THE
LAW OF PRICES:
A DEMONSTRATION OF
THE NECESSITY FOR AN INDEFINITE
INCREASE OF MONEY.
BY
LYSANDER SPOONER.

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THE LAW OF PRICES:
A DEMONSTRATION OF THE NECESSITY FOR AN INDEFINITE INCREASE OF MONEY.

I.

THE writers on money seem never to have obtained the first glimpse of the fundamental law which governs prices, and which necessitates a constant and indefinite increase in the volume of money. That law may be illustrated in this manner:

Suppose an island cut off from all communication with the rest of the world, and inhabited by one hundred men. Suppose that these hundred men know no industry except the production of wheat; that they produce annually one thousand bushels, each man producing ten bushels, which is enough for his own consumption. Suppose further that these hundred men have money to the amount of five dollars each in gold, silver, and copper coins, and that these coins are valued by them as highly as similar coins are now by us. What will be the price of wheat among these men, compared with the coins? Plainly, it will bear no price at all. Each man producing for himself all he can eat, no one has any occasion to buy. Therefore none can be sold at any price.

But suppose that one after another of these hundred men leave wheat-growing and engage in the production of other commodities, -each

producing a different commodity from all the others, -until there shall be a hundred different commodities produced; only one man being left to produce wheat. And suppose that this one man has increased his product from ten bushels to one thousand. There is now just as much wheat as there was when all were employed in producing it. The only differences are, first, that the whole amount is produced now by one man, where [*4]before it was produced by a hundred men; and, secondly, that the ninety-nine men have each engaged in the production of some commodity different from that produced by any other, but of which, we will suppose, all the others wish to purchase each his proportionate share for consumption.

There is now a hundred times as much wealth produced as when all produced wheat and nothing else. But each kind has only a single producer, while it finds a hundred consumers. And each man's product, we will suppose, has the same value with every other man's product.

What, now, will be the price of wheat among these hundred men, relatively to the coins? Doubtless a dollar a bushel. When the first man abandoned wheat-growing, and betook himself to some other occupation, he created a demand for ten bushels of wheat, which he still wanted for consumption as before. This demand for ten bushels would doubtless be sufficient to give wheat the price of one cent per bushel where It had no price before. When a second man of the hundred abandoned wheat-growing, he created a demand for ten bushels more; making twenty bushels in all. This increased demand would doubtless be sufficient to raise the market price of wheat to two cents a bushel. When a third man of the hundred left wheat-growing for some other pursuit, his demand for ten bushels would raise the market price another cent; and so on, until by the time the ninety-nine had left wheat-growing, the continually increasing demand would have raised the price to ninety-nine cents a bushel; for convenience of round numbers, say a dollar a bushel.

Here, then, wheat has been raised from no price at all to a dollar a bushel, not because there is any less wheat produced, or any more consumed, than before, but solely because the whole thousand bushels are now produced by one man, instead of being produced, ten bushels each, by the hundred different men who were to consume it; and because, further, each of the ninety-nine men who have left wheat-growing is able to purchase wheat, inasmuch as he has been producing some other commodity which brings him as good a price as the wheat brings to the man who still produces wheat.

Under this new state of things, then, the man who continues to produce wheat produces a thousand bushels, worth a dollar a [*5]bushel; that is, a thousand dollars' worth in all. Each of the other ninety-nine produces an equal amount of market value in some other commodity. The whole hundred men, then, produce wealth that has now a market value of one hundred thou. sand dollars, where originally they had produced nothing that had any market value at all.

This change in the price of wheat has been produced, then, solely by reason of the diversity of industry and production that has taken place among these hundred men. And the market prices of all the other ninety-nine commodities have been affected by the same law, and to the same extent, as has been the price of wheat.

Here, then, is a hundred thousand dollars' worth of commodities produced, each man producing a thousand dollars' worth.

As each man retains a hundredth part of his product-that is, ten dollars' worth-for his own consumption, he has nine hundred and ninety dollars' worth for sale. The whole hundred men, therefore, have one hundred times nine hundred and ninety dollars' worth for sale, which is equal to ninety-nine thousand dollars in all; for convenience of round numbers, say one hundred thousand dollars.

The hundred men, having each five dollars in coins, have in the aggregate five hundred dollars. To make the purchases and sales of these hundred thousand dollars' worth of commodities will require each of these five hundred dollars to be exchanged for commodities, on an average, two hundred times.

That is, in carrying on the commerce of these hundred men for a year, their whole stock of money must be exchanged, on an average, once in a little less than two days. Or if we reckon but three hundred business days in a year, we shall find that the whole stock of money must be exchanged, on an average, once in every day and a half.

Such rapidity of exchange would be practicable enough if the holders of the coins should all part with them readily at their true and natural value, instead of holding them back in the hope of getting for them more than they were really worth But where there was so active a demand for the coins as to require that the whole stock be sold, on an average, once in every day and a half, it is natural to suppose that the holders of the coins[*6] would hold them back, in order to get more for them than their true and natural value. And in so far as they should do so, they would obstruct trade, and by obstructing trade obstruct and discourage production, and thus obstruct the natural increase of wealth.

II.

But suppose, now, that the number of men on this island be increased from one hundred to one thousand, and that they are all engaged in producing wheat only; each man producing ten bushels, which is all he wants for his own consumption. And suppose that each man has five dollars in gold, silver, and copper coins. What will be the price of wheat among these men, relatively to the coins? Clearly, it will have no market price at all, any more than it had when there were but a hundred men.

But suppose that nine hundred and ninety-nine of these thousand men leave wheat-growing, and engage each in the production of a commodity

different from that produced by any one of the others. And suppose that the one who still continues to produce wheat is able, from his increased science, skill, and machinery, to produce ten thousand bushels–ten bushels for each of the thousand men–where before he produced only ten bushels for himself.

There is now just as much wheat produced as there was before. But it is now all produced by one man – nine hundred and ninety-nine thousandths of it being produced for sale – instead of being produced by a thousand men, each producing ten bushels for his own consumption.

What, now, will be the price of wheat among these thousand men? Why, being governed by the same law that has already been illustrated in the case of the hundred men, it will go on rising one cent at a time as each man leaves wheat-growing for some other pursuit, until, when nine hundred and ninety-nine shall have left wheat-growing, and shall have become purchasers of wheat, instead of producers, the price will be nine hundred and ninety-nine cents a bushel–for convenience of round numbers, say ten dollars a bushel–where before it bore no price at all.

In this state of things, then, the man who still continues to [*7]produce wheat will produce ten thousand bushels ; worth, in the market, ten dollars a bushel, or a hundred thousand dollars in all.

Here, then, we have the price of a hundred thousand dollars for ten thousand bushels of wheat, which, when produced by a thousand different men, each producing ten bushels for his own consumption, had no market value at all. And the other nine hundred and ninety-nine men, we will suppose, produce each a different commodity from all the others; the whole annual produce of each having the same market value as the wheat-grower's crop of wheat. The market value, then, of all the products of the whole thousand men will be one thousand times one hundred thousand dollars–that is, one hundred million dollars– where

before, when they were all producing wheat and nothing else, their whole products had no market price at all.

When we consider that each producer retains for his own consumption but a thousandth part of his products (a hundred dollars' worth), and that, consequently, nine hundred and ninety-nine parts of all these products are not only to be sold, but to be sold twice, as they would now have to be, – that is, once by the producer to the merchant, and once by the merchant to the consumer, – we see that there will be sales to the amount of one hundred and ninety-nine million eight hundred thousand dollars– for convenience of round numbers, say two hundred million dollars – where before, when all were producing wheat, there was no such thing as a sale of a cent's worth of any thing.

These thousand men, we have supposed, had each five dollars in coins– making five thousand dollars in all–with which to make these purchases and sales of two hundred millions. How many times over will all these coins, on an average, have to be bought and sold, in order to effect these exchanges? Dividing two hundred millions by five thousand, we have the answer; namely, forty thousand times! Dividing this number by three hundred, – which we will suppose to be the number of business days in a year, – we find that, in order to make their exchanges, their whole stock of money must be bought and sold, on an average, one hundred and thirty-three times every day /

Thus we see that one thousand men, with such a diversity and amount of production as we have supposed, would have two thousand times as many purchases and sales to make as the one hun-[*8]dred men. And in making these purchases and sales, we see that their whole stock of money would have to be bought and sold two hundred times oftener than would the whole stock of money of the one hundred men in making their purchases and sales of one hundred thousand dollars. We see, too, that. if we call eight hours a day, – that being the usual number of business hours, – their whole stock of money would have to be bought and sold,

on an average, sixteen times over every hour, or once in every four minutes; whereas the whole stock of money of the one hundred men would have to be bought and sold only once in a day and a half; or – calling eight hours a day – once in twelve hours.

Such, let it be specially noticed, is the difference in the rapidity required in the purchase and sale of money in making the exchanges among a thousand men, on the one hand, and a hundred men, on the other, although the thousand men leave the same amount of money, man for man, as the hundred men; the thousand men have five thousand dollars, and the hundred having but live hundred dollars.

This illustration gives some idea of the effect produced upon prices by the expansion of industry and the diversity of production. And yet the writers on money tell us that a large number of men need no more money, man for man, than a small number; that, if a hundred men need but five hundred dollars of money, a thousand men will, by the same rule, need but five thousand dollars.

In the case already supposed, – of the one thousand men, – how far would their five thousand dollars avail as money towards making their exchanges of two hundred million dollars? Plainly, they would avail nothing. The holders of them, seeing the necessities of the people for money, would hold back their coins, and demand so much more than their true and natural value as to put a stop substantially to all production, except of such few things as could be exchanged by barter, or as each one could produce for his own consumption.

The obvious truth is that, in order to carry on their commerce with money at its true and natural value, and consequently without obstruction or extortion from the money holders, it is necessary that these thousand men, with their increased diversity and [*9]amount of production, should have two hundred times as much money, man for man,–and two

thousand times as much in the aggregate, - as was necessary for the one hundred men, as before supposed.

In other words, the thousand men have two hundred million dollars of sales to make, where the hundred men had but one hundred thousand. Dividing two hundred million by one hundred thousand, we find that the thousand men, with such diversity and amount of production as we have supposed, have two thousand times as many sales to make as the one hundred had, and consequently that they require two thousand times as much money as did the one hundred.

III.

But to show still further the ratio in which diversity of industry tends to increase the prices of commodities, relatively to any fixed standard, let us suppose that the number of men on this island be still further increased from one thousand to ten thousand. And suppose that all these ten thousand are engaged in producing wheat alone; each producing ten bushels for his own consumption, that being all he wants. And suppose they have each five dollars in gold, silver, and copper coins. What will be the price of wheat, relatively to the coins? Clearly, it will have no price at all, not even so much as one cent a bushel.

But suppose that all but one of these ten thousand men should leave wheat-growing, and engage in other industries; each one producing a different commodity from all the others. And suppose that the one who still continues wheat-growing has acquired such science, skill, and machinery, that he is now able to produce a hundred thousand bushels- that is, ten bushels each for ten thousand men-where before he only produced ten bushels for himself.

What will now be the price of wheat among these ten thousand men? Why, by the same law that has been already illustrated it will be ninety-nine dollars and ninety-nine cents a bushel- for convenience of round

numbers, say one hundred dollars a bushel–where before it had no market value at all.

And yet there is just as much wheat produced as there was [*10]before, and every man gets just as much wheat to eat as he had before, when all were producing wheat.

In this state of things, the one hundred thousand bushels of wheat produced by one man at a hundred dollars a bushel–which will then be its market value–are worth one hundred thousand times one hundred dollars; that is, ten million dollars. And sup. pose that all the other nine thousand nine hundred and ninety-nine men are each engaged in an industry as profitable as that of the remaining wheat-grower. The aggregate production of the whole ten thousand men will now have a market value equal to ten thousand times ten million dollars; that is, one hundred thousand million dollars.

And if we suppose that all these commodities are to be sold three times over, – that is, once by the producer to the wholesale dealer, once by the wholesale dealer to the retailer, and once by the retailer to the consumer, – we shall see that there are to be sales equal to three hundred thousand million dollars, where before, when all were producing wheat and nothing else, there was no sale of a cent's worth of any thing, and no market value at all for any thing.

Now suppose that the coins which these men had have remained fixed at the same value they had when the men were all producing wheat. How many times over, then, must they necessarily be bought and sold in the course of a year, in order to effect the purchase and sale of these three hundred thousand millions–or one hundred thousand millions three times over–of property that are to be exchanged?

There are ten thousand men, each having five dollars in coins; that is, fifty thousand dollars in all. Dividing three hundred thousand millions by fifty thousand, we find that the whole of these fifty thousand dollars in

coins must be bought and sold six million limes! Six million times annually, to effect the exchanges of the products of ten thousand men!

Dividing six million by three hundred (which we will suppose to be the number of business days in a year), we find that, on an average, their whole stock of money must be bought and sold [*11] twenty thousand times over every day. Or supposing the business day to be eight hours, the coins would all have to be bought and sold twenty-five hundred times over every hour; equal to forty-one and two-thirds times every minute.

And this happens, too, when the ten thousand men have the same amount of coin, man for man, as the one hundred and the one thousand men had in the cases before supposed.

Thus we see that, with such a diversity and amount of production as we have supposed, the exchanges of the ten thousand men would require that their whole stock of money should be bought and sold one hundred and fifty times oftener than the whole stock of the one thousand men, and thirty thousand times oftener than the whole stock of the one hundred men.

We also see that, in the cases supposed, the ten thousand men, having three hundred thousand millions of exchanges to make, have fifteen hundred times as many as the one thousand men, who had but two hundred millions; and that they have three million times as many exchanges to make as the one hundred men. Consequently the ten thousand men require fifteen hundred times as much money as the one thousand men, and three million times as much money as the one hundred men.

IV.

According to the foregoing calculations, the ratio of increase required in the volume of money is this: Supposing the diversity and amount of production to keep pace with the increase in the number of men, and supposing their commodities to be sold but once, - that is, directly from

producer to consumer, – a hundred men would require a thousand times as much money as ten men; a thousand men would require a thousand times as much money as .a hundred men; ten thousand men would require a thousand times as much money as a thousand men; and so on.

But inasmuch as, in the case of a thousand men, their commodities would have to be sold twice, – that is, once by the producer to the merchant, and once by the merchant to the consumer, – the thousand men would require two thousand times as much money as one hundred men. And inasmuch as, in the case of the ten thousand men, their commodities would have to be [*12]sold three times over, – that is, once by the producer to the wholesale dealer, once by the wholesale dealer to the retailer, and once by the retailer to the consumer, – the amount of money required, instead of being either one thousand or two thousand times as much as in the case of the one thousand men (whose commodities were sold but twice), would be one and a half thousand times (as three sales are one and a half times as much as two) – that is, fifteen hundred times– as much as in the case of the one thousand men.

Stating the results of the preceding calculations in the simplest form, we find that different numbers of men, having a diversity and amount of production corresponding to their numbers, in making their exchanges with each other, require money in the following ratios, relatively to each other; namely,–

10 men require $100

100 men require 100,000

1,000 men require 200,000,000

10,000 men require 300,000,000,000

But as the same money could be used many times over in the course of a year, they would not need an amount of money equal to the amount of their annual exchanges. If, then, we suppose the aggregate of their

annual exchanges to be as above, and their whole stocks of money to be used three hundred times over in a year,–that is, once a day, calling three hundred the number of business days in a year,–we find that the stocks of money required would be as follows

10 men would require $.33 1/3

100 men would require 333.331/3

1,000 men would require 666,666.33 1/3

10,000 men would require 1,000,000,000.00

Or, to state the case in still another form, supposing their aggregate annual exchanges to be as above, and supposing their whole stocks of money to be bought and sold three hundred times over in the year, the money required, per man, would be as follows: – [*12]

10 men would require $.03 1/3 each.

100 men would require 3.33 1/3 each.

1,000 men would require 666.66 each.

10,000 men would require 100,000.00 each.

If any body thinks he can dispute these figures, let him attempt it. If they cannot be disputed, they settle the law of prices.

V.

The foregoing suppositions are, first, that the ten thousand men came finally to have ten thousand different kinds of commodities where they originally had but one, – namely, wheat; secondly, that they finally came to have ten thousand times as much wealth, in quantity, as they had originally, when all were producing wheat; thirdly, that wheat, which at its first sales brought only one cent a bushel, came afterwards to sell for ten thousand cents a bushel,–although the amount of wheat produced, and the supply of wheat for each individual, were the same in the one case as

in the other; fourthly, that the same effect is produced upon the prices of all the rest of the ten thousand different kinds of commodities as upon the price of wheat; and, fifthly, that the annual sales made by the ten thousand men amounted finally to three hundred thousand million dollars, where their first sales had amounted to but ten cents,–the amount which the first man who left wheat-growing paid for his yearly supply of ten bushels.

It is not necessary to suppose that such a diversity and amount of production will ever be realized in actual life, although that is not impossible. It is sufficient that these figures give the law that governs prices, and consequently demonstrate that a constant and enormous increase of money must be necessary to keep pace with the increase of population, wealth, and trade, if we wish to give free scope to diversity and amount of production.

Unless money should be increased so as to keep pace with this [*14]increased demand, the result would be, first, obstruction to trade; secondly, obstruction to, and discouragement of, industry; and thirdly, a corresponding obstruction to the increase of wealth.

In fact, unless the amount of money were increased, these hundred men, thousand men, and ten thousand men, instead of having a hundred, a thousand, or ten thousand different kinds of commodities, would advance very little beyond the state they were in when all were producing wheat and nothing else. Some feeble attempts at other industries might possibly be made, but their money, like the shells and wampum of savages, would aid these attempts but slightly; and the men, unless they invented some other money, would either remain absolute savages, or attain only to a very low state of barbarism.

The practical question, then, is whether it is better that these ten thousand men should remain mere savages, scratching the earth with rude sticks and stones to produce each ten bushels of wheat, or whether

it is better that they should all have the money–which stands in political economy for all the ingenuity, skill, science, machinery, and other capital which money can buy – that may be necessary to enable them to produce, in the greatest possible abundance, and of the greatest possible excellence, all the ten thousand commodities which will contribute to their happiness.

A full discussion of this subject would require much more space than can here be given to it. It may perhaps be continued at a future time, if that should be necessary. But enough has doubtless now been said to show the general law that governs prices, and consequently to show the necessity for an immense increase of money; an increase dependent upon the diversity and amount of production and the natural laws of trade applicable thereto; such an increase as no legislation can ascertain beforehand, or consequently prescribe.

LYSANDER SPOONER.

All but ten millions – a ten thousandth part of the whole–would have to be sold, since each man would retain for his own consumption only a ten thousandth part of what he produced; namely, one thousand dollars' worth. Return