

To which class would you assign the raw cotton out of which it is made?

2. If you were poor, and had saved enough money to buy a pair of shoes just as winter was coming on, why would you not be willing to let another person use them for a month? Could any one complain if you refused?

3. If you depended on hunting for your existence, would the deer shot by your rifle be wages for labor or payment for the capital in the form of your rifle? What kinds of sacrifice were necessary before the deer was shot?

4. When large and efficient steamships drove sailing-vessels, to a great extent, out of the carrying-trade on the ocean, what happened to the value of sailing-vessels? Why were some to be seen rotting in our harbors? What effect would be produced by a falling off of the demand?

5. Why is it that, when the demand for shoes is good, the factories are all busily occupied? What effect has demand on the supply? How can the supply keep the price down to the normal expenses of production?

6. If all the workmen in the cotton-mills strike and get higher wages, and those in the woolen-mills do not, will that affect the value of cotton goods in respect to woolen goods? Will it raise the cost of production in the cotton industry? Will cotton goods exchange for more woolen goods than before? Will more capital be advanced in the form of wages?

7. Show how it may be possible, by the introduction of new machinery, to pay more wages to workmen (as in the second case in the note, section 135), and yet sell the 1500 tables for, say, twenty-seven dollars each.

8. If improved machinery lowers the price of manufactured goods, does that mean that gold is scarce? If the price is the amount of gold for which the goods exchange, then, when the price falls, does that imply that the rise in the value of gold is due to its scarcity? Has gold moved away from the goods, or the goods away from the gold?

CHAPTER XIV.

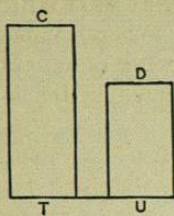
THE VALUE OF COMMODITIES AFFECTED BY THE LAW OF DIMINISHING RETURNS.

138. WE may now go on to study the law which governs the value of commodities affected by the law of diminishing returns, of which agricultural products furnish the best example. (Class II in section 125.)

It will appear at once that, unless the price of an article is equivalent to the normal value, just as in the case of manufactures, it will not be regularly produced. This is true. But there are **different costs of production** in growing such things as grain, and we must decide which one is to be taken as the regulator of value. A bushel of wheat when raised on poor land at great cost sells in the market for no more than another bushel grown on rich land at comparatively little cost. The sacrifice necessary to get a bushel of wheat from the soil is thus not the same, and yet the two products have the same value in the market. Why is this? If the cost of production is higher in one case than in the other, why is it that both exchange for the same amount of money?

139. Recall, for a moment, what is meant by the law of diminishing returns (see section 39). **After a certain point in the cultivation of land has been reached, any additional supply can be obtained only at an increasing cost.** This means that the same labor and capital will obtain a less quantity of products than before.

But land is of very different grades of fertility. The highest grade, moreover, may not be of sufficient extent to furnish all the agricultural products needed by the world for food and for materials of manufacture. Hence, if population becomes more dense, and more is wanted from the land than the highest grade can produce, the increasing demand for these articles will raise the value and price, so that it will pay to cultivate poorer soils (or to spend more money on soils already in use).



By way of illustration, we may suppose that for the same labor and capital one kind of land, C T, yields 30 bushels, and another kind, D U, yields 20 bushels of wheat, which sells at one dollar a bushel. When only C T was cultivated, 30 bushels sold for \$30, and this sum paid the wages of labor and the interest of capital; but it is clear that at one dollar a bushel D U can return only \$20, and that this will not equal the \$30 required to pay wages and interest. Therefore, so long as wheat is only one dollar a bushel, D U will not be cultivated. If, however, people demand more wheat than can be produced on C T (as at present cultivated), the price must go up under the demand high enough to enable the \$20 bushels of D U to sell for \$30—the sum necessary to pay the current wages and interest for a certain amount of labor and capital. In this case, the value must rise to \$1.50; or, in order to get an additional 20 bushels, the community must by its demand have raised the price of all the wheat to a point where it would be profitable to work the poorer lands. It is evident that the wheat grown on the more fertile land, C T, at a cheaper rate, is sold at the same price as that grown on D U, which is produced at a higher rate. We can see, then, that, when agricultural produce is cultivated

on lands of different grades of fertility at the same time (provided people need all that comes from the poorer as well as from the better grades), the value of all depends on the cost of production of that part which is grown at the greatest expense. Where competition is free, this is the law of normal value of agricultural produce, or of any commodities affected by the law of diminishing returns.

140. Though the normal or general level of value is determined by the cost of production on the worst land in cultivation which yields a profit, yet it is to be remembered that fluctuations above and below this general level occur, owing to the changing movements of demand and supply. A lake in the mountains may be many thousand feet above the sea-level, but its surface may constantly be elevated and depressed by the movements of waves. Whether the general level is high or low, oscillations about this level can take place. Whether the normal level of value is high or low, fluctuations above and below this level constantly take place under the influence of demand and supply.

The market value thus varies about the normal value. But, after one harvest is gathered, no new supply can be brought forward until the next season. In this interval of time the supply is fixed in amount, and, when the demand increases or falls off, the supply can not adjust itself accordingly. When the harvests in Europe are deficient, and a demand arises for our cereals for exportation, the price rises; but the higher price can not at once increase the supply (as it could in the case of manufactures), for one must wait for the proper season of the year, and time is necessary for planting and to permit the seed to grow and produce ripe grain. Thus, between harvests, agricultural commodities are entirely under the influence of demand and supply; because, if the value is greater or less than the normal value (regulated by the

cost of production on the poorest land cultivated), it is neither possible to increase the supply and bring the value down, nor to stop production, so as to limit the supply and raise the value to the point where it meets the normal value.

If the price, however, keeps up until the next season, it is quite likely that more land will be sown, and more of the grain produced than before, in order to reap the advantages of the high price. In this way, sooner or later, the value which has been temporarily raised by demand will be brought down to the level of normal value. If, on the other hand, the price was below the normal level of value, the opposite of what has just been described will take place—less land will be planted, and the supply will be shortened until the price rises sufficiently in course of time to equal the normal value.

141. Other articles which come from the earth, such as coal and minerals, are affected by the law of diminishing returns; for the deeper the shaft, the longer the galleries, the greater the outlay in keeping the mine ventilated and free from water, and the greater the expense in bringing coal or ores to the surface. The normal values of these articles are regulated by the cost of production at those mines which are worked at the greatest cost, provided the whole amount thus produced is necessary to meet the demand at that price.

The same is true of **gold** and **silver** when they are produced by regular mining processes. There is one peculiarity of gold and silver, however, which has a great influence on their value. Many articles, such as wheat, exist but a short time, and are then wholly consumed; **gold and silver, on the contrary, are durable.** You can melt gold in a crucible, and then make it into a coin; then you can melt the coin and change its form to jewelry, and nothing is lost. Moreover, in collections you often see coins bearing the head of Alexander the Great or of the

Emperor Augustus. Unless gold and silver are lost by wear, or by shipwreck, or in some such way, all that has ever been produced is still in existence. Think what an effect this must have on its value. What would be the effect on the value of wheat if all that had ever been produced were still in existence? Owing to their **durability**, the supply of gold and silver is the result of accumulations from the annual supply as far back as they have been produced, less the usual losses. The total supply of gold or silver in the world is, therefore, very great. The production since the discovery of America is shown in Chart II. Not all of this total production, of course, remains in existence; but, as the production of gold in the world in 1900 was about \$255,924,654, and of silver about \$112,205,772, it can be readily seen how small a proportion the annual supply bears to the total supply.

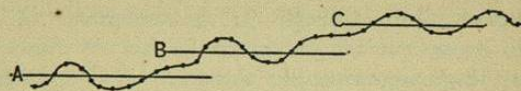
142. We can now better understand what it is that governs the value of gold and silver. We can not explain the value of gold and silver as we can that of spades or cotton cloth. If the price of a spade is at any time greater or less than the normal value, the supply is accordingly increased or diminished at once, and the whole existing supply is of such quantity that a moderate addition to it will speedily change its value. It is not so with gold and silver. If their value is at any time very high, and if the annual production is thereby greatly stimulated, the new supply will even then bear so small a ratio to the total supply that it can not materially affect the value in a short interval of time; just as, when you pour a pail of water into a pond, the level of the whole pond will not be perceptibly raised. When the cost of production is less than is compensated for by the existing value of gold and silver, the existing value can not be at once brought down by increasing the supply. Consequently, for a considerable time, the value may, owing to some increased demand (or to some withdrawal of the supply), remain above the sum

which compensates for the normal cost of production. This is because **the existing supply is so very great that yearly additions are small in comparison with it.** It would not be so with spades, whose quantity could be quickly increased if their value were greater than the normal value. Spades wear out, and all that are made do not forever remain in existence; but the total supply of gold and silver is large, because of the durability of the metals.

If the yearly supplies of the precious metals were for a long time increased, they would finally have a perceptible effect on the total supply. By continually pouring pailfuls of water into a pond for a long time, you could materially raise the level of the whole pond. **In the case of such durable articles as gold and silver, then, the value may remain for long periods above or below the sum which meets the cost of production—that is, the value may be above or below the payments for the cost of production at the poorest mine worked; and so during these periods the value can not be said to conform to the cost of production (as in the case of spades), but is regulated by fluctuations of demand and supply.**

Yet, in the long run, it will be found that **the value will be brought to conform to the cost of production.** For, after a long enough time, an additional production will affect even a large existing supply, or a slackened production will eventually, although very slowly, allow the existing supply to wear away, and thus diminish the total supply. We must, then, conclude that, for any short period of time, the value of gold and silver is dependent on the play of demand upon the large existing supply, without assigning much influence to the annual supply. The fear of a falling off of the annual supply of gold has, therefore, less importance than is usually ascribed to it.

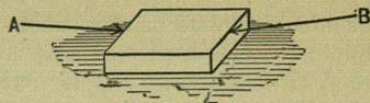
143. The normal values of agricultural and mining commodities, in general, as we have seen, exchange in proportion to their costs of production on the poorest soil or mine whose use is required to satisfy the demand. The minor changes about this line are caused by the fluctuations of demand and supply. Thus, in the diagram, when



only the best land, A, is in cultivation, the normal expenses (represented by the straight line) will be low, and the fluctuations in price (represented by the dotted line) will rise and fall about a low level. Then, when an increased demand for food comes, and poorer soils like B are taken into cultivation, the normal expenses of production on the poorest soils cultivated will be higher than before, and the fluctuations will now be about a higher general level. And so on, in the same way, with C. When an increasing demand for food forces poorer lands into cultivation, **the general tendency will be toward higher prices for agricultural products.** In the United States we have not as yet cultivated more than the best lands, and have not practically felt the law of diminishing returns; but in England and in Continental countries it is otherwise. By referring to Chart IV (page 139), we can see how the prices of agricultural commodities since 1850 have tended upward, in marked contrast to the prices of manufactured articles whose prices have shown a downward movement.

144. Although this force is always in existence, tending to raise the value of agricultural products, there are **counter-forces of greater or less strength operating against this tendency**, and the normal value, at any given period, is the resultant of these opposing forces. It can be illustrated by a diagram like that which represented

the actual growth of population (section 49). A block of wood on the floor, when acted on by two forces, A and B, pushing in opposite directions, will move in the direction in which the stronger force is acting. So of the value of agricultural products.



If the strength of the tendency to higher prices, owing to the law of diminishing returns, is greater than the progress of improvements which tend to cheapen all processes of cultivation, then prices will continue to rise, although counteracting improvements are constantly at work.

These improvements, which serve to retard the law of diminishing returns, are of various kinds. New methods of cultivation, such as rotation of crops, better drainage of land, a more scientific knowledge of the use of manures, greater skill in feeding and breeding cattle, and deeper plowing, are examples. Then machinery is now applied to plowing, harrowing, sowing, and reaping grain in marvelous ways by the use of steam and various ingenious inventions. The growth of our railways and the cheapened cost of transportation have had a marked effect; for the railways bring hitherto unused lands of great richness within reach of the markets, and thus place the produce of fertile prairie soil in the markets of the world at a lower price than that from poorer lands nearer those markets, in spite of the charge for freight (see section 42). Therefore, if it were not for wonderful inventions, the prices of grain would be much higher than they are now. In Chart IV we see that the demand of an increasing population for food has been a stronger force than even improvements and the opening up of new lands, because agricultural products are higher in price now than they were in 1850, in spite of the great industrial progress during this period.

145. Exercises.—I. Explain how the market price of

a commodity is constantly drawn toward that sum which is just enough to meet the sacrifices of production. Take a hammer and a bushel of oats, and suppose the price of each to be above or below the normal value, and then consider what would take place.

2. Are manufactured commodities regulated by the same laws as those which regulate agricultural commodities?

3. Why is an increased supply of food demanded? Is more food wanted as countries become more densely populated? If more people require more food, why can they not get it without raising the price of food? (See section 139.)

4. When we have an abundant harvest of wheat in the United States and a slight foreign demand, how is the value of wheat affected?

5. Can you think of any improvements which operate against the tendency of coal and minerals to increase in value as the mines become deeper? How about the means of raising them to the surface?

6. Houses are more durable than some other things. If they become very profitable, is the supply of houses increased? If they become very unprofitable, is the supply diminished accordingly?

7. We consume nearly the whole quantity of wheat produced each year, and comparatively little is left over. Why is it that merchants eagerly watch the reports as to the probable yield in order to know what the price will be? Why should they not do the same for gold or silver?

8. If a man having \$40 a month spends \$20 for food and \$20 for clothes, shelter, etc., will he be any worse off if the price of his food goes up to \$25, and the price of clothing, etc. (owing to improvements), goes down to \$15?

9. If good wagon-roads were made through a country, would that affect the value of agricultural produce in any way? If the steel used in a plow were cheapened, would that have any effect?