be an amusing or possibly mournful job to collect a few opinions and utterances of our financiers and economists and compare them with what actually followed. His reflection was that perhaps no one regards these things as of any particular value and that these predictions and forecasts are, therefore, speedily forgotten and cheerfully swallowed again the succeeding year.

It is certain that, if we go back over the last two years and no more, it would be difficult to find anyone who had any kind of an idea of what was going to happen. The writer was among those who did not believe that prices would seriously fall after the Armistice, and is on record as having written a rather voluminous amount of argumentation to this effect. And there were numerous others who held more or less the same view. But it is very doubtful whether there was a single human being in the United States, of competent judgment, who foresaw, even remotely, the greatest rise in prices, outside of war times, known in a century. And, similarly, I doubt whether there was onyone very seriously to predict the terrible extent of the fall which has taken place since. There were many who believed that a very serious reaction was inevitable and there were some who made guesses in percentages even. But they seemed very hazardous. The writer recalls a conversation with one of the most careful and best grounded students of economics and business change, in which the latter made a guess that the drop in prices on Bradstreet's index would not be more than 15 to 18 per cent, perhaps, from the peak of last spring; to which the writer replied that he would be astonished if the fall did not run twice that. But this was only a kind of a lucky shot; and fell far short of the reality.

At the present time economic and statistical theory, as regards the movement of business affairs, is pretty distinctly in the pre-Newtonian stage. I do not say pre-Copernican. I think that actually we do have now a pretty fair vision of the reality. I think we have had, for example, pretty definitely our Copernicus, at least in the theory of money and prices. And I am proud to say he was an American—Prof. Simon Newcomb, one of the very greatest mathematicians and men of science that this country has produced since Benjamin Franklin. He was not an economist of the schools, and, though a lifelong student and writer upon economic subjects, he was nevertheless regarded by economists as an outsider, as an amateur. He brought to the subject the accurate and exact methods of the astronomer, and the mathematician, and it is of interest that his methods and his results failed to find any general recognition among economists for a quarter of a century thereafter, and until it was dragged from obscurity and given large support from careful statistical study by Professor Edwin Kemmerer and Professor Irving Fisher.

This thesis, in a nutshell, was that prices vary directly with the amount or volume of credit and currency in circulation, and the rapidity of that circulation, and inversely the quantity or volume of the goods and services to be exchanged. The formula, the so-called equation of exchange, especially as it has been modified and developed by Fisher, is now tolerably familiar to every second-year student in economics.

The bearing of all this on the value of barometers of production is simply this: From work done in my department in the last year, it is now clear that the volume of exchange of the nation, at least over a sufficient period, is directly proportional to the rate of production and varies with the production. This may not be true for a single year, but if we take a three- or four-year moving average of the total product of the country and the total volume of exchanges as reflected in bank clearings, we find that to all intents and purposes the two lines are very nearly identical over the last twenty or thirty years.

In this volume of production and volume of exchanges there is apparently an enormous inertia; that is to say, the variations from year to year are relatively small. Professor Persons, of Harvard, has estimated the extreme variation from one year to another as perhaps on the order of 10 per cent, and the work we have done in our own department leads me to the belief that this view is correct. And, if you stop to think a moment, it is almost necessarily so. A nation of a hundred millions and more, populating a vast expanse of territoy, with the most diverse interests and products, as in the manufacturing East, the agricultural West, the cotton-producing South, is not apt to be deeply affected by the same forces at the same times. If the steel trade is low, crops may be good, and vice versa. And, for the rest, the main work of these hundreds of millions of folks is now, as always, finding and distributing its food, clothing, shelter and its creature comforts. All the rest is a side play and merely a contributory and accessory factor. And the consumption of food and clothing and fuel and the like does not greatly vary from one period to another, even from the depths of depression to the heights of prosperity. The statistics for this are ample and the proof is positive.

Nor, apparently, does the velocity of circulation between good times and bad vary to anything like

the degree popular imagination might suppose. And from the very slender amount of positive information which we as yet possess, it appears that this variation is in the same direction as that of production itself. In other words, when business is good production is high and the rate of circulation likewise tends to be high; as trade activity falls, production slacken and the rates of circulation slackens. The general level of prices, therefore, tends to a large stability under normal or usual conditions.

What we have had in the last five years, in the tremendous thrust of inflation during and after the war, has been, save for paper prices in this country in the Civil War, outside of any precedent within more than a century. Normally and usually, the rise or fall of the price level, the average of all prices, is relatively slow and, contrary to much that you may read in popular text books and eleswhere, does not sensibly affect the rate of production, either way. That is to say, the general level of prices may be falling and production may be rising very rapidly, as it was in this country in the 70's, or there may be a sharp fall in production, though for a much briefer time, while the price level does not particularly change.

In other words, in the general price level the producer has, as a rule, a rather firm base from which to measure other changes; and if he keeps clearly in mind the general trend of this price level, as to whether it is up or down, he may gauge fairly well what should be the general run of his costs and prices.

But what is true of the general price level is in no such degree true of the level of individual prices. These may vary to quite an extraordinary extent. We have had in the last few years a quite spectacular and in many respects almost unprecedented instance in the case of rubber. I suppose that not in modern times has there been a great industry to arise with such amazing rapidity as the plantation production of rubber. The annual production today, for example, is thirty times or more what it was ten years ago. Now, it is obvious that all this astonishing increase in the product could not have gone on year after year as it did without a corresponding consumption. And yet, in the face of this almost unbelievable consumption, the price has steadily fallen. Today rubber is selling at less than one-tenth of what it sold within the last ten years. It is as if, for example, wheat, which we used to think high at a dollar or a dollar and a quarter, had sold down to ten or twelve cents, or pig iron to two or three dollars a ton.

Again, if we look back over the last thirty or forty years, we shall see that prior to this war a great many products had likewise fallen pretty steadily in price. Notable examples are pig iron and steel and all their immediate products. And, on the other hand, throughout this long period, other things had steadily risen; as, for example, lumber. The long trend of lumber prices had been upward and the long trend of iron and steel prices had been downward.

In a broad sort of way, taking a thousand or more articles of commerce, it may be said that, measured strictly in gold and disregarding paper money prices, they were falling in money value from about the end of the decade of our Civil War down to about '93-'96. This was true all over the world. And, in the same way, all over the world for the next quarter of a century prices were rising. But this did not prevent individual prices, like wheat or steel or cotton or copper, from fluctuating very violently. This latter was obviously on the whole the simple play of supply and demand, quantity of product as compared with quantity of demand.

It ought to be clear now that the relative price of almost any article of commerce may be calculated if all factors are known. In the case of the great raw products, like wheat, cotton, coal, and iron, these things are pretty well known, and, within reasonable limits, their relative values may be computed. And this is already being done with varying degrees of success. There seems no good reason why this should not be equally true of their secondary products. It is perfectly obvious, of course, that in a broad way the price of any article is determined by the wages paid for its production, the costs of the raw material, the amount of overhead and selling expense and the like. All these things tend to vary together more or less except in very unusual times, such as we are in now. They represent more or less fixed charges. Out of all the tremendous effort that is required in the fabrication of the vast quantities of goods consumed by our hundred millions of people, there comes as a rule a small profit. This profit varies widely from industry to industry and from one kind of trade to another. Measured against the selling value of the product it may run from as low as one, two or three per cent, as in the case of the wholesale grocer or the big meat packer, to as high as ten, fifteen or twenty per cent, in the case of the more hazardous enterprises, such as the steel mills and the like, where tremendous outlays of capital are required and the business is subject to wide fluctuations in earning power. It is apt to be, as Mr. Carnegie put it in the case of steel, either prince or pauper.

But these high profits are relatively rare or of