

And if conditions prevent your doing it this year, then do it next year; and if not next year, then five years from now. Have patience and grit, and don't give it up.

Now, as I here have laid so much stress on common-sense and character as factors in success, it may well be asked where education comes in. I will tell you.

Young college men who work in any first-class establishment soon find that many of the workmen who cannot talk grammatically, men who chew tobacco, slouch along the street with greasy overalls on, who hardly look up, who are scarcely willing to speak to you politely as you pass them, are intellectually as clear as they are. That is what a young college man can learn through one year's work in a shop.

I remember very distinctly the perfectly astonishing awakening at the end of six months of my apprenticeship, when I discovered that the three other

men who were with me in the pattern shop were all smarter than I was. Now when a young man gets it clearly in his head that he is made of the same kind of clay, physically as well as mentally, as these other men, then he finds that his only hope of outstripping them in the race lies in getting a better education—in *knowing* more than they do.

But your knowledge will avail you nothing without energy, grit, pluck, determination, ability to stick to it, character.

Of all the habits and principles which make for success in a young man, the most useful is the determination to do and to do right all those things which come his way each day, whether they are agreeable or disagreeable; and the ability to do this is best acquired through long practice in doggedly doing, along with that which is agreeable, a lot of things which are tiresome and monotonous, going out of your way, if necessary, to find them.

TO EXAMINE the basic danger (of consumer instalment buying) let us take an over-simplified case. Let us imagine a community of 100 persons each of whom has an income which does not vary from year to year. In year one, all pay cash for everything that they buy. They buy 100 units of product. Then the instalment plan begins to descend on the community. In the second year, ninety still pay cash, and buy ninety units. Ten, however, have been induced to buy everything on instalments, payable over a period of two years. This temporarily doubles their purchasing power; instead of having ten units of product, in year two, they can have and enjoy twenty units. The factories supplying the community therefore enlarge their production from 100 units to 110. In year three, this group of ten cannot buy anything new; they are still paying for what they bought in year two. A new group of thirty persons, however, has been induced to buy on two-year instalments, thus consuming sixty units. This year the factories produce, for sixty persons paying cash, sixty units, for thirty persons using credit, sixty units, for ten persons who have pledged their credit, no units—total 120 units. In year four, the remaining sixty cash buyers have been induced to buy on credit, and take 120 units. The thirty new

credit purchasers of year three, are out of the market. The original ten are back in again, with twenty units. The factories therefore produce 140 units. Isn't this wonderful prosperity? Production steadily mounting—in four years from 100 to 140.

But what happens next? In year five, we have seventy people out of the market; we have thirty persons buying sixty units. Consumption more than cut in half! The following year is better again, and subsequent years vary, but when we average consumption, year in and year out, we find that it is 100, just what we started with.

This is a rather elaborate way of demonstrating what ought to be obvious—that we cannot permanently enlarge consumers' purchasing power just by extending credit. It would be lifting ourselves by our bootstraps. Juggle the figures any way you like—change the number of people in each category, the time of the instalments, the proportion of each individual's income used for cash payments. The test can only show that an expanding use of instalment payments causes a temporary spurt in production, which must slow down again to the original pace when the credit capacity of the public is saturated. (Quoted, by permission, from an editorial in *The New Republic*, April 7, 1926, page 187.)

Preserving Ideals in Solving Practical Problems¹

An Engineering Analysis of Ideals as Standards

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THE words "ideal" and "idealism" connote many diverse thoughts of religion, ethics, psychology, sociology and what not. In discussing "Preserving Ideals in Solving Practical Problems" we are not concerned directly with these "idealistic" connotations but rather with concrete objects of attainment. Being an engineer and a business man and addressing engineers and business men, I propose to adhere to engineering analysis which I think is applicable to most subjects, including the subject of ideals.

An ideal, according to the dictionary, is a standard of perfection. Applying this definition to the use of the word "ideal" in connection with practical problems, we have two things to consider: our conception of perfection or fitness and our unit of measurement.

No large project, either engineering or business, is begun without predetermined plans—a plan or conception of the objective, a plan of procedure in reaching the objective, involving a plan of the different steps in attaining it. In engineering the plan is usually laid out in detail on paper. In business projects the plan is not always laid out on paper, though it is being done more often at present than in the past, and the successful business man either consciously or unconsciously (which is hunch) thinks out his objective and plan of action in advance.

Some people will disagree with this, insisting that when an ideal is planned, it is no longer an ideal. In other words, they say, an ideal is unattainable. My conception is different. An ideal should be attainable and this difference is the difference between vision and dreams.

Where decisions with reference to current problems do not seem to fit with "ideals," it is usually due to the fact that the steps in attaining the ideal have not been planned. Incidentally, decisions regarding current problems must be made currently and the man

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with a plan, who is able to produce a reasoned solution, has a definite advantage. If a decision seems to be contrary to an ideal, is it the decision which is at fault or the lack of a detailed plan against which to check the decision? This question applies to two conditions, one if you are making the decision yourself and the other if someone else is making the decision. In the first case you are a poor engineer and have no excuse. In the second case you are a poor salesman and a salesman cannot be excused for ignorance of fact.

Our difficulty in business today is not so much in getting together on ideals as on our method of reaching them.

There are also differences of opinion as to the different absolute and relative values of the units we use in measuring the steps toward accomplishment of our ideal. Units of measurement are necessary, however, for any standard, and any business or engineering plan must be based on definite standards and expressed in units of measurement.

Our objective or ideal in business is particularly a standard of performance and must be expressed in measurable units. Our plan of action should be measured in the same units, with the addition of the unit of time, if time is not a unit of measurement of our ideal.

It is this unit of time that the individual finds irritating in the attainment of his objectives and, because it is an irritating element, it is the one that is given the most attention both in his own thought and in the thought of others. However, time is a major unit of measurement of our standard or of our ideal only to a relative extent and that extent is dependent upon the amount of consideration it must be given in the development of our ideal.

For example, if a bridge is washed out, our objective is to construct another bridge. In case this bridge has been the only bridge over the river, our ideal is to construct a new bridge as soon as possible. Time is the most important factor in the measurement