Scientific Pricing[1]

Preliminary Considerations in Making Pricing a Science

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IT HAPPENS that some time ago I undertook a study of price differentials, with particular application to the grocery industry. A discussion of this topic of price differentials with your Chairman led him to inquire whether I would present a paper on the subject before this organization. When at a later time he asked me if I could speak at this meeting, I told him that there were as yet no results of my study which would justify a paper, but I offered to talk, not concerning price differentials, but along the line of the topic which has been put down. As a matter of fact, I suggested to Mr. James five different phrasings for the theme which I had in mind. He seized upon the first: "Can There Be Science in Pricing?" I preferred a different phrasing, namely, "Preliminary Considerations in Making Pricing a Science," as it is with somewhat general ideas that I wish to deal.

Whenever methods in the social sciences and in the physical sciences are under joint discussion, and particularly if the possibilities of making social study scientific are involved, nothing is more common than some such statement as: "What the social sciences need is more of an engineering outlook—the outlook of the designer or the bridge builder. Tell an engineer that you want a bridge built, and he knows what to do; he knows how to proceed. Bridge-building is a science, or at least a definite application of scientific principles."

Yet I am doubtful if any engineer would be willing to subscribe to this statement concerning the science of bridge-building in quite such a general and unmodified form. Well determined as may be the principles of mechanics, of the stresses and strains that are involved in bridge-building, it is certainly true that there are bridges and bridges. In other words, there are a great many assumptions or preliminary plans which must be made before the engineer can apply science or technology at all. Is the bridge to span a broad river or a small stream? Is it to carry foot passengers, automobile traffic or railroad trains? Is it to be built with an eye solely to utility or with an eye also to aesthetic effect? Are there considerations, other than technical and aesthetic, which give a presumption in favor of wood, steel or stone as the material to be used? How far will costs influence materials, design, and even conceivably the application of engineering principles? None of these is a question which the engineer will or can decide with any greater ability than anyone else. These and other considerations are *preliminary* to his task. These and other considerations are the *assumptions* on which he must begin. *Given*, as the geometry books put it, a certain set of factors or requirements within which to work, the competent engineer is able to give the mechanical results desired, provided always that the given or required is not beyond the knowledge of his craft, the possibilities of known materials or the cost limitations established.

Exactly as when asked whether a bridge could be built, the engineer might properly inquire, "What are the assumptions and conditions?" So the student of any social phenomenon such as pricing, when asked whether it can be scientific, must ask, "What are the assumptions and conditions; what factors are given?"

In other words, it is impossible to consider thoughtfully the question, "Can prices be scientifically determined?" without first being sure that we have a common understanding of what prices are and what they are for in any given case, and a common understanding of what we mean by scientifically made. With this background idea in mind, I think we can examine several types of situations and see what meanings—perhaps what different meanings—will be read into the question, "Can there be science or the scientific method in pricing?"

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Case I. "Price"-Making in a Communal or Communistic Society

It was formerly considered the height of theorizing to discuss the situations that might obtain in a communistic society; but since the appearance of the great experiment which Russia is making in communism, or at least semi-communism, and the interest which has been attracted by her efforts to plan, there is a new reality in such considerations. Certainly a consideration of a communal society throws much light on one situation worth examining in a consideration of scientific pricing. Let us for a moment be very elementary. Suppose that all of us who are at this gathering should find ourselves participating in one of those immortal voyages which put us on the shores of a little-known continent, or which ended in a shipwreck and left us on an otherwise uninhabited but fertile island or, perhaps best of all, which permitted us to disembark upon some isolated part of a newer and better world after crossing some Styx or celestial sea. Here we find ourselves with consciousness much like that which we have at present, with varied wants, surrounded by all sorts of materials which look enough like flora, fauna and minerals for us to define them as such, but which are so different from the flora, fauna and minerals which we have known that we are unable immediately to determine the value of any of them for the purposes to which we have been accustomed to utilize resources. Assume that in this interesting but doubtless difficult situation—for we would not know what plants were poisonous, what animals dangerous, what materials inflammable — we did not set up a scheme of private property but agreed that, for the present at least, we would undertake to possess, to explore, to discover and utilize these things as common property, and to distribute the results of our labors on the basis of the same product for each person. Would we have under such circumstances a problem of pricing? If so, what would be scientific pricing? I should reply that under such circumstances we *would* have a problem of pricing and that it would be a great opportunity to apply scientific method to the task.

But first of all—and this before we could evaluate anything—we should have to decide what it would be desirable to produce. If here in the "Green Pastures" we needed houses, we might decide that thirty would be enough. Then we should need crowns and wings—let us say a hundred of each—fifty bushels of manna a week, and many other things as well. If we exercised a good deal of latitude in choice, we should have to use all our powers of philosophy and, perhaps, of politics and law, for it would be necessary for us to decide what it was wise to do with ourselves and our resources.

There is, in truth, nothing really abstract in such a situation. When the Soviet undertakes to plan its production activities for five years it must plan what things are to be made, in what quantities and what things are to be excluded from the plan. Some individual or committee must decide whether there shall be tractors or textile mills, churches or saloons, bread or beer, which of these and how much of each shall be attempted.

If we could pass the difficult problem of what to make, we could proceed to the next. Here the pricing problem would begin. And here scientific procedure and the engineer would be our reliance. Have the various resources around us any use for producing the things which we have decided are wanted? As we stood on the banks of the dark river or the shores of the crystal sea, as the case might be, we should not know whether a single substance which we saw before us could be used in the manufacture of anything which we wanted. If we discovered that no one of them could be used to produce any of the things we wanted, nothing in this heavenly kingdom would have value; it would be to us as a parched desert to a thirsty man. But if we found, as we may assume we would, that many of the minerals, animals and plants could be converted into the things we had agreed upon as desirable, perhaps that many of them could be used for various purposes, we should be confronted with a new problem. This problem would be, first, what resources could be used for each purpose and, second, what were the relative values of each of these resources for each of these purposes? We should probably at once ask, how much labor is required to make a shelter out of one material and how much to make it out of another? The same question would be applied to other desired goods. We should also wish to determine whether the materials suitable for home construction were not also useful for the manufacture of other consumable goods which we might