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The Inefficiency of Waste

THIS CENTURY has made itself known for its prodigality. We tolerate and endure waste. We are rich, and we think that we can afford to be extravagant.

Our spendthrift habits extend all the way from governments, which could cut their civil administration costs by applying strict account-keeping and managerial discipline, to individuals who waste even their leisure time. We spend foolishly money, goods, energy, resources, time and brains.

Business people need to brush the star-dust of affluent years from their eyes so as to see that competition is becoming so keen in both domestic and foreign markets that costs must be reduced. The most menacing competitor is not the other fellow in the same line of business, but waste.

Whether you are forging steel girders or making shoe-laces, writing cheques or dictating letters, selling automobiles or merchandising soft goods, baking a pie or mowing the lawn, there are wastes to guard against—wastes of time, motion, and material.

Elimination of waste is not something that may or may not be done. It is an economic necessity, a matter of survival. It contributes to success just as surely as does profit itself.

If your per cent of profit is two, and your waste through breakage, lost shipments, bad credits, etc., amounts to one dollar, then you will have to sell an extra \$50 worth of goods just to equalize the wasted dollar. Wastage of \$40 will require sales of \$2,000.

If you keep adding equipment and men to make more and more goods, you may enter the red through another form of waste. There is a point at which the returns upon capital and labour invested are at a maximum: after this point is reached, the application of further labour and capital is wasted, because it does not cause a proportionate increase in the value of the return. The advantages of mass production disappear as its economies are swallowed up in the expenses of equipment and organization.

The essence of waste consists not in using materials, but in using them in ways which produce less than

the maximum potential profitable amount of goods or services.

Some wastes are indulged in as a badge of superiority. Thorstein Veblen vividly characterized this as "conspicuous consumption". An observer beside a highway leading to any large city will see hundreds of men speeding to work, or rushing home from work, each using twenty feet of steel, two and a half tons of material, and two or three hundred horsepower.

The Throw-away Age

But the Throw-away Age is upon us. Its highest common factor is fashion, which increasingly seems to be the selling point where once quality was the only thing that mattered. Women, of course, have been traditionally malleable. This year's colour, or neckline, or hemline becomes suddenly inadequate in the thirteenth month after purchase, and must be discarded together with all the accessories of the dress. Men show their "style sense" in cars, which have not changed materially since the war but have had their fenders raised and lowered, their lights multiplied, and their trim changed.

Those addicted to style spending may benefit by paying attention to the law of diminishing utility. Our nerve cells lose their energy for continuous keen response to the same stimuli. We find that a three-week holiday is splendid, but a six-week holiday becomes tiresome; four pieces of cake are not four times as pleasant as one. The intensity of any utility tends to decrease with consumption of successive units.

Even spare time is wasted. To be able to fill leisure intelligently is the last product of civilization, and at present few people have reached this level.

Beyond a certain point, more freedom from work produces a diminished return in happiness. Leisure is not merely a negative by-product of work. It demands all the arts of living. Schopenhauer wrote: "Ordinary people think merely how they shall spend their time; a man of any talent tries to use it."

Those who are devoted to the pleasure principle

believe that in their hard-won leisure they should make as little effort as possible, mental or physical. They are wasting their most precious possession. To get the most out of their spare hours, they should indulge in thinking and learning, reading or writing, conversation or correspondence, community, domestic or garden projects, artistic and aesthetic activity, creative travel. To pass time wastefully is to shorten the period of living.

National resources

On a national scale, we waste the bounty and lay waste the beauty of our country. Marya Mannes says about waste tins and other material littering our highways and our public spaces: "Here is the mark of savages, the testament of wasters, the stain of prosperity." Her book, *More in Anger*, goes on like this: "Slowly the wasters and despoilers are impoverishing our land, our nature, and our beauty, so that there will not be one beach, one hill, one lane, one meadow, one forest, free from the debris of man and the stigma of his improvidence."

Waste of land, forest and minerals could be tolerated as long as successive increments of new land, forests and minerals were available for exploitation, but the destruction of natural resources has been going on jauntily in the face of inevitable scarcity. People who participate in the popular indifference to this squandering of resources would be surprised if someone said: "You countenance it because you think 'what has the future got to do with me? I'm living now'."

Waste is very different from using up. Many things are of no value unless they are used. It is all a question of how efficiently they are used. Individuals and societies are very much to blame if they consume any of the priceless gifts of nature in anything less than the most economical, efficient, and parsimonious ways. Every sound measure directed against waste of our resources should be welcomed and supported.

Waste in business

Business statesmanship consists of knowing, controlling and directing the forces which react favourably or unfavourably upon the progress of business. The aim of any executive is to earn money for the shareholders by operating at a profit. No company can enjoy public confidence unless it demonstrates good management by satisfactory earnings, and if it cannot do this it will soon lose ground in the industry.

There is never a period, however prosperous, without its uncertainties, and business is being nothing more than prudent when it gives attention to the efficiency of its operation. Key men, such as department and branch managers, supervisors and foremen, must control properly the expenditures for which they have been made responsible. Waste elimination is one of their undoubted functions.

There is no more interesting game for men or women than to apply their minds to thinking of ways

to perform work efficiently with a saving of time and effort. They have to consider it or face extinction. They cannot leave it to mechanical forces. A computer is for getting today's answers: managers are for thinking about tomorrow's problems and taking steps to solve them.

It is possible to have waste in the top ranks of administration as well as on the floor of the factory, the desk in the office, or the counter in the store. The proprietor may waste investment; the vice-presidents may waste opportunity through complacency; the marketing executive may waste business through neglecting customers and prospects; the advertising manager may waste money through inappropriate campaigns; the production manager may waste labour through slow work pace, lost motion or lack of proper instruction; the purchasing executive may waste money through buying improper material, making inadequate specifications, providing poor storage, or paying higher prices than necessary.

The man in charge, whether of a big industry or of a small stock room, must learn where waste may occur, sense when it is occurring, and move diligently to stop it. The ideal that inspires the formulation of the principles of efficient management at every level is elimination of waste. This is a vital function, not something tacked on to a job to be thought about now and then.

Uncovering waste

To eliminate waste we need to concentrate our attention on finding it. This is an occasion for calculating thought.

Learn where the leaks are. Find out the facts about where waste exists and the cause of its existence. You are wasting your time if you try thinking before you have accumulated data.

Start with this assumption: no department of business, no office, no home, is so perfectly managed that a serious search cannot find a leak to stop.

Take a walk through your office, looking into stationery cabinets and waste-paper baskets. Any chance of savings? Examine the work done by your desk staff and the routing of pieces of paper. Any chance of savings? Take a stroll through your workshop. Are the materials carefully stored, the handling done efficiently in as nearly a straight line as possible, the machines operated without energy-using friction, the spoiled and broken pieces kept to a minimum and collected for re-use?

Your investigation may bring to the surface an untidy bundle of issues. Your people may be following traditional methods that involve wasteful movements, unnecessary locomotion, needless carrying about of material, and machine idleness. The layout, good enough twenty years ago, may be unfitting under today's pressures. The cost-keeping system may not be of the sort to tell you where costs are excessive.

Only a few "tips" can be given of the places to look

for waste, because the order of importance will vary according to the business and processes.

Equipment. The efficiency with which equipment is used is a vital point to check. Good production control always means more output from the same plant equipment and work force. If there is not proper control, then the purchase of new equipment will be nothing but a waste of capital.

Machines and tools must be kept in such condition as to perform without fail the amount of work reasonably expected of them. Laxity in maintenance causes gross waste through shut-downs. The machines' efficiency depends upon reducing stresses to the lowest ratio, so that the parts work in harmony.

Rearrangement of operations may be sufficient to save time, steps and material, or it may be necessary to consider the employment of more modern machines. Wide application of automatic and electronic equipment is making as great an improvement in the production of some factories as the mechanization of factories in the eighteenth century did over the guild craftsmen of the middle ages.

The features to seek are: increased productivity, uniform quality, better control of the flow of production, and reduced running costs. There is nothing excellent, brilliant or economic in employing higher levels of mechanization than are needed. For example, a yearning for the prestige of owning a computer may prod a department into getting one when an abacus could handle all its needed calculations.

Many changes are taking place in operating both factories and offices. Development is costly, and the only justification for it lies in the expectation that sophisticated equipment and methods will enable the firm to operate profitably in a competitive climate. The goal is an economic level of operation, not mechanization for its own sake. A newspaper cartoon commented wryly on this when it showed an other-worldly scientist displaying a machine which could do the work of six men and required ten men to work it.

Scheduling. There is waste in the form of added cost when schedules are not followed to bring the work to the right section of a department at the right time. One section may pile up castings or paperwork in excess of the next section's capacity, creating a state of confusion. A simple readjustment, systematizing work, may be all that is needed.

Handling. The picking up and moving of things is a big part of manufacturing, marketing and clerical work. It is an important element in the cost of operation, and it affects both production and sales.

Men who would not think of wasting a dollar in money may be careless in handling material, and throw away or waste many dollars' worth of materials without a thought. Material should be looked upon as if it were cash, and treated accordingly.

Every possible bit of unnecessary handling should be eliminated. One factory installed a new layout which reduced the distance travelled in manufacturing

an electric motor by 35 per cent. In terms of the normal production of the plant this meant an annual saving of 13,200 miles. The company had been paying a man the wages of a skilled worker for walking half way around the world every year.

Labour. In many industries low labour productivity is a major item of waste. The ideal is not to make the worker labour harder and faster but to increase his output by saving his energy expended in useless lifting, moving, walking, reaching and bending. The best workman is the man who can effect most with least effort.

Any expenditure of energy that does not add value to material, does not plan or calculate, does not give or receive essential information, is reducible waste.

Another form of labour waste is having highly-paid experts doing low-grade work. A \$75-a-day specialist may be kept busy on clerical work that could be done better by a \$60-a-week clerk. This follows the precedent set by Pietro de' Medici when he employed Michelangelo to make a statue out of snow.

Careless work, whatever the grade of the worker, should not be tolerated. Slovenliness wastes not only the sloven's time but the time of those who have to go around fixing up things he spoiled or doing things he neglected to do. The slovenly worker is industry's enemy number one. There is undue tolerance toward him, treating him perhaps as a sort of shop jester. Every employee should be competent in the job he is doing, and should produce a reasonable quantity of good work every day.

Purchasing. This is not a service function but a profit-making activity. The changes made in recent years in purchasing concepts, organization, personnel and practice are producing substantial savings to firms which are aware of them.

The difference between good purchasing and poor purchasing can be the difference between profit and loss. Wise spending, careful ordering and thrift in use are just as vital to a good showing in the annual report as are competent manufacturing and aggressive selling.

Scrap. Intelligent handling of scrap can influence profitability of plant operation. Turning waste products into by-products renders primary resources more valuable. Science functions through synthetic chemistry, by-product utilization, and the recovery of secondary materials to whittle down waste, so that scrap baskets, garbage cans, dump heaps, and junk piles rival fields, forests and mines as sources of raw materials.

In some plants, all material that is damaged in any way is collected by a regular salvage department which does nothing but recondition material and make it fit for use. But it is not good enough just to retrieve scrap. You may find that the waste is due to improper storage, use of oversize stock, poor workmanship, faulty handling, inefficient machines, careless inspection, or doing work unnecessarily close to tolerances.

Time. "Time" with a capital "T" is infinitely long; "time" with a small "t" is unfortunately short. It is an element in efficiency; it has value to which may be attributed a money equivalent; it plays a big part in the success or failure of our lives.

We are spendthrift of our limited time. We allow, as Professor C. Northcote Parkinson notes in his book *Parkinson's Law*, our work to expand so as to fill the time available for its completion. We allow procrastination to gobble up and waste great chunks of time.

High on the list of causes of wasted time is poor planning. We blunder into time-and-energy-consuming projects that are of little importance to our business or happiness because we do not look far enough ahead.

The cure is to list the jobs you wish to do in order of their importance, and go to work on them. Put everything possible on a time-table: note it down and forget it until the right moment comes. Define your goals, work out a programme, set up time-tables, concentrate on the essentials, and shake out the time wasters in your life. Having disposed of one task, tackle the next job decisively. Try making your motions faster: we work more easily and use less energy when we do things at a brisk tempo. Don't spend dollar time on penny jobs.

Planning action

There are two functions involved in eliminating waste: find the facts and introduce the improvements.

"Why?" is an important question when you are seeking ways to eliminate or minimize waste. Too often management loses much time in studying possible improvement without asking why the operation is performed at all. It was at one time thought necessary to have two copies of the mailing list of this *Monthly Letter*, one in the office and the other in the printing department. Someone asked "Why?" and a time-consuming piece of work was eliminated by dropping one copy.

If the operation cannot be eliminated, then study possible improvement. List the various courses of action: combination, standardization, improved sequence, simplification.

Orderliness is a preventive of certain kinds of waste. Any efficient bank teller knows how the arrangement of items in and on her counter makes a difference in the efficiency with which she can serve customers.

Much waste of time, space, material and energy is due to thoughtlessness. We allow things to accumulate hodge-podge, so that they take rummaging through to find what we want. It makes a magical improvement when we are thoughtful at the right time to place anything useful where it can be easily and quickly found.

Budgeting

One of the most severe indictments against manage-

ment is its failure to institute an adequate system of budget control. The result is grievous waste reflected in profit and loss statements.

We cannot plan accurately without knowledge of what is a reasonable expectation for every phase of the business, and without a measurement of accomplishment. The art of expense control reaches its highest state of effectiveness when management has at hand a reliable measure for gauging the amount of expense necessary for operating the business. We may say that budgetary control simply means the systematizing of foresight and the comparing of what is with what ought to be.

The budget will guide toward using facilities and assets to the maximum of their potentiality; it provides a method of co-ordinating all buying and spending so as to obtain the maximum value; it acts as a safety signal, since it indicates the variance between what is wished for and what is being attained; it prevents waste.

The budget is an interesting exercise, too. It enables the manager to set up a target to shoot at, and provides a gauge for measuring the accuracy of his shot. It is a test of managerial ability to make things happen in accordance with a plan.

Reliable, immediate and accurate records are essential. Give keen attention to the monthly summary, which shows direct labour costs compared to budget allowance and productive output. This may raise a red flag directing the manager to enquire about how much productive time was wasted waiting for materials, parts or tools. A discrepancy between production and sales may lead to discovery of an unhealthily swollen inventory.

Waste is inefficiency

Waste in a business or in a home implies inefficiency. The habit of being wasteful creeps into our lives: the custom of saving must be developed.

Economy consists essentially in the elimination of waste. The books on economics do not pass judgment on the way businesses or men and women spend their income, but insist that good economy consists in getting your money's worth.

This is an affluent period in Canada's history, but conceit in the luxurious estate to which we have risen should not be allowed to encourage us in riotous living. There are limits of safety and strain in the financial affairs of every business and every home.

Before we can lay out the blue-print for successful conduct of business or for happy personal living with any assurance, we must reject completely and finally the idea of tolerating waste. Wherever we allow waste we narrow our chances for success and we cramp our scope for enjoyment of what life offers us.

The ideal is to reach the point where we do not have to reflect whether we shall be wasteful or not: we shall be careful by habit and as a matter of course.