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Industrial Appraisals and Insurance

H. B. Hall

NATIONAL ASSOCIATION
of
COST ACCOUNTANTS
Affiliated with The Canadian Society of Cost Accountants

Official Publications

Vol. VI April 15, 1925 No. 16

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BUSH TERMINAL BUILDING
130 WEST 42nd STREET, NEW YORK

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The American Appraisal Company,
Milwaukee, Wis.

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PUBLICATION DEPARTMENT NOTE

The balance sheet is a statement of financial condition. It is called upon to serve many needs in that connection. Some of these needs it serves well; to others its basis of valuation is not adapted. A valuation basis which is right and proper for the extension of bank credit may be wholly unreliable for the flotation of a long term bond issue. For certain needs, therefore, other values than those usually shown in the commercial balance sheet must be determined. One of these supplementary agencies for the determination of values is the method of physical appraisal. Business men and accountants are giving increasing attention to this method. This paper on the relationship between industrial appraisals and insurance seems particularly appropriate at this time.

The facts set forth in the paper are based upon a long study of the place occupied by appraisal service in industry. For the past thirteen years a study of this place has been the author's chief activity, a study largely conducted through actual contact with the users of appraisals.

Mr. H. B. Hall, the author, is a native of Ohio. Born in 1884, he graduated from his school days in 1902 and promptly entered the grocery business. After two years, he felt the need of expansion and secured a position as salesman for the American Multigraph Company where he first came into contact with industry. In 1909 he went into business for himself, engaging in the manufacture of storage batteries. Competition was a little too keen for a concern with as limited capital as his, and in 1911 he sold out his interests and shortly thereafter entered the appraisal profession. Since 1916, when he came with The American Appraisal Company, he has successfully had charge of this company's St. Louis and Cincinnati offices, and then of all of its contract work.

During the last few years, Mr. Hall has devoted an increasing amount of his time to writing on appraisal subjects and to the making of addresses on appraisals and allied subjects. This paper was presented before the Milwaukee Chapter of the N. A. C. A. and subsequently before several other chapters.

INDUSTRIAL APPRAISALS AND INSURANCE

If we were to read statistics after the fashion set by Mark Twain some years ago, we would conclude that to invest in a business enterprise is to invite almost certain loss; disaster is bound to result sooner or later. It is said concerning him that, from a statistical report showing that 95% of all deaths occur while people are in bed, he drew the conclusion that about the most dangerous thing a man could do was to retire at night—that this wrapping of the drapery of one's couch about him and lying down to pleasant dreams is really a rather risky business.

It was not so long ago that the shouters of "Race Suicide" painted a rather dismal picture of the possible effect of birth control propaganda on our vital statistics.

Last week a circular issued by some statistical bureau conveyed the glad tidings that about eight out of ten concerns which

start in business "die" within thirty years, that the average life of a business is only seven years and that in the United States alone forty-three concerns die every day. Even with these depressing statistical facts staring us in the face, we find Mr. Simmons of Kenosha going right ahead making and selling beds and Mrs. Sanger, the chief apostle of the small family doctrine having difficulty in making herself heard over the noise of bigger school houses in the making. And in the year of our Lord 1924 just closed, more than 50,000 new concerns started in business.

It sometimes seems that the promulgation of so many charts and so many preachments on business cycles—the regular recurrence of peaks of prosperity and valleys of depression—must have a tendency to inject the doctrine of predestination into business, and to make fatalists out of business men. It probably does this to the species of business man commonly known as the "money grubber," he who sees no further than today's profits. He pulls in his horns and follows the chart down the hill and into the valley, depending on a war or Mr. Babson to pull him up the subsequent steeper grade. But fortunately there is the other type of business man who only uses the business cycle chart to guage the effort that must be made to keep his business out of the ruck and run of other businesses, to level the peaks and valleys or rather to eradicate the latter insofar as his particular house is concerned.

This latter type of business man loves profit as much as the first, but dollars to him are simply the counters that score his achievement. His business is his hobby, his recreation, and sometimes even his religion. To make it the outstanding institution of its class, to render the greatest service to mankind, to *win the game* is his life ambition. He has the imagination and numerous other characteristics which your simon-pure money grubber lacks. Among them is one which may be called his gambling instinct. Not long ago one of our current magazines contained an article on control by statistics. It was entitled "Taking the Hunch out of Business." The importance of forecasts of the future from statistics of the past should not be minimized. But when the "hunch" is entirely eradicated from business, we will see droves of our captains of industry drifting to the race tracks and poker tables for an outlet for one of the characteristics that have made them great. The business man who does not harbor frequent hunches and who does not follow them through is not a business man but a mere money grubber—a half-way sort of parasite.

Mr. Ford, Mr. Wrigley or the late Mr. Patterson are not to be classed as gamblers, but the great institutions they and others have built up are in each case monuments to the hunch of a genius. These men took a chance—gambled their all that they correctly read the public's demand in automobiles, chewing gum and cash registers and before they demonsrated the correctness of their hunches they doubtless took many other chances that you or I know nothing about. All good business men do. But we

never find him, i. e. the real article—not the money grubber—gambling on things on which laws of recurrence have been or can be worked out to the extent that they cease to be a gamble.

In every business there are plenty of new and interesting problems arising daily on which chances must be taken and which should have the undivided attention and study of executives. There is not time or should not be for any real executive to worry about or take chances with those dry, uninteresting hazards which are common to all businesses and always have been—hazards so old and so certain that their recurrence has been worked out to a degree of mathematical accuracy that permits people to make it their business to assume them.

Whenever a business man says he carries no insurance or carries his own insurance, one is prompted to take a second look to see if he cuts his own hair. But when a business man says, "Of course I am insured right up to the handle. I spend my time in improving and marketing our product and turn such routine things as fires, thefts, death and depreciation over to concerns who make it their business to worry about them"—then one may be sure he is talking to a real executive and not the puttering, money grubber type.

There are, however, some hundred and twenty-five more or less different kinds of insurance, ranging in frequency of use from fire and theft to earthquake, civil commotion and invasion. A manufacturer once said that if he carried all the varieties of insurance his agent advised him to, he would have nothing left on which to run his business. This may be something of an exaggeration but the selection of the most important hazards incident to a specific industry and the balancing of expenditures for protection from them with expenditures required for other exigencies of the business, presents a nice problem and one which is deserving of the study of every trade or craft organization for the benefit of its membership.

One of the best examples of constructive effort to educate its members on the kinds of insurance to carry and in fact on the entire insurance subject which has come to my attention is the report of the Insurance Committee of the Controllers' Congress of the National Retail Dry Goods Association. "The aim of the Committee," to quote from the report, "has been to give the fullest information possible within the limits of this report on each type of insurance so that a controller may intelligently choose what insurance he should have." In addition to explaining the most important types of insurance, the report, by means of a questionnaire system, answered the always pertinent query "What kind of insurance do others in my business consider essential?" 194 controllers in the association returned the questionnaire and the following represents the answers to the question from this one organization.

Fire—Building, Fixtures & Stock	170
Fire—Fixtures and Stock	19
Rent	48
Leasehold Interest	10
Profits	22
Use and Occupancy—Net Profits and Expenses	93
Stock in Delivery	7
Transit	60
Marine	46
Parcel Post	151
Riot	28
Explosion	24
Earthquake	2
Tornado	61
Hail	3
Rain	2
Sprinkler Leakage	123
Water Damage	28
Plate Glass	119
Automobile Fire	157
Automobile Liability	156
Automobile Property Damage	123
Automobile Collision	2
Teams Property Damage	9
Steam Boiler	86
Use and Occupancy—Boiler Explosion	14
Fly Wheel	1
Burning Out or Break Down of Electrical Motors	2
General Liability	166
Elevator Liability	167
Use and Occupancy—Elevator Stoppage	4
Compensation	162
Contingent Liability	2
Chiropodist	1
Employee's Life Insurance	3
Partnership Life Insurance	4
Group Disability	1
Messenger Robbery	137
Office Robbery	97
Safe Burglary	163
Merchandise Burglary	43
Fur Storage Theft	20
Check Alteration and Forgery	133
Fidelity Bonds	114

With information of this kind before him, a property owner does not have to rely wholly on his own judgment or that of his agent to determine the relative importance or necessity of the different kinds of insurance available. He can test his opinion against

that of others in the same line of business. Of the forty-four kinds of insurance just mentioned, which represent a good cross-section of the insurance carried by one line of business, more than half of them aim at indemnification for loss of property as distinguished from loss of money, health or life. Indemnification for loss of anything carries with it the positive necessity for its translation or conversion into terms of money—appraisal.

The major portion of this paper will be devoted to property appraisal, the more or less intricate process of property dollar counting. However, the broad subject, "Industrial Appraisals and Insurance," would not even be sketchily covered without at least mentioning still another kind of a dollar which is looming on the horizon. This dollar approaches, if not surpasses, the property dollar in importance and is equally worthy of indemnification against loss. This dollar may be called the life or human dollar.

Dr. S. S. Huebner, Professor of Economics of Wharton School, University of Pennsylvania, delivered an address on this subject before the National Convention of Life Insurance Agents at Los Angeles last July, which appealed as being a most excellent presentation of the desirability of a corporation's insuring its life values. The following extracts are quoted from his address:

"In our economic life only two types of values exist, namely, human life and property values. The life values consist of the character, industry, technical and managerial ability, power of initiative, and judgment of individuals. They have heretofore been regarded as intangible, economically indefinite and difficult if not impossible of scientific treatment. The property values being tangible in character are therefore subjected to appraisal. Through the issue of stocks, bonds, warehouse receipts, bills of lading, and similar evidences of wealth, they are given perpetuity as working capital and fluidity as collateral for loans. They are also recognized as being subject to immediate or ultimate loss. Scientific use is therefore made, as a matter of ordinary business precaution, of the principles governing depreciation, sinking funds, and contracts of indemnity.

"Without these practices, property values—like life values—would also be indefinite economically. But with the lessons so admirably evolved for us in the field of property values and with this information to guide us, may we not ask why life values should not be treated equally scientifically and be made equally tangible and definite? Isn't it ridiculous for a human being to make himself more and more valuable all the time and then all of a sudden, just when that value is greatest to his business and his family, have it disappear entirely because of death or disability? Does it seem reasonable that life values should be treated thus carelessly especially since we owe a duty to others—to family and business associates—when the lessons of foresight, so fully prepared in connection with property values, are before us for imitation?

"The most important new development in economic thought will be the recognition of the economic value of the human life. I confidently believe that the time is not far distant when, in wholesale fashion, we shall apply to the economic organization, management, and conservation of life values the same scientific treatment that we now use in connection with property. . . . Scientific treatment of life values is justified because of their monetary importance in our economic affairs. Human life values—the factors of personal skill, industry, judgment and driving force—that mean so much to business success, greatly exceed in importance all property values. These personal factors are after all the real source of all other economic values. Were it not for them, there would be no property values. We have from an economic standpoint largely ignored the creative force that gives rise to property values. . . . In the overwhelming mass of cases the directing life values in the business exceed in importance the property value actually owned by the concern. We are too apt to overlook the facts that most of the apparent property in such concerns is not owned outright but represents borrowed funds, and that the balance actually owned is largely non-liquid in character and dependent for regular income producing value to a wisely shaped and well directed policy on the part of the owner."

He discusses the methods of establishing the value of a man to his family—scientific human appraisal. On the appraisal of a business life—the establishment of the value of a man to a business—he says:

"In manufacturing, mercantile, and other enterprises where property values are large and varied in nature, determination of the life value in the business will necessarily be more difficult than elsewhere. No single simple formula for universal application is therefore ever likely to be evolved. Nor has this been accomplished with respect to the appraisal of property values.

"Just as the valuation of business property depends upon the types of property involved, so the appraisal of business life values also depends upon variable factors. Thought must be given to the character of the business and the extent to which it has passed through the formative stage. Proper weight should be attached to the degree to which the life under consideration contributes in an unusual way to the technical skill, managerial ability, and commercial credit, upon which the business depends.

"Future requirements in the form of accumulated cash values for emergency purposes should be a prime consideration. Where the business is closely held, continued control among present owners may need to be protected against withdrawal of any interest by heirs. It is also essential that attention be given to the degree to which certain parties own the business, to the extent to which such ownership constitutes their personal estate, to the liability they are under for taxes and personal debts that require prompt settlement, and to the amount of life insurance they carry

for family protection, with a view to gauging the effect upon the business of a substantial withdrawal of capital in the event of death.

"The future will witness a gradual clarification in the methods of approach to the appraisal of business life values under the aforementioned conditions. To say the matter is difficult and therefore cease further consideration of the subject, is unjustifiable. Property appraisals are also difficult, and the subject is undergoing a constant change for the better. There is no intrinsic difference between business property and life value appraisals as regards difficulty. The first has had merely an earlier start in the process of formulation. I am confident that the time is near when we shall also have expert appraisers, both within and without the insurance business, to appraise life values in business for life insurance purposes."

Professor Huebner states well the vitally important relation which exists between appraisals and insurance. The protection of the life dollar in industry as a matter of universal, ordinary business practice only awaits the development and recognition of scientific methods for its appraisal. On the other hand the development and recognition of scientific methods for counting property dollars—property appraisal—has made the possibility for their complete protection through insurance an accomplished fact.

The greatest menace to property is depreciation, particularly if obsolescence is considered as a part of it. The fire menace is a close second. Frequently we find the order of importance of these two destructive forces reversed in the mind of an executive. He insures against fire but gambles on depreciation. This anomaly is a tribute to the salesmanship of insurance companies and their agents. They are well supported by good publicity also. Fires are well advertised. There is something almost noble and inspiring about a good fire. Depreciation is less spectacular but more deadly. It is a sort of snake in the grass, winding its slimy body in and about a manufacturing property, despised, friendless and unadvertised but ever present and eternally busy. Plant owners frequently deny his existence. Accountants usually know he is somewhere about the place but prefer to guess at his exact whereabouts and progress from the vantage point of a high stool in the office. The appraiser goes out and actually locates him, meets him face to face and gets on sufficiently friendly terms with him to properly observe his habits.

There is no absolute or perfect protection against these two major destructive forces operating on property, i. e. depreciation and fire. Neither depreciation reserves nor fire insurance protect property. They do provide a means of indemnification for loss of property values. Obviously, the first step in providing for this indemnification is the establishment of the values to be insured and recovered.

The fire insurance policy is a contractual agreement between

the insurance companies assuming the risk and the insured. It specifies the property insured and certain obligations which both parties to the contract are bound to fulfill. There is a great variety of these obligations, depending on the nature of the property and the character of the coverage desired. Two of them, however, are directly responsible for making appraisals a prime essential to the placing and collection of fire insurance. These are the co-insurance clause and the agreement of the company as found in most standard policies to "insure to the extent of the actual cash value of the property at the time of loss or damage".

The co-insurance clause usually reads "in consideration of the rate at or form under which this policy is written, it is expressly stipulated and made a condition of this contract that this company shall be held liable for no greater proportion of any loss than the amount hereby insured bears to 90% of the actual cash value of the property described herein at the time when such loss shall happen." There is nothing ambiguous or difficult to understand about this, the most discussed provision of many insurance contracts. It simply invites the insured to have an appraisal establishing the correct value of the property covered, to carry insurance up to 90% of this appraised value. If this is done he will collect in full for any loss.

The insured gets a reduced rate by reason of the co-insurance clause. It is an inducement offered to carry adequate insurance. Appraisal is necessary in order safely to take advantage of it. Without definite knowledge of the value of the property such as is furnished by appraisal, there is of course a serious hazard in co-insurance. The following formula illustrates its operation:

$$\frac{\text{Insurance Carried}}{\text{90\% of Actual Cash Value}} \times \frac{\text{Am't of Loss}}{1} = \text{Liability of Ins. Co.'s}$$

"Actual Cash Value," the term used by insurance companies to indicate the amount they will pay for property destroyed by fire and the governing factor in co-insurance, is a question of fact to be determined in each case and is always open to challenge by either party to an insurance contract. An appraisal, however authoritative and no matter who makes it, does not close the gates to this opportunity for challenge. Only those appraisals which have a set of irrefutable facts back of every value established, one which can go through a fire of cross examination unscathed, will talk with finality on "actual cash value."

Letters are occasionally received from clients reading like this:

"So and so tells me his insurance companies accepted your appraisal without question and that the adjustment of his fire loss was a simple matter. Please advise us if all insurance companies agree to accept your appraisals in this manner or if it is not asking too much, please advise us which of the following list of companies do and which of them don't."

The answer to this is that no fire insurance company has agreed to accept our appraisal or any appraisal. They do agree to pay the "actual cash value" of the property destroyed and this is the most that sound business judgment or precaution should promise. The question of what is "actual cash value" is, as stated before, a question of fact to be determined at the time of the loss. If the appraisal furnishes the demonstratable evidence as to "actual cash value" which it can and should, it of itself compels "acceptance" by the companies and the insured.

To the best of my knowledge there is no agreement or understanding between insurance companies and appraisal organizations to "accept" the valuations of the latter. This is as it should be. The placing and collection of fire insurance is a three cornered transaction and the ends of equity are best served if independence of thought and action is preserved by each of the three parties to it. In effect a fire is a sale of property. The Insured is the seller. The Insurance Companies are the buyers. The Appraisal Organization fixes the sale price. Unless proven to be wrong by the insurance companies or the insured, the appraised price will stand.

There is no particular reason for enthusing over the phrase "accepted without question" as used in the letter quoted above and which is often used in describing the settlement of fire losses on appraisals. It may in reality suggest a "tired" adjuster or a weak appraisal. The best adjusters will question appraisals. It is their business to do so. The best appraisals will readily answer such questions and with convincing finality. So called "acceptability" to insurance companies is not the most important thing for the insured to consider in determining the relative merits of appraisals. Fire losses have to be adjusted on the best evidence of actual cash value available. Practically every variety of appraisal from the worst to the best—opinion, home-made, more or less scientific and scientific,—have been "accepted" at one time or another. Reputed "acceptance" does not necessarily mean equity either to the insured or the insurance companies. The chief concern of a plant owner should center on the question of whether or not the appraisal of his property is *provably right.* An appraisal high enough to be "aceptable" to an optimistic owner means wasted insurance premiums. An appraisal low enough to be "acceptable without question" to a pessimistic adjuster means a quick sale at bargain prices. Anyone can make an "acceptable" appraisal. All it requires is some reasonably good guessers and a few typewriters. It takes something more than this to make an appraisal which is *provably right.*

Through the test of many fire loss settlements and court cases, "actual cash value" as applied to buildings and equipment has come to mean cost of reproduction new less depreciation, i. e. the value of the property to its owner. The following clause, found in most fire insurance policies, also corroborates this interpretation of the term.

"This company shall not be held liable beyond the actual cash value of the property at the time any loss or damage occurs, and the loss or damage shall be ascertained or estimated according to such actual cash value with proper deduction for depreciation however caused, and shall in no event exceed what it would then cost the insured to repair or replace the same with material of like kind and quality."

The first step in making an appraisal which is provably right, is the establishment of provable cost of reproduction new. The reduction or analysis of property into elements which have an established market price is a prime essential to provability in cost of reproduction new. There is no established market price on "one lot of machinery," or on "one lathe." If standard, there is a market price new for each machine making up the "lot." There is an established market price, for example, on a new

> Bradford Machine Tool Co. (Cincinnati, O.) 16″ x 10′ double back-geared quick change engine lathe—Shop No. 18463—compound rest—taper attachment—turret on bed with power feed—oil pan base—pump and piping—single friction counter-shaft.

Thus while there is no market price on a special machine the only one of its kind in existence, there is a market price on the labor and material necessary to build another one like it. While there is no market price for installing machinery, there is a market price for the labor and supplies necessary to make such installation. While there is no established market price on buildings or on square, cubic or lineal feet of buildings, there is a market price on the labor, the lumber, brick, steel, cement and other elements in a building.

There is no royal road, no short, easy route to provable cost of reproduction of a composite property such as a manufacturing plant. The property must be reduced to elements which have a market price and the quantity and price of each element definitely ascertained. An appraisal which is provably right will have back of its stated costs of reproduction, a chain of direct evidence as to quantities and established market prices which is irrefutable.

This requires a field personnel trained to analyze property into definitely prescribed units and to describe each unit in accordance with predetermined standards to which provable unit costs will apply. Back of the lines, it requires a corps of cost analysts and elaborate statistical resources establishing unit costs from which can be read such things as the difference between the efficiency of labor in Chicago and Jacksonville, Florida, the proximity of a cement plant to Independence, Kansas, the effect or lack of effect of "Pittsburgh plus" on building operations in St. Louis, the difference in proportionate labor cost between an 8″ and a 16″ brick wall, the cost of a 1-7 gravel mixture of concrete as compared with 1-3-4 sand and crushed stone, the increased cost of installing piping in a superheated tunnel over the same installation in a place

where normal working conditions are possible,—unit costs in which all the variables in cost of the multitudinous and complex operations incident to building and equipping an industrial plant have been worked out and which are readily adjustible to any given set of conditions or change in prices.

The establishment of provable costs of reproduction, i. e. the upward limitation to the value of anything, marks the half-way station on the journey toward "actual cash value." The insurance policy specifically calls for a "proper deduction for depreciation however caused," a deduction of the difference in value to the owner between the items of property under consideration and new items of like kind. Depreciation from the accounting viewpoint is in some respects quite different from depreciation as considered in the determination of value at a given time.

The handling of depreciation on the books only involves the writing off of the total investment in or value of property in annual amounts. While it would be desirable and is entirely possible for book treatment of depreciation to indicate fairly the value of the property at any time, the urge for simplicity is so great that straight line net depreciation seems to be more and more the standard accounting practice. While this method is attractively simple and probably sufficiently accurate for accounting purposes, assuming adequate analysis of the property and correct rates, it will not denote the value of the property at any time except at the points of beginning and expiration of life; or if it does it is only a coincidence. Straight line depreciation takes on more of the aspects of a method for amortizing the total cost or value of property rather than a means for measuring the lessening in its worth to its owner.

Assuming the cost of reproduction of a machine to be $1000, a twenty year expectancy of life, or a 5% annual, straight line rate of depreciation, the books would show 50% accrued depreciation and a value of $500 at the end of ten years. From a standpoint of present, and indications of future, utility, however, its actual value to the owner at the end of the ten year period might be $800, $200 or nothing.

In determining the "proper deduction for depreciation however caused"—the deduction which must be made from cost of reproduction to arrive at "actual cash value"—everything which affects the difference in desirability to the owner between the property under consideration and new property of like kind must be considered. At first thought, it might therefore seem that a large element of personal opinion must be injected into it. Granting that the evidence cannot be as direct and simple as that which supports the costs of reproduction, it can be almost, if not quite, as conclusive and that, too, without judgment becoming empirical or uncontrolled.

All items of property found in an industrial plant are not amenable to the same rules, systems or methods of reasoning in establishing accrued depreciation. The method which will best

develop the evidence in each case must be employed. The relative importance of the items, to a certain extent, must ncessarily govern the depreciation analyses it is practical to make of them. There are some items of property for which expired life will clearly measure the accrued depreciation—the difference in desirability between the item and a new one of like kind. A main drive belt whose usage requires renewal regularly every four years might typify this class. In effect, the purchase of such a belt would be the purchase of four years of utility of it. The matter of maintenance is negligible and if appraised when one year old a deduction of 25% depreciation based wholly on its expired life would obviously justly reimburse the owner for its loss.

There are other classes of property in which age will not serve at all as a measure of depreciation. A crowbar is a simple example of property of this class. What is the difference in desirability between a crowbar which has been is use for twenty years and a new one when from a standpoint of utility the old is still as good as the new one? About 10%. Why? Because common sense dictates to you, to me or to anyone, including insurance adjusters, that while there is the same utility and expectancy of life in the old tool as in the new one, the latter is nevertheless new and the other one old, and the margin of difference in desirability between new things and old things of this simple character is usually about 10%. Common sense or the weight of public opinion is all the proof necessary for items of this nature.

For some items or classes of property there are production or service units by which depreciation can be more accurately measured than by any other method. A truck tire is a simple illustration of this. Experience may have proven that tires of a specific type and in the specific usage under consideration will give 10,000 miles of service. It is unnecessary to consider maintenance, obsolescence, or years of life. The difference between the mileage expectancies of a used tire and a new one of the same type will accurately represent the difference in desirability and utility, i. e., the accrued depreciation on the former.

It may appear like a far cry from belts, crowbars and truck tires—"simple units" of property—to $50,000 machine installations or million dollar buildings, large, "composite units" on which the accurate computation of depreciation becomes a more complicated matter and on which as small a difference as 5% in the result means an important difference in dollars and cents to the owner and the insurance companies. Composite units, however, are made up of many simple units, each of which is amenable to the same or similar, plain but variable treatment as just illustrated. And the final answer can be just as provable.

Just as reduction to elements which have a market price is essential to provable cost of reproduction so is reduction or analysis into simple units essential to provable accrued depreciation. And the problem is always one of drawing comparisons in desirability

between the property under consideration and new property of like kind. There are composite units operating under certain conditions in which differences in life expectancy of the entire unit will clearly and convincingly indicate the accrued depreciation without consideration of other factors. In other cases, the problem may be largely one of computing the deferred maintenance and, as previously stated, detailed analyses are essential for these computations. These analyses comprise a breaking down of composite units into simple units. In a building for instance, where problems of obsolescence have not as yet appeared, if the cost to replace each component part of the structure is known—each wall, floor, door, window, stair, partition, roof, fire escape, plumbing and electric lighting fixtures, painting, etc.—and if the expectancy of life or other depreciation tests are applied to each, the problem becomes practically the same as in the case of the belt, crowbar or tire.

The form this analysis frequently takes in the case of machinery is illustrated by the chart below showing the breakdown of a Binder Board Machine.

ANALYSIS OF RENEWAL COSTS
OF A
60" WET TYPE BINDER BOARD MACHINE

NAME OF PART	ESTIMATED RENEWAL COST	AVERAGE LIFE
Cylinder Mould in Wood Box Section		
Wood Box	$790.00	15 yrs.
Fan Pump	200.00	15 yrs.
Cylinder Mould	790.00	25 yrs.
Couch Roll	75.00	8 yrs.
Runner	70.00	2½ yrs.
Wire Covering on Mould	75.00	2 mos.
Press Section		
Frame	1,840.00	30 yrs.
Iron Press Rolls	200.00	30 yrs.
Iron Felt Rolls	150.00	30 yrs.
Wood Felt Rolls	100.00	10 yrs.
Wood Making Rolls	150.00	1½ yrs.
Felt Blanket	60.00	10 days
Installation		
Labor	500.00	30 yrs.
Screen Section		
Box & Iron Frame	500.00	20 yrs.
Screens	168.00	1½ yrs.

An analysis of this nature makes comparison with a new machine a simple matter.

Suppose, for example, that an examination and appraisal are made of this machine and it is found that it needs a new Wood Box

and Fan pump, new Wire Covering on moulds, new Wood Making Rolls, new Felt Blanket and new Screens but otherwise is as desirable and useful as a new machine would be. The cost of these replacements as shown by the above analysis would be $1,443 or 28.8% of a $5,000 cost of reproduction. If another appraisal was made a few months later, it might be found that the necessary renewals had been made with the exception of the Wood Box and Fan Pump, and that 20% would now correctly reflect the difference in desirability and utility between it and a new machine.

In each case the rule or method of arriving at accrued depreciation which will best adapt itself to the item of property and the conditions surrounding its use must be employed. The essential thing is that no one person's judgment be allowed to stand uncorroborated by the concerted judgment, experience and statistical and analytical data of a disinterested organization.

In establishing accrued depreciation for the purpose of arriving at "actual cash value" somebody's money is being counted and the same scrupulous care and conscientious effort must be exercised as that of the bank teller who counts out bills in exchange for your checks.

Insurance does not *protect* property. It will indemnify for loss of property values. Appraisal is a prime essential either to the placing or collection of insurance. Ten years' insurance on a million dollars industrial property carrying a fifty-cent rate will cost approximately $50,000. Adequate appraisal service for the same period costs less than one-fifth this sum.

The day of the "horse trade" or "dicker" in business is past. It may be confidently expected that the time is near when these relics of the commerce of a century ago will be as rare in fire insurance adjustments as they are now in the more ordinary transactions of modern business. The instrument of justice which is bringing this to pass is scientific, provable, appraisal service.

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