trail or path. There is no reason in charting the fractures or the course of bullets or tubercular consolidation of the lungs or a pneumonia spreading in the lungs, there is no reason why a glance at the chart should not give a great deal of information as to the findings and even show the findings from day to day.

DR. ERNEST A. CODMAN[1]: Before this Society, whose object is the elimination of waste, I will omit the usual introductory remarks.

I particularly want to ask your advice about engaging a boy to run a soda fountain. There are two positions: one is in a small store where the trade is not large, but is steady and easy to handle; the other one is in a store in a railroad station in a large city which in hot weather makes money enough to pay the expenses of the rest of the year. In engaging boys for these two positions, what sort of boys would you get? For the small store you would get a boy who is careful, thorough, and will wash out the glasses carefully, so that they will not present a dirty appearance; who would be careful to mix the syrup and the soda in the right proportions and would do the work as thoroughly and as nicely as he could, and would take care not to break any glasses and spill soda over the counter and so forth. In the big store, where the business depended upon the rush on hot days, you would have to have a boy that was naturally quick and dexterous and flew fast in one direction and then in another, and was perhaps careless about dropping a glass now and then or spilling soda or handing it to you without wiping it out thoroughly. Your business, your profits would depend on getting that work done rapidly at the time the business came, no matter if he did drop a few glasses. I am inclined to think that in our hospitals we do business a little too much in the way they do at a soda water fountain of that kind. We are so anxious to get the work done and have the hospital successful, that we drop a few glasses and we soil a few others and spill too much. Our surgeons are too anxious for quantity instead of quality. Every time in a hospital that there is a glass dropped or a glass cracked it means death, disability or life-long suffering to some one. That is where the difference comes in. What you want in a hospital surgeon is a combination of that quick, dexterous boy and the boy who is very careful and cleans the glasses thoroughly and makes delicious drinks. You want one so careful that he can deal with old broken glasses. We have to work on old broken patients where the glass has been full of other things than soda often. Every glass has to be broken in the end. We cannot discount the breakage in dollars and cents nor can we call on the soda water boy's salary to replace the damage. People have to die; people have to suffer from incurable diseases, and you cannot quite get down to the same business basis that you can in other things. But we can and must keep account of the broken glasses and reduce their number to a minimum.

These sheets which I have presented here show what seem to me to be the fundamental differences between the hospital problem and the business problem. I am not going to read them now, because it would take the ten minutes that I have. All I am going to do is to ask you to put them in your pockets. If any of you ever have to deal with hospital management, put these away in your file, so that you can get at them. You may find them useful. The first sheet is one which says: "Fundamental differences in the problem of the management of a manufacturing business and that of a charitable hospital." That sheet is intended to contrast the two ideas, to compare the differences. At the end of it there are a few short remarks about the claim for the End Result System. The other sheet is a list of the things which you would be up against, if you undertook to introduce the Taylor principals into a hospital. I intended to frighten you, but not to discourage you entirely.

I think that Dr. Dickinson deserves every possible credit for the attitude that he takes in inviting you men and women to undertake this problem. It is a "crying necessity" as he has put it. It is something that the profession wants. The profession is tired of its old methods, ashamed of them, and it wants better ones. The difficulty you will find will be with the trustees,—in getting them to use common sense in dealing with medical problems.

The second sheet gives you the customs of the medical profession, many of which are, in my opinion, absurd, out-of-date, and yet so firmly fixed and rooted that you will find the same problems that you do in manufacturing businesses where they say, "We always did it that way. That is the best way to do it." Then you will find customs of the hospital almost as deep-rooted as the customs in the medical profession, but not quite.

The last sheet is my own or my committee's solution of the problem. It outlines The End Result System. The first two sheets you may think a little hard, a little destructive; but the last sheet shows what I consider a practical method of eliminating some of the waste of hospitals. All I want to see done is that each patient who enters the hospital has a card on which is given in laconic form, the briefest possible note of what he came for, and whether he obtained the relief he sought. If every hospital once has a card of this kind for every patient, it can organize in such a way that some one in authority will always be inspecting the cards, and then find out, if

[1]Codman Hospital, Boston, Mass.

there were failures to relieve any of the patients, why those failures occurred. They can then bend their energies to selecting some of those forms of organization which Dr. Dickinson spoke of; pick out the best ones and standardize them. But they must always keep that end in mind, that one sure standard to go by—whether the patient was relieved or not. My interest in this problem does not concern details of organization, but the fundamental truth. However rapid and skillful your doctor or surgeon may be, however brainy he may be, whatever books he writes, he must cure his patient. The hospital does not have to make money in the busy season by trying to serve more customers than it can serve well.

Fundamental Differences in the Problem of the Management of a Manufacturing Business and That of a Charitable Hospital

Management is usually concerned with the interrelation of Capital, Labor, Wages, Finished Product and Profit. A business is organized for profit, whereas a charitable hospital is organized for the disbursement of income.

Capital

Capital in a business must earn a profit, *i. e.*, the goods must be good enough to be sold.

Capital in a charitable hospital is not expected to earn anything except perhaps public commendation. As the goods are given away to the persons who must accept them, trustees appear to think that it is unnecessary to inspect them to see if they be good enough to be sold.

Labor

In a business the minimum amount is employed which is capable of producing enough of the finished product to meet the demand.

In a charitable hospital the amount of labor depends on the prestige of the institution,—for it is proffered labor,—perhaps proffered for the opportunity of getting a reputation. An unlimited amount might be accepted.

Wages

The wage-earner in a business demands enough to make a living. The labor market keeps the maximum wage down. Payment is in cash.

In a charitable hospital wages take the form of perquisites often of more value than business salaries. No cash is paid for professional labor.

Finished Product

In a business there is a more or less definite, tangible, standardizable article.

In a charitable hospital it is an apparently indefinite, intangible, unstandardizable article, *i. e.*, a cure or a relief. ("*Apparently*" because no one ever attempted to standardize it; it may be easy to do.)

Profit

In a business this is an essential; measured in dollars and cents, limited because of competition.

In a charitable hospital this is measured indefinitely as a factor for good in the community (and therefore should have no temptation to succeed by humbug or inaccuracy). Its extent is unlimited and would be only increased by competition.

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Admitting the differences in these interrelations, is it not true that even in the charitable hospitals there is also a field for scientific management? For, as in a successful business, scientific management should furnish the community with a standard article at as low a price as will pay for the labor and capital required to make it, *i. e.*, the community is the gainer by the amount of waste prevented.

In a hospital the waste products are not simply discarded. The waste products such as wrong diagnoses, inappropriate, careless, or hurried operations and inadequate treatment mean death, disability, misery, incapacity and deformity to the unfortunate individuals who have to accept them. And even the well-to-do portions of the community buy unstandardized articles from the individuals that have been in the habit of making these waste products. The waste products of medicine and surgery cannot simply be thrown into the waste barrel like badly made articles which are not good enough to be sold.

My claim for the End Result System is that it will show that the cure and relief of most pathologic conditions are standardizable, and that we need Hospitals run as businesses for profit, which accept no cases that they cannot cure or relieve. We shall then soon see the difficult, poor, incurable cases replace the curable cases in the charitable hospitals whose funds can then be used to pay experts to study how to relieve them. The hospitals will then cease to be what they are now—competitive businesses masquerading (often unconsciously) as scientific charitable institutions.

Customs Which the Students of Scientific Management Would Be Up Against in the Hospitals

Customs of the Medical Profession

The price of the product depends on the income of the purchaser and the reputation of the producer, not on the quality of the product.