,000
Cash surrender value of policy on <i>B</i> (Table III, column (b), line 26)	28,288
Net Worth	\$178,288

A's one-half interest equals \$89,144.

The agreement would, however, provide that the successors in interest of *A* would receive \$50,000. Here the penalty on the family of *A* would be as follows:

Value of one-half net worth equals	\$89,144
Amount of payment to the family of <i>A</i>	50,000
Underpayment	\$39,144

It will be seen, then, that this penalty grows worse, instead of better, as time goes on.

3. Table I

The purpose of Table I is to show what additional insurance would be necessary in order to keep the buy-out agreement fully funded if the company obtains additional policies, at five-year intervals, covering the cash surrender value of all policies on the participants as it increases, and if the cash surrender value is not used as a source of funds. It is assumed that with most companies the cost of insurance per thousand dollars does not vary significantly with the amount of the policy.¹³

Assume as before that *A* and *B*, both thirty-five years of age, each owns one-half of the stock of the company. The business is worth \$100,000 exclusive of insurance policies on the lives of the owners. The buy-out agreement obligates the corporation to buy the stock of the first to die. The purchase price is to reflect the increase in net worth due

13. This fact will enable the reader to utilize Table I or Table II to determine the growth of the cash surrender value for policies of any size. This is done by merely taking the same fraction of the amount shown in Table I as the amount of the initial policy bears to \$100,000. These tables are applicable only for an assured of age thirty-five, at time of the first policy. Table IV was included to indicate the effect of purchase by University of Missouri School of Law Scholarship Repository, 1960

TABLE I
PROCEEDS ON DEATH AND CASH VALUE OF POLICY ON SURVIVOR TREATED AS ASSETS

Policies on Life of A (as of beginning of year) Cash values are hypothetical	(a) Policy procured at age 35	(b) Policy procured at age 40	(c) Policy procured at age 45	(d) Policy procured at age 50	(e) Policy procured at age 55	(f) Policy procured at age 60	(g) Policy procured at age 65	(h) Total policies at age 65
<i>First Year</i>								
Face Amount	\$100,000.00							\$100,000.00
Cash Value	nil							nil
<i>Sixth Year</i>								
Face amount	\$100,000.00	\$8,185.00						108,185.00
Cash Value	8,185.00	nil						8,185.00
<i>Eleventh Year</i>								
Face Amount	\$100,000.00	8,185.00	\$11,225.06					119,410.06
Cash Value	18,636.00	774.06	nil					19,410.06
<i>Sixteenth Year</i>								
Face Amount	\$100,000.00	8,185.00	11,225.06	\$11,893.00				131,303.06
Cash Value	28,350.00	1,730.88	1,222.18	nil				31,303.06
<i>Twenty-First Year</i>								
Face Amount	\$100,000.00	8,185.00	11,225.06	11,893.00	\$13,540.12			144,843.18
Cash Value	38,072.00	2,606.68	2,681.44	1,483.06	nil			44,843.18
<i>Twenty-Sixth Year</i>								
Face Amount	\$100,000.00	8,185.00	11,225.06	11,893.00	13,540.12	\$15,286.78		160,129.96
Cash Value	47,567.00	3,461.85	3,991.29	3,189.70	1,920.12	nil		60,129.96
<i>Thirty-First Year</i>								
Face Amount	\$100,000.00	8,185.00	11,225.06	11,893.00	13,540.12	15,286.78	\$17,115.42	177,245.38
Cash Value	56,576.00	4,273.39	5,234.13	4,685.13	4,033.60	2,443.13	nil	77,245.38

Note: A and B, both aged 35, are equal stockholders in company owning a business valued at \$100,000.00 at death of A. Proceeds of policy on life of A and cash surrender value of policy on life of B are treated as assets in determining buy-out price, but cash surrender value of policy on B is not treated as a source of funds. Policies shown are those on A only. Cash surrender values are hypothetical and not intended as a measure of performance of particular insurance companies.

to the proceeds on A's life and the cash surrender value on the policy on the life of B.¹⁴

In order to keep the agreement fully funded at all times, it would be necessary to take additional policies at the end of each year, which is not done. Instead, the additional insurance needed is obtained at the end of each five-year period. It follows that a small portion of the purchase price will be unfunded at any time other than immediately after an additional policy has been procured.

Since additional policies will be needed every five years, it is assumed that A and B both remain insurable. A hypothetical saving, used to reduce the premium, has been assumed. Actual figures will vary with particular insurance companies. In order to prevent a change in the value of the business assume that the company retains no earnings in any year, except the amount needed to pay the premiums on the additional life insurance which it procures according to the plan.

Table I shows only the policies on A's life. There would necessarily be a like set of policies on B's life. Only one set will be utilized by the company, in order to buy out A's interest, but both sets are needed, because it is not known in advance whether A or B will survive.

Although the value of A's one-half interest in the business, as such, is only one-half of \$100,000, or \$50,000, we have explained elsewhere¹⁵ why it is necessary to take out initially a policy for \$100,000 on the life of A and a like policy on the life of B. At first, only one policy is needed on the life of A. This policy, as to A, is shown in Table I in column (a) on line 1 and the cash value of this policy at the time it is written is shown as "nil" in column (a) on line 2.

Column (a) traces the future history of the \$100,000 policy on the life of A. The amount of the cash surrender value is entered at the end

14. No attention has been paid to any possible legal impediment to the purchase of such stock after the death of the first to die which might arise out of the law of the state of incorporation nor to Section 531 of the Internal Revenue Code dealing with improper accumulation of surplus. See *Pelton Steel Casting Co. v. Commissioner*, 251 F.2d 278 (7th Cir. 1958); *Gazette Publishing Co. v. Self*, 103 F. Supp. 779 (E.D. Ark. 1952); *Mountain States Steel Foundries, Inc. v. Commissioner*, T.C. Memo 1959-59, 18 CCH Tax Ct. Mem. Dec. 23,522(M) (1959). Compare *Emeloid Co. v. Commissioner*, 189 F.2d 230 (3d Cir. 1951). While it is recognized that the death of a participant might cause a decrease in the value of the business interest, it is not intended in this example to reflect any such decrease.

of each five-year period. The cash surrender value at the beginning of the thirty-first year is \$56,576.

At the end of the fifth policy year, when *A* is 40 years of age, the cash surrender value of the original policy is \$8,185. It is, therefore, necessary for the company to procure an additional policy on *A*'s life for this sum. It has been assumed that there will be no difficulty in obtaining a policy for an odd amount. The amount of this policy is entered in column (b) on line 3 and its future history is then traced showing the guaranteed cash surrender value at various times.

Note that the total in column (h) on line 13, which is the entire face value of all the policies obtained according to this plan, comes to \$177,245.38. The purpose of the plan is to fund the obligation of the company to buy out *A*'s one-half interest in a business which is still worth only \$100,000. The reason that it is necessary to obtain additional insurance is that the cash surrender value of *B*'s policy is increasing all of the time and, by the assumptions used, is not a source of funds to buy *A*'s interest when he dies. By the end of the thirtieth policy year, the total amount of insurance that has been purchased, according to this plan, would be \$177,245.38 face value for *A* and a like amount for *B*, or a total of \$354,490.76, which is more than *seven times* the value of the business interest to be purchased. If it be thought that Table I would not be duplicated very often in real life, it should be remembered that *A*'s life expectancy at age 35, when the first policy was purchased, was 33.44 years according to the 1941 C.S.O. mortality Table¹⁶ and he can reasonably expect to live the 30 years covered by Table I which is less than his life expectancy.

Fortunately, the need for a constantly increasing amount of life insurance merely to keep up with the increase of cash surrender value can be obviated, in a case where there are two owners whose interest are equal, if the cash value of the policy on the survivor can be used as a source of funds.

4. Cash Surrender Value Accumulated and Utilized

The formula to determine the amount of insurance needed, where there is a cash surrender value on the policy on the life of *B* which is

to be used as a source of funds to purchase A's interest is as follows:¹⁷

$$x = \frac{b}{(n-1) [1 + c(n-1)]}$$

Again assume that A is a person thirty-five years of age when the insurance is taken out and dies at the end of the thirtieth policy year. Table I, column (a), line 14 shows that the cash surrender value of a policy amounting to \$100,000 at the end of the thirtieth policy year for a person thirty-five years of age would be \$56,576 (56.576%). Accordingly, b equals \$100,000; n equals 2; and c equals .56576, and

$$x = \frac{\$100,000}{(2-1) [1 + .56576 (2-1)]};$$

$$x = \frac{\$100,000}{1 (1 + .56576)};$$

$$x = \$63,866.74.$$

A schematic balance sheet would then read as follows:

Business assets, <i>net of liabilities</i>	\$100,000.00
Proceeds of insurance on life of A	63,866.74
Cash surrender value of policy on B	
(56.576% of \$63,866.74)	36,133.25
Net worth	\$199,999.99

A's one-half interest equals \$99,999.99

The money necessary to pay A's family is supplied by:

Proceeds of policy on life of A	\$63,866.74
Cash surrender value of policy on life of B	36,133.25
	\$99,999.99

17. The formula is derived as follows: The assets after the death of one owner will be:

$$b + (n-1) cx + x.$$

The share of decedent in these assets will be:

$$\frac{b + (n-1) cx + x}{n}$$

But, the amount of insurance on A must equal the share of the decedent in the assets, less the cash surrender value of the insurance on the survivors to (n-1) members. Therefore:

$$x = \frac{b + (n-1) cx + x}{n} - (n-1) cx;$$

$$x + (n-1) cx = \frac{b + (n-1) cx + x}{n};$$

$$nx + (n-1) cxn = b + (n-1) cx + x;$$

$$nx - x + (n-1) cxn = b + (n-1) cx;$$

$$nx - x + (n-1) cxn - (n-1) cx = b;$$

$$(n-1) x + (n-1) cxn - (n-1) cx = b;$$

$$x + cxn - cx = \frac{b}{n-1};$$

$$x (1 + cn - c) = \frac{b}{n-1};$$

$$x [1 + c(n-1)] = \frac{b}{n-1};$$

$$x = \frac{b}{(n-1) [1 + c(n-1)]}.$$

The policy on the life of A was only \$63,866.74¹⁸ The rest of the funds were supplied by the cash surrender value of the policy on B. However, this high percentage of cash surrender value is attained gradually over a period of years. If the insurance had been in force for a shorter period of time, a larger policy would have been required. For example, it will be seen from Table I, column (a) that in the first year the cash surrender value is nil and that this rises gradually so that at the end of the fifth year the cash value is \$8,185 on a \$100,000 policy.

Accordingly, one of two procedures might be followed. Either the company would take out a policy of \$100,000, and thus be fully insured for the first year, and thereafter periodically cancel out some of the insurance, or it would continue the larger amount in force. There would be no particular harm in adopting the latter course. While there would be a larger cash surrender value on the policy on the life of B and therefore, a larger amount to be paid to the successors of A, the funds would be there with which to make the payment. It should also be observed in passing that the utilization of the cash surrender value of the policy on the remaining life is quite satisfactory where we have only to consider two persons, A and B; however, if we have three or more persons to consider, it is likely that those remaining will desire to continue a buy-out plan. This will render it impracticable to surrender the policies on the lives of the survivors.

Assume that the usual practice had been followed of insuring the life of A for only one-half of the amount of the business interest involved, namely, \$50,000, and that the agreement further provided that on A's death his family should receive the sum of \$50,000 plus the cash surrender value of the policy on B's life. A schematic balance sheet would be as follows:

Business assets, <i>net of liabilities</i>	\$100,000
Proceeds of insurance on life of A	50,000

18. It might be supposed that, inasmuch as our calculation shows that only \$63,866.74 is needed on the life of A, it would have been possible to so arrange things that the policy was kept at \$100,000 and then the cash value on the policy on the life of B was not turned over to the family of A. Mathematically, in our example the cash value, \$36,133.25, is the difference between the proceeds of the policy on the life of A and \$100,000. Such treatment will not be proper, however, because it will cost more money to maintain two \$100,000 policies than it will cost to maintain two \$63,866.74 policies and, accordingly, the cash value of the policy on the life of B, which we have stated in the example to be \$36,133.24, would be instead \$56,576.00, a difference of \$27,733.49, one-half of which, or \$13,866.74, would equitably belong to A.

Cash surrender value of policy on B (Table III, column (b), line 26)	28,288
Net worth	\$178,288

A's interest equals \$89,144.

The money necessary to pay A's family is supplied by:

Proceeds of policy on life of A	\$50,000
Cash surrender value of policy on life of B	28,288
	<u>\$78,288</u>

Here, A's family is entitled to receive only \$78,288 and they will be penalized in the amount of \$10,856, the difference between the value of A's one-half interest and the amount they are entitled to receive.

B. Business Interest Valued at Fifty Per Cent of Book Value

Assume that the other conditions are the same, but the interest of A in the business, after his death, is deemed to be worth only fifty per cent of book value.

1. No Cash Surrender Value Accumulated

The formula where no cash surrender value has accumulated is:

$$x = \frac{b}{n - 1}.$$

Since by hypothesis the business is worth only one-half of book value, b equals \$50,000 and

$$x = \frac{\$50,000}{1} = \$50,000.$$

A schematic balance sheet would read as follows:

Business assets, <i>net of liabilities</i> valued at one-half of book value	\$50,000
Proceeds of insurance on life of A	50,000
Net worth	<u>\$100,000</u>

A's one-half interest equals \$50,000.

Since the insurance on A's life is \$50,000, this will all be paid to A's family. They will receive \$25,000 for the business interest (*only one-half* of the book value); the remaining \$25,000 is received *on account of their one-half interest in the proceeds of the \$50,000 policy, on the life of A* collected by the company.

2. Cash Surrender Value Accumulated but Not Utilized

The formula previously developed for cases where there is a cash
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surrender value and A's family is to receive only the face value of the policy is as follows:

$$x = \frac{b}{(n-1)(1-c)}$$

Since A was thirty-five years old when the policy was taken out and died at the age of sixty-five, the percentage of cash surrender value obtained from Table I, column (a), line 14 is 56.576%. By substitution:

$$x = \frac{\$50,000}{(2-1)(1-.56576)} = \frac{\$50,000}{.43424} = \$115,143.69.$$

A schematic balance sheet would read as follows:

Business assets, <i>net of liabilities</i>	
valued at one-half of book value	\$ 50,000.00
Proceeds of insurance on life of A	115,143.69
Cash surrender value of policy on B	
(56.576% of \$115,143.69)	65,143.69
Net Worth	<u>\$230,287.38</u>

A's one-half interest equals \$115,143.69.

This sum is paid to A's family by using the policy on A's life for the exact amount.

Much less insurance would be required if the cash surrender value of the policy on the life of B had been smaller in comparison with the face value of the policy. For example, if the cash surrender value had only been 10% of face value, the insurance required would only be \$55,555.55, as demonstrated below:

$$x = \frac{\$50,000}{(2-1)(1-.10)} = \frac{\$50,000}{.90} = \$55,555.55.$$

If the policy had no cash surrender value, as for example in the first policy year before the second premium is paid, the formula would be:

$$x = \frac{b}{(n-1)}$$

Here \$50,000 of insurance is required, since that is the total value of the entire company taken at fifty per cent of book value. The fact that a larger policy is required as the cash surrender value grows, would necessitate purchasing additional policies from time to time if the buy-out agreement is to be kept fully funded.

3. Cash Surrender Value Accumulated and Utilized

As we explained above,¹⁰ the pyramiding effect of the cash sur-

render value of the policy on the life of the survivor can be avoided by utilizing the cash surrender value of that policy as a source of funds. The largest policy is needed at the time of purchase and the amount gradually decreases. This will permit cancellation of a part of the policy from time to time, if desired. The decision to value the business interest of the decedent at one-half of book value is not a cause of the gradual decline in the need for insurance to fund the agreement. The decline is a function of the increase of the cash surrender value of the policy on the life of the survivor. The situation is exactly the same as was discussed under V(A)4 above, except the amounts are smaller. The doctrine is identical.

The formula to allow for the utilization of the cash surrender value of the policy on the life of the survivor as a source of funds is:²⁰

$$x = \frac{b}{(n - 1) [1 + c(n - 1)]}$$

If A dies at the end of the thirtieth policy year,

$$x = \frac{\$50,000}{(2 - 1) (1 + .56576 \times 1)} = \frac{\$50,000}{1.56576} = \$31,933.37.$$

A schematic balance sheet would then be as follows:

Business assets, <i>net of liabilities</i>	
valued at one-half book value	\$50,000.00
Proceeds of insurance on life of A	31,933.37
Cash surrender value of policy on B,	
(56.576% of \$31,933.37)	18,066.62
Net worth	\$99,999.99

A's one-half interest equals \$49,999.99.

The money necessary to pay A's family is supplied by:

Proceeds of policy on life of A	\$31,933.37
Cash surrender value of policy on life of B	18,066.62
	\$49,999.99

Assume that the usual practice had been followed insuring the life of A for only one-half of the amount of the business interest involved, namely, \$25,000, and that the agreement provided that A's family should receive this amount plus the cash surrender value of the policy on B's life. A schematic balance sheet would be as follows:

Business assets, <i>net of liabilities</i> ,	
valued at one-half of book value	\$50,000
Proceeds of insurance on life of A	25,000

Cash surrender value on policy on B (56.576% of \$25,000)	14,144
Net worth	\$89,144

A's one-half interest equals \$44,572.

The agreement under these circumstances would only call for payment of the full amount of the policy on A plus \$14,144; therefore, A's family would receive \$39,144. The amount of the underpayment is as follows:

Value of A's one-half	\$44,572
Less amount paid to A's family	39,144
Underpayment	\$ 5,428

This means, that in addition to cutting down A's business interest to fifty per cent of book value, we are depriving his family of an additional \$5,428.

VI. VARIATIONS IN PLAN—TABLES II, III AND IV

A. Table II

The purpose of Table II is to show what additional policies of insurance would be necessary in order to keep the business buy-out agreement fully funded if the company which is to buy out the interest of the first associate to die obtains additional policies at five year intervals covering with respect to each participant the cash surrender value of all policies on his life as it increases. Assume as in connection with Table I that the cash surrender value of the policy on the life of the survivor is not to be used as a source of funds. Contrary to the assumption in connection with Table I, assume that the proceeds of the policy on the life of A which are collected upon his death are ignored, and that the value of A's one-half interest is computed by taking into account the value of the business assets plus the cash surrender value of the policies on the lives of both A and B as it existed immediately before the death of A. Since A's interest is one-half, it will be seen that at any given time the policy on the life of A should equal the sum of \$50,000 plus one-half of the amount of the cash surrender value of the policies on the lives of both A and B. Accordingly, the amount of the policy should equal the sum of \$50,000 plus the cash surrender value of all of the policies on *one* of the participants.

While the price to be paid for A's interest is frequently computed as indicated above, in other instances the price will be computed not only

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Policies on Life of A (as of beginning of year) Cash values are hypothetical	(a) Policy procured at age 35	(b) Policy procured at age 40	(c) Policy procured at age 45	(d) Policy procured at age 50	(e) Policy procured at age 55	(f) Policy procured at age 60	(g) Policy procured at age 65	(h) Total policies at age 65
<i>First Year</i>								
1. Face Amount	\$50,000.00							\$50,000.00
2. Cash Value	nil							nil
<i>Sixth Year</i>								
3. Face Amount	\$50,000.00	\$4,092.50						54,092.50
4. Cash Value	4,092.50	nil						4,092.50
<i>Eleventh Year</i>								
5. Face Amount	\$50,000.00	4,092.50	\$5,612.53					59,705.03
6. Cash Value	9,318.00	387.03	nil					9,705.03
<i>Fifteenth Year</i>								
7. Face Amount	\$50,000.00	4,092.50	5,612.53	\$5,946.50				65,651.53
8. Cash Value	14,175.00	865.44	611.09	nil				15,651.53
<i>Twenty-First Year</i>								
9. Face Amount	\$50,000	4,092.50	5,612.53	\$13,540.12	\$6,770.06			72,421.59
10. Cash Value	19,036.00	1,303.34	1,340.72	5,946.50	nil			22,421.59
<i>Twenty-Sixth Year</i>								
11. Face Amount	\$50,000.00	4,092.50	5,612.53	5,946.50	6,770.06	\$7,643.39		80,064.98
12. Cash Value	23,783.50	1,730.93	1,995.65	1,594.85	960.06	nil		30,064.98
<i>Thirty-First Year</i>								
13. Face Amount	\$50,000.00	4,092.50	5,612.53	5,946.50	6,770.06	7,643.39	\$8,557.71	88,622.69
14. Cash Value	28,288.00	2,136.69	2,617.06	2,342.57	2,016.80	1,221.27	nil	38,622.09

Note: Assumptions same as in Table I, except proceeds of policy on life of A are not treated as assets in determining buy-out price, but cash surrender values of policies on lives of A and B are so treated. Cash surrender value of policy on life of B is not treated as a source of funds. Policies shown are those on A only. Cash surrender values are hypothetical and are not intended as a measure of performance of particular insurance companies.

without regard to the proceeds of the policy when collected, but also without regard to the cash surrender value of the policies on the lives of A and B. Where this is done no table is needed since the amount of insurance on the lives of A and B respectively remains pegged at \$50,000 for each.

It will be observed that the entry in each part of Table II is arithmetically equal to one-half of the entry in the corresponding part of Table I. This is because the increase in the cash surrender value of any policy is assumed to be exactly in proportion to the dollar amount of the policy.

If it had been assumed that the cash surrender value of the policy on the life of the survivor was to be utilized as a source of funds, then, even if the buy-out price was determined by including the cash surrender value of both policies immediately prior to the death of A, it would, nevertheless, not be necessary to increase the insurance over the original \$50,000 amount. This is because the cash surrender value of these policies increases with the elapse of time, so that the amount available by utilizing the cash surrender value of the policy on the survivor would at all times exactly equal the additional amount of funds needed over and above the original \$50,000. Therefore, no additional policy need be obtained.

In Table II the total insurance on the life of A finally amounts to \$88,622.69, and a like amount is, of course, in existence on the life of B. Thus the total insurance in effect in order to buy out A's \$50,000 business interest is only \$177,245.38 or approximately three and one-half times the amount of the business interest to be bought instead of seven times as was necessary under Table I. As before remarked, this is because the initial policy was only one-half as large.

B. Table III

In preparing Table III it is assumed that the decedent's successors in interest receive no benefit from the collection of the policy of insurance on the life of A, but it is assumed that the cash surrender value of the policies on the lives of both A and B will be included in determining the selling price. Column (b) shows an initial policy of \$50,000 on A and the cash surrender value of that policy as it increases. The cash surrender value of the policy on B would be the same. It is assumed that the cash surrender value of the policy on B's life will be utilized as a

TABLE III
HYPOTHETICAL CASH VALUES & PREMIUMS
(By amounts)

Policies on Life of A (as of beginning of year)	(a)	(b)	(c)	(d)
<i>First Year</i>				
1. Face amount	\$100,000.00	\$50,000.00	\$25,000.00	\$1,000.00
2. Cash value	nil	nil	nil	nil
3. Premiums for 5 years	10,384.00	5,192.00	2,596.00	103.84
4. Cumulative premiums	10,384.00	5,192.00	2,596.00	103.84
<i>Sixth Year</i>				
5. Face amount	\$100,000.00	\$50,000.00	\$25,000.00	\$1,000.00
6. Cash value	8,185.00	4,092.50	2,046.25	81.85
7. Premiums for 5 years	9,343.00	4,671.50	2,335.75	93.43
8. Cumulative premiums	19,727.00	9,863.50	4,931.75	197.27
<i>Eleventh Year</i>				
9. Face amount	\$100,000.00	\$50,000.00	\$25,000.00	\$1,000.00
10. Cash value	18,636.00	9,318.00	4,659.00	186.36
11. Premiums for 5 years	8,301.00	4,150.50	2,075.25	83.01
12. Cumulative premiums	28,028.00	14,014.00	7,007.00	280.28
<i>Sixteenth Year</i>				
13. Face amount	\$100,000.00	\$50,000.00	\$25,000.00	\$1,000.00
14. Cash value	28,350.00	14,175.00	7,087.50	283.50
15. Premiums for 5 years	7,286.00	3,643.00	1,821.50	72.86
16. Cumulative premiums	35,314.00	17,657.00	8,828.50	353.14
<i>Twenty-First Year</i>				
17. Face amount	\$100,000.00	\$50,000.00	\$25,000.00	\$1,000.00
18. Cash value	38,072.00	19,036.00	9,518.00	380.72
19. Premiums for 5 years	6,900.00	3,450.00	1,725.00	69.00
20. Cumulative premiums	42,214.00	21,057.00	10,528.50	422.14
<i>Twenty-Sixth Year</i>				
21. Face amount	\$100,000.00	\$50,000.00	\$25,000.00	\$1,000.00
22. Cash value	47,567.00	23,783.50	11,891.75	475.67
23. Premiums for 5 years	6,900.00	3,450.00	1,725.00	69.00
24. Cumulative premiums	49,114.00	24,557.00	12,278.50	491.14
<i>Thirty-First Year</i>				
25. Face amount	\$100,000.00	\$50,000.00	\$25,000.00	\$1,000.00
26. Cash value	56,576.00	28,288.00	14,144.00	565.76
27. Premiums for 5 years	6,900.00	3,450.00	1,725.00	69.00
28. Cumulative premiums	56,014.00	28,007.00	14,003.50	560.14

Note: Assume net premiums for all policy years subsequent to the 20th are the same as for the 20th year. Cash values and premiums are assumed for purpose of example and are not intended as a measure of performance of particular insurance companies.

source of funds to purchase the business interest of A. For this reason, it is not necessary to obtain any additional insurance regardless of how long A and B live. There is no objection, in theory, to utilizing the cash surrender value of the policy of the survivor as a source of funds; provided, the parties are willing to do this. It is, therefore, suggested that if no recognition is to be given to the estate of the decedent for the collection of the insurance on his life, the policy on the life of the survivor should be looked to as a source of funds in order to obviate a multiplicity of additional policies.

It may be noted that, inasmuch as Table III, column (b), shows an original policy of \$50,000 which is exactly equal to the value of A's business interest and no further policies are needed, this is quite a manageable procedure if it were correct in theory and did A no injustice.

This plan is inserted here not to recommend it, but to furnish a basis for comparison with a buy-out agreement constructed in accordance with Table I.²¹

C. Table IV

Table IV has been included in order to show the effect of taking out the initial policy at different ages. In order to form a basis of comparison, it has been assumed in the various examples given in this Article that the policy would be taken out at the age of thirty-five years. However, Table IV shows the same data in parallel columns for typical ages such as twenty-five, forty-five and fifty-five years respectively and the data for age thirty-five has been included in column (b) for easy comparison. In each case, the initial policy is for \$100,000. In the event that it is desired to compute similar data for a policy of different size, this may be easily done if we remember that the data for a policy of \$1,000 can be arrived at from the columns given in Table IV simply by pointing off three decimal places. For example, the cumulative premiums paid on a \$1,000 policy, taken out at age twenty-five at the end of the tenth year, will be the amount in column (a) at line 8, namely, \$14,629, divided by 1,000, which gives \$14.629.

21. Further uses of Table III. This table shows, in parallel columns, significant data for five-year periods running through the thirty-fifth year for policies of various amounts, namely, \$100,000, \$50,000, \$25,000 and \$1,000. The last column was included in order to enable the reader to construct similar columns for amounts which may not happen to be included in the table. While the amounts given are deemed to be representative of current practice, they would necessarily vary somewhat with different companies.

TABLE IV
HYPOTHETICAL CASH VALUES & PREMIUMS
(by ages)

Policies on Life of A (as of beginning of year)	(a) Policy procured at age 25	(b) Policy procured at age 35	(c) Policy procured at age 45	(d) Policy procured at age 55
<i>First Year</i>				
1. Face Amount	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00
2. Cash Value	nil	nil	nil	nil
3. Premiums for 5 yrs.	7,687.00	10,384.00	14,571.00	21,921.00
4. Cumulative prem's.	7,687.00	10,384.00	14,571.00	21,921.00
<i>Sixth Year</i>				
5. Face Amount	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00
6. Cash Value	6,095.00	8,185.00	10,888.00	14,181.00
7. Premiums for 5 yrs.	6,942.00	9,343.00	14,263.00	20,379.00
8. Cumulative prem's.	14,629.00	19,727.00	27,834.00	42,300.00
<i>Eleventh Year</i>				
9. Face Amount	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00
10. Cash Value	14,358.00	18,636.00	23,888.00	29,879.00
11. Premiums for 5 yrs.	6,152.00	8,301.00	12,545.00	19,178.00
12. Cumulative prem's.	20,781.00	28,028.00	39,929.00	61,478.00
<i>Sixteenth Year</i>				
13. Face Amount	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00
14. Cash Value	22,181.00	28,350.00	35,557.00	43,240.00
15. Premiums for 5 yrs.	5,297.00	7,286.00	11,990.00	18,221.00
16. Cumulative prem's.	26,078.00	35,314.00	50,919.00	79,699.00
<i>Twenty-First Year</i>				
17. Face Amount	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00
18. Cash Value	30,319.00	38,072.00	46,629.00	55,076.00
19. Premiums for 5 yrs.	4,950.00	6,900.00	10,575.00	17,865.00
20. Cumulative prem's.	31,028.00	42,214.00	61,494.00	97,564.00
<i>Twenty-Sixth Year</i>				
21. Face Amount	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00
22. Cash Value	38,637.00	47,567.00	56,799.00	65,163.00
23. Premiums for 5 yrs.	4,950.00	6,900.00	10,575.00	17,865.00
24. Cumulative prem's.	35,978.00	49,114.00	72,069.00	115,429.00
<i>Thirty-First Year</i>				
25. Face Amount	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00
26. Cash Value	46,964.00	56,576.00	65,807.00	73,427.00
27. Premiums for 5 yrs.	4,950.00	6,900.00	10,575.00	17,865.00
28. Cumulative prem's.	40,928.00	56,014.00	82,644.00	133,294.00

Note: Assume net premiums for all policy years subsequent to the 20th are the same as for the 20th year. Cash values and premiums are assumed for purpose of example and are not intended as a measure of performance of particular insurance companies.

VII. EXPLANATION OF FIGURES 1 AND 2

A. Figure 1

Figure 1 is intended to show graphically the various policies which are taken out in accordance with the assumptions of Table I. It will be seen, accordingly, that the first policy is for \$100,000; and that at the beginning of the sixth year the total amount of insurance in force is increased to \$108,185, the amount on line 3 in column (h). The insurance is progressively increased until finally, when the participants have lived their approximate life expectancy, the amount of \$177,245.38 is in effect on each.²² The broken horizontal line represents \$50,000, the value

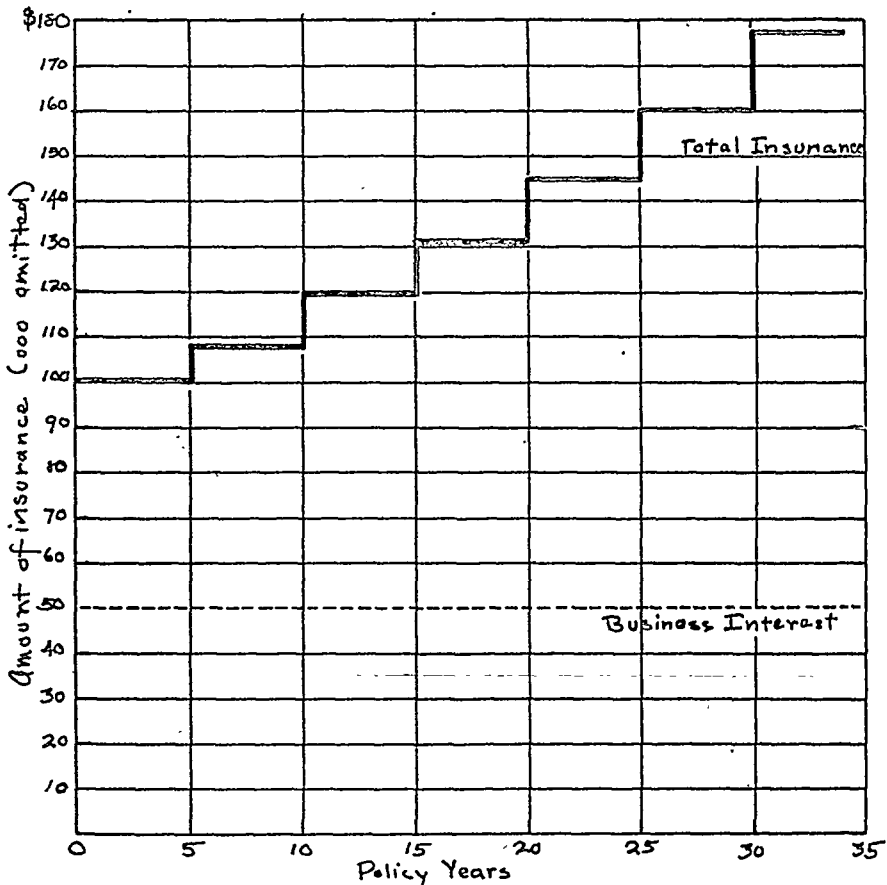


FIGURE 1

Amount of insurance on life of A necessary to fund agreement by company to buy out A's interest valued at \$50,000 at his death. Based on Table I. A and B are 35 years of age at inception of plan.

of the business interest which is intended to be bought out in accordance with the plan. It will be seen that the amount of life insurance in force on the life of each participant is more than three times the value of the business interest intended to be brought out; moreover, since there are policies on the lives of both participants, the total insurance in force in order to buy-out one \$50,000 interest becomes twice the amount shown on figure 1, or a total of \$354,490.70, which is approximately *seven times* the value of the business interest which is intended to be bought out.

B. Figure 2

Figure 2 is based on data found in column (b) of Table III. It shows the growth of the cash surrender value of a policy of \$50,000, if this were the amount taken out on the life of one of the participants in our example. It will be seen that, even when the participant has lived his expectancy, the cash surrender value of the policy by no means equals the proceeds payable upon death. As was seen by the discussion above, a difference between the cash surrender value and the proceeds is a significant figure because in some plans the cash surrender value of the policy is included in the formula for determining the price to be paid for the decedent's interest; whereas, almost never are the proceeds payable upon death included in the formula. The difference between these two figures is pertinent in determining the measure of the disadvantage to the person first to die. The line representing the cash surrender value is not, as might be supposed, a straight line.²³ This variation is not significant for our purposes.

VIII. UNEQUAL BUSINESS INTERESTS

The difficulty experienced where there are two equal owners of a business is compounded when the holdings are unequal, whether the owners be two or more. The formulae for varying holdings are more complex, but they are to be derived by techniques similar to those used in deriving formulae for equal holdings.

23. In the data from which Table III and Figure 2 were prepared, the increase in cash surrender value was not entirely uniform due to irregularity in the eleventh year. In the first year of a policy, certain acquisition expense such as medical examination and commissions is charged against the policy reserve in establishing the cash surrender value for the first year. If the policy stays on the books, this is credited back over the next *nine* years in additional cash value increases. By the tenth policy year the cash surrender value is up to the regular policy reserve, and the *extra* addition to cash reserve is no longer made.

Set out below is the derivation of the formula for the amount of insurance required where two participants, C and D, own, respectively, one-fourth and three-fourths of the business.²⁴ Since it is not known whether C or D will be the first to die, each of them must be placed in the position of A in the previous examples. As will be seen from the formula, if D, who owns three-fourths of the business enterprise, dies first, the insurance on his life should be equal to three times the amount of the business interest in order that C, the survivor, may become owner of the entire business; whereas, heretofore he had only a one-fourth interest in it. Not many will care for a procedure with these results, but taking out any lesser amount of insurance on D operates as a gift of a part of the business interest to C, if the company is to become the owner of the entire business interest of D in exchange for the proceeds of the insurance on his life. Obviously, if C, whose interest is originally one-fourth of the total business, is to become owner of a four-fourths interest, a very considerable amount of funds must come from somewhere.

24. Assuming no cash surrender value, the interest of C at death will be:

$$x = \frac{b + x}{4};$$

$$4x = b + x;$$

$$3x = b;$$

$$x = \frac{b}{3}.$$

Accordingly, the policy on the life of C will be equal to $\frac{1}{3}$ of the total business interest.

Proof: If C dies first, assets equal:

$$b + x = b + \frac{1}{3}b = \frac{4}{3}b.$$

C's share equals:

$$\frac{1}{4} \times \frac{4}{3}b = \frac{1}{3}b.$$

If D dies first, the interest of D at death will be:

$$y = \frac{3}{4}(b + y);$$

$$4y = 3(b + y);$$

$$4y = 3b + 3y;$$

$$y = 3b.$$

Therefore, the insurance on the life of D should be equal to three times the total business interest.

Proof: If D dies first, the assets will equal:

$$b + y = b + 3b = 4b.$$

The interest of D in the assets will be:

$$\frac{3}{4} \times 4b = 3b.$$

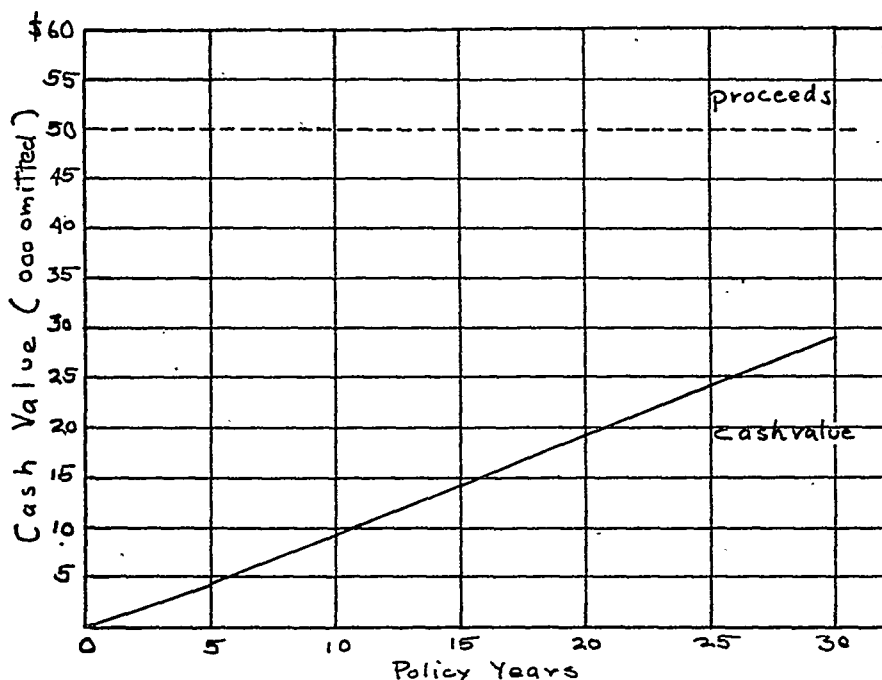


FIGURE 2

Cash value of policy for \$50,000 on life of A, aged 35 when insured, at various policy years. Based on Table III, col. (b).

IX. CONCLUSIONS

In the foregoing discussion two things seem to be outstanding. First, there has been in practice an almost universal failure to recognize the increase in assets which occurs when, for example, a corporation, which is carrying a policy on the life of A at its cash surrender value, receives upon A's death the face amount of the policy; and second, this practice operates to give an unfair advantage to the survivor, B.

Probably the reason that this practice has been accepted by the public, and it obviously has, is the psychological fact that it is easy to sell a plan which is loaded in favor of the survivor. If A and B detect, at least vaguely, that the plan seems to treat the survivor with great kindness, they may not object because each fondly imagines that he will be the survivor. This is in accordance with the well-known psychological fact that it is hard for anyone to envision his own death.

One argument for such a plan is that the decedent's family is getting a price for the decedent's interest based on book value when the

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market value of such interest is much less. It is argued that this will compensate the decedent's family for the unfairness related above. This argument is entirely specious; in almost all instances, the decedent gets the worst end of the deal, even if it be admitted that had he died without a buy-out plan, the value of his interest would be much less than its current value was while he was alive.

Except in a narrow range of cases, it is not possible to compensate the decedent's successors in interest for ignoring the increase in wealth due to collection of the proceeds of the policy on his death by overpaying them for the business interest. This only occurs when, in addition to the proceeds of the policy on the life of A, the cash surrender value of the policy on the life of B is also turned over to A's family as a part of the purchase price *and* the surrender value is large enough to effect this compensation.

There is a great tendency to assume that, in some manner, life insurance operates to create wealth, whereas actually, taking it in its relationship to all of the policyholders, it merely operates as a transfer of funds from some of the policyholders to others. For this reason, if Mr. Big expects to sell out his business interest to Mr. Little, who has very small ability to purchase, Mr. Big should not come to the conclusion that if only Mr. Little and Mr. Big take out enough life insurance, the problem will be solved, because it will not be. If the plan operates to get Mr. Big to buy himself out with his own money and make a donation of the business interest to Mr. Little, this can be done. But Mr. Big might not fancy the buy-out plan if it were explained to him in these terms. As Mr. Dooley (Finley Peter Dunne) said many years ago: "The chances are if you are getting more than six percent on your money, you are paying part of it yourself."