遠距離遞減率制定の理由の一半は正に玆に存する。既に一方向に向つて列車を動かしたる以上は假令積荷なくとも反對の方向に向つて空車として廻送するの必要があり而して之が爲めには滿載列車の場合に比して左程に劣らぬ費用を要する、故に此の廻送空車に積荷を取るが爲めに特に追加的に要する費用以上に聊かなりとも餘剩を生じ得べき場合には假令低賃でも積荷を取るを利益とする。これ輸送量が往復平均せざるときは「歸り荷」を得る爲めに特に低廉なる賃率を制定する所以である。從來の運輸量の一部を減ずるときは收入に多大の減少を來し而も之が爲めに節約し得る費用は之に比敵しない、從來以上に運輸量を増せば僅かの費用增加を以てそれ以上の收入を增加せしめ得る。貨客の爭奪又は維持を目的とする競爭の行はるゝのも、特定賃率を制定して特定貨客の出廻りを奬勵するのも、米國の諸鐵道に於て Industrial department なるものを設けて先づ産業の開設、販路の擴張等に助力するが如き間接にして而も根本的なる手段を採るのも、皆その基づく所は費用の有する斯る性質に在つて存するのである。

（十、四、十）

"Professor Alfred Marshall on The Relation between Economic Rent and the Marginal Expenses of Production."

D. H. Buchanan.

In the March number of this magazine I discussed the two leading and opposing theories of the relation between the economic rent of land and the price of the commodity produced upon it. I came to the conclusion that both Ricardo and Jevons were correct, considering the problems with which they dealt, in their answers. This tends to give a complete theory of this relationship which may be stated as follows:-

(1) Rent of land for a general use, such as the production of "raw material" or "agricultural produce" does not influence the price of that commodity, relatively to others, if there is no competing use for the land.

(2) Rent of land for a particular use, such as the production of corn or cotton, does influence the price of that commodity, relatively to others, if there are other competing uses for the same land.

I made one further statement, dealing with a minor phase of the subject, which might be included as a third part of the theory and stated as follows:

(3) In case a piece of land is specially fitted by nature for the production of some one particular commodity, so that it will produce that commodity regardless of the price at which it may be sold, such rent as it earns has no influence upon the price of the commodity.

Since this third principle was stated only incidentally, and in a footnote, (page 116) it seems desirable to elucidate it a little here. This principle, I maintained, applies to non-land agents and land alike. It seems to me that Marshall's treatment of the relation between the reward of abilities specially adapted by nature for certain uses and the price of those uses reveals the true principle upon which such special cases must rest. He says:

> "The extra income earned by rare natural abilities may be regarded as a surplus when analysing the incomes of individuals; but not when we are considering the normal earnings of a trade; save in the extreme case of a class of persons born with rare abilities specialized to particular branches of production." (1)

This statement is further clarified by the statement that such persons are considered to be,

> "--marked out from their birth as having special gifts for some particular occupation, and for no other, so that they would be sure to seek that occupation in any case,--."

Marshall goes on to say that it is very uncommon for a person to be so marked out from birth. It is just as rare for land to be originally of such a quality as to be fitted for some one particular product. Land in a city may be good for a bank or for a wholesale business of some kind,—for a cigar store or a drug store or a motion picture theatre. So in the country it may be good for oats or wheat or barley-, for corn or hay or cotton. There are perhaps pieces of land specially fitted for the production of wines of a certain sort because of peculiar qualities of soil and atmosphere, and for little else, but such special lands are very scarce. In such cases as exist, the above statement by Marshall stands on the only solid ground. He maintains that *the fundamental thing is the influence upon supply.* If this special ability causes the agent to go on contributing to the normal supply regardless of the price at which the commodity sells, and hence, of the price it can pay the agent for producing it, then that pay is not a conditioning influence upon the price of the commodity; He stands on the same ground which Mill takes when he says:

(1) Principles of Economics, 7th Ed., pps. 577-8. Unless otherwise indicated all references to The Principles are to the 7th edition.

> "The latent influence by which the values of things are made to conform in the long run to the cost of production is the variation that would otherwise take place in the supply of the commodity." (1)

And with Carver when he says:

> "The fact is that value is always and everywhere due to utility and scarcity, and to these alone. Cost of production affects value only when, and so far as, it affects scarcity." (2)

And so it is with the rewards of agents of all kinds. They affect the values of the commodities which they produce only when they affect the scarcities, or supplies, of those commodities. If any given unit or group of units of any agent is fitted by nature so that it "would be sure to seek that occupation in any case", as Marshall says, its reward does not affect the supply, or the value, of that commodity. But, as in the cases of human abilities, such cases of land are wholly exceptional and do not enter into the calculations necessary for explaining the relationships of ordinary commoditiy prices in the ordinary market.

Let us turn now to the theory as a whole. It will be recognized that a theory which stands on these three propositions is antagonistic to the positions taken by most writers on the subject. Since there is such diversity of opinion on the subject it seems desirable to point out some of the principal differences between this theory and those commonly taught. The present paper will attempt to justify this theory in comparison with that offered by Professor Marshall.

In his discussion of the influence of the economic rent of a natural agent upon the marginal expenses of production of the commodity produced upon it, Professor Marsgall recognizes that the question resolves itself into two. In this his position is superior to that taken by most writers. The

(1) Principles of Political Economy, Ashley's edition, Bk. III, Ch. 3, Sec 1.
(2) Distribution of Wealth, page 32.

questions are the same which I discussed in the March article dealing with the respective positions of the Ricardian group and Jevons. They are as follows: (1) Is the economic rent of land a marginal expense of production for "agricultural produce" as a whole, when there is no competing use for the land? (2) Is economic rent of land a marginal expense of production for a particular commodity, such as oats or hops, when several uses are competing for the same land?

In his treatment of the first of these questions Marshall follows the Ricardians. His conclusion is most tersely stated in The Elements of The Economics of Industry. He says:

"--they (the marginal expenses of production) are estimated for a part of the produce which is raised either on land that pays no rent because it is poor or badly situated; or which is more probable, they are raised on land which does pay rent, but by applications of capital and labor which only just pay their way, and therefore can contribute nothing towards rent.----It is to these expenses, therefore, that the price conforms: and, as Ricardo pointed out, rent does not appear as an element in them." (1)

Since we are in complete agreement with this finding, there is no reason for further discussion of this question in the present paper.

But in his treatment of the second question, Marshall comes to the same conclusion: that is he comes to a conclusion which is the opposite of the one reached in my earlier article. He discusses this question in *The Principles of Economics* and mainly from the point of view of agriculture. In his chapter on "Marginal costs in Relation to Agricultural Values" (Book V, Ch. 10) he discusses the "relations between marginal costs and the value of agricultural produce in general in an old country" and gives section five to the discus sion of this second problem. He says: (2)

(1) The Elements of The Economics of Industry, 2nd Ed., page 220-1.
(2) The Principles of Economics, 7th Ed., pages 434-5.

"--now we have to consider the competition between various branches of agriculture for the same land. ---- when we concentrate our attention on any one product, as for instance, hops, it may seems that a new principle is introduced. That is however not the case."

This statement is followed by about three pages of discussion and illustration in which the position is developed. In the present paper I shall attempt to show that Marshall's position with reference to this second question is erroneous, and that it is out of keeping with his central position in *The Principles of Economics*. The procedure will be as follows:

(1) First, I shall compare his position with my own and attempt to demonstrate the latter's superiority.

(2) Second, I shall attempt to point out some of the reasons why Marshall has fallen into this error.

The discussion to follow is made in the belief that it is in the light of what is really Marshallian theory. In spite of his error at this point Marshall has done more than any other writer to develop theory for dealing with subjects in this general field.

He has made it clear that the expenses of production at the margin do not *govern* price but that they are important as being incurred at the points at which the forces which do govern price may be studied. He says: (1)

"The part played by the net product at the margin of production in the modern doctrine of Distribution is apt to be misunderstood. In particular many able writers have supposed that it represents the marginal use of a thing as *governing* the value of the whole. It is not so; the doctrine says we must *go to the margin to study the action of those forces which govern* the value of the whole: and that is a very different affair."

(1) Principles, 7th Ed., page 410

While this statement tells us *where* we are to look for the significant phenomena it does not tell us just *what* we are to look for. It does not make it very clear what the nature of "the causes that do govern price" is. This is supplied at another point. We read, this very significant statement. (1)

"--we must watch the *marginal* uses and the *marginal* efficiency of each agent. We must do so, simply because it is only at the margin that any of those shiftings can occur by which changed relations of supply and demand manifest themselves."

The position here taken seems clearly to be that relative prices, or exchange ratios, are the result of supplies in the market. If we deal with *normal* exchange ratios, as any discussion of the relation between rent and exchange ratios must, then exchange ratios are the result of normal supplies in the market. These supplies are determined by the tendency of entrepreneurs to direct the various units of the various agents of production into those uses in which their contribution to value production will be greatest. These "shifts" are made normally only "at the margin". And these shifts result it changed relative supplies, which in turn result in changed relative marginal utilities, and exchange ratios.

We are to look then *at* the margin. And, since we are studying the supply side of the question, we are to *look for* "any of those shiftings ..... by which changed relations of *suppry* ..... manifest themselves". We are to look for the changing of agents *from* the margin of production of one commodity *to* the production of some other. Those are the "causes" that govern supplies and hence, so far as supply influences can, "do govern price". Let us now take up the comparison of the two theories.

(1) Ibid., page 522.

(I)

I believe that Marshall's position, in the treatment of the relation between economic rent of land and the marginai expenses of production of a particular commodity produced on land for which there are sharply competing uses is erroneous because I believe that his position about the facts at the margin of production of such special commodity is erroneous.

There are three points of view from which the positions may be compared. The first two of these especially, are only different aspects of the same view but they tend to throw the facts of that situation into much clearer light. We may divide these three parts of the comparison into "A", "B", and "C". Under "A" we may follow custom and compare the two theories as to what are the units of the supply of such particular commodity which are actually "on the margin of not being produced at all". It is then a simple matter to note what the expensese of producing those units are and whether or not they include economic rent. Under "B" we may compare the two theories as to which are the agents normally shifted from use to use at the margin of production of any such particular commodity. If units of certain agents are normally shifted from use to use at sueh margins then other units of those agents must be "on the margin of shifting" and are held in their normal uses by the payments which they receive. Thus the contributions of those agents to normal supplies are retained, and the supplies of the different particular commodities are kept at normal. In this way exchange ratios, or prices, are kept at normal. Under "C" we may compare the two theories as to the effect of a tax on the economic rent of land for a particular use upon the price of its product. Let us take up "A".

What is meant by the phrase, "marginal cost of production", or "marginal expenese of production?" Marshall supplies the answer. He says:

"-the cost of production is marginal; that is, it is the cost of production of those goods which are on the margin of not being produced at all, and which would not be produced if the price to be got for them were expected to be lower." (1)

Let us see what the two theories say as to which are the units of the normal supply of a particular commodity which are "on the margin of not being produced at all", and which would not be brought to market if the price of that commodity were expected to be less relativey to others.

Marshall differs with me as to what units of the normal supply of any particular commodity are "on the margin of not being produced at all". He takes the ground that all those which are "on the margin of not being produce at all" come from those places at which *no rent* is paid. I take the position that there is a considerable group of the marginal units of the normal supp'y of any such commodity which come from areas at which *rent is* paid.

That Marshall's position is as I have stated, may be ascertained by two methods. First, he says that no "new principle is introduced" in this case from that used in the discussion of the marginal costs of "agricultural produce as a whole". (2) If we ascertain which units of the supply of "agricultural produce as a whole" are "in his opinion on the margin of not being produced at all", we may easily conclude as to which units of a particular commodity are in the same position. I have already quoted Marshll on this point. He says that the marginal expenses of production a e those of,

"the produce which is raised either on land that pays no rent because it is poor or badly situated: or which is more probable, they are raised on land which does pay rent, but by applications of capital and labour which only just pay

(1) Principles, 7th Ed., page 373.
(2) Principles, page 435.

their way, and therefore can contribute nothing towards rent. — It is to these expenses, therefore, that the price conforms: and, as Ricardo pointed out, rent does not appear as an element in them." (1)

This makes it clear that Marshall's position is that the marginal units of agricultural produce as a whole come from what are usually called the "intensive and extensive margins". On the "extensive margin" there is no rent in the expenses of production because the land is too poor to afford a rent. On the "intensive margin" there is no rent in the expenses of production because the units of the commodity produced on this margin are produced by applications of capital and labor whose addition to that use adds only enough to the product otherwise to be gotten to reward the capital and labor themselves, with no balance which could go to rent. Hence the marginal units of a particular commodity come from these two no-rent margins. If further proof is needed it may be gotten in a second way, namely, from his treatment of particular rent itself.

Marshall says: (2)

"The ordinary man is offended by the old phrase that rent does not enter into the price of oats; ......But it is worse than inexpedient to say that the rent of the land does enter into their price: that is false."

Again in discussing the competition between oats and hops for the use of the same land he says: (3)

"-the surplus which he (the farmer) could obtain from the land by growing oats upon it would come into his mind when deciding where to set the limit to his production of hops. But even here there would be no simple numerical relation between the surplus, or rent, which the land would yield under oats, and the marginal costs which the price of hops must cover."

(1) Elements of Economics of Industry, 3rd Ed., page 202.
(2) Principles, 7th Ed., pages 436-7, note.
(3) Ibid, p ge 436.

It may be permitted to remark that it seems a little peculiar for a writer of Marshall's usual sagacity to conclude that because there is " no simple numerical relation " between two things that there is no relation at all. It is clear that Marshall wishes to maintain that "the marginal costs which the price of hops must cover" are incurred at some points at which no rent is paid. It seems that there are no such places except at the extensive and intensive margins. The marginal units of a particular commodity, hops, are produced at the same points at which the marginal units of agricultural produce in general are produced, either on land which pays no rent or by applications of capital and labor which "only pay their way" on better land.

The clearest statement of Marshall's position as to what are the units of the particular commdity which are on the margin of not being produced at all is found in his discussion of a problem put by Mill and discussed by Jevons. Speaking of the "expenses of production of that wheat which only just pays its way" and the competition of two different crops for the use of the same land, he says that the price of the one produced,

> "will be the expenses of production (wages and profits) of that part of it which only just pays its way, that which is produced on the margin of profitable expenditure." (1)

Until the seventh edition of *The Principles* this last phrase read " margin of cultivation". While this change is suggestive it does not alter the former meaning. It is clear that the old meaning is intended to stand unchanged. In the first place, the remainder of the entire argument is left as before. It is especially clear that this change is not taken to allow for the entry of rent into the marginal

(1) Ibid., page 437, note.

expenses of production for it is still specifically stated that they include only " wages and profits". Truly, no "new principle is introduced". In the second place, Marshall's usage of these two phrases in discussion of agricultural matters makes them, in the seventh edition, interchangeable. In the same chapter with the above quotation we find the phrase, "the margin of cultivation" described as follows: "i. e. the margin of the profitable application of capital and labour to good and bad land alike(1). And also in the same chapter we find the phrase "the margin of profitable expenditure" amplified by being followed by this statement:" whether that be the margin of a little expenditure applied to poor land and far removed from good markets, or the margin of a large expenditure applied to rich land, and land near to dense industrial districts". (2)

These quotations all bear out one thing, namely, that Marshall believes that the units of the normal supply of any particular kind of agricultural produce, and presumably of any kind of produce, which are on the margin of not being produced at all, are produced on the same places that the units of agricultural produce in general are produced. In both cases, they are produced on no-rent margins: they are produced on land which is so poor as to pay no rent,or by applications of labor and capital which " gust pay their way" on better pieces of land.

I believe this position omits a very considerable amount of the marginal units of a particular commodity produced on land for which there are sharply competing uses. This position of Marshall's omits all that group of units of the normal supply of such particular commodity produced on what I called in my earlier article the "product-changing margin". I indicated in that article what I mean

(1) Ibid., page 427.
(2) This Magazine for March, 1921, pages 119, 120, 121.

by the "product-changing" margin.[1] What was said there may be stated again, briefly, here.

The entire produce of a particular kind from certain pieces of good land is "on the margin of not being produced at all". And these units are on the margin of not being produced at all because the land can earn more in some other use. Any fall in the price of a particular commdity affects the earning of land given to that commdity just as it affects the earning of non-land agents. Non-land agents are shifted to other uses from the two no-rent margins, and it is true that the whole supply of the particular commodity from those points would not be produced if the relative price were to fall. But the men who control production are as zealous for high land earnings as for high earnings of any other kind. There is normally a very considerable amount of good land given to any particular commodity which, at the normal price of that commodity, can only barely afford to produce it. These pieces of land are marginal for the production of that commodity. If the price of the commodity falls, relatively to others which these pieces of land might produce, the entire group of units of supply customarily coming from these pieces of land will not be produced at all. It is not only the units from the intensive margin on such land that are to fail to come to market. It is the *entire crop, or produce*, from such land. There is much land in America used for cotton which would go over to corn if the normal price of cotton were to fall. So there is much that would go over from corn to wheat if the normal price of corn were to fall. In Japan the contest between rice and silk is noticeable in spite of the time required to make adjustments.

Not only is the part of the supply which is grown on that land on the margin of not being pro-

(1) Ibid., page 432.

duced at all, but *it has economic rent of lana as one of its necessary expenses of production.* If it were only a question of stopping the production of such units on good land as are produced by the applications of labor and capital that only just pay their way Marshall would be correct. But it is much more than that, and under perfectly normal conditions. It is stopping the creation of the *entire product* from many good pieces of land. The great majority of the units from such land would amply pay for the non-land agents and leave a large "surplus" for the land. But the "surplus" is not large enough. Such land will no more continue to furnish its product under those conditions than will labor or capital when they can do better by producing something else.

I maintain, therefore, that the margin of production for a particular commodity produced on land for which there are sharply competing uses is made up of three parts. It includes the intensive and extensive margins which are claimed by Marshall, together with the "produet-changing margin". From this last comes all the produce from good pieces of rent-paying land which are on the margin of going over to another product because the rent earned would be as good or better than the customary one. This is true whether the special commodity we consider is produced in each productive period or in rotation with others. There are normally products from many pieces of land which are on the margin of being let out either from successive production or out of the rotation. Such parts of the supply are "on the margin of not being produced at all" because the economic rent of land which their normal prices will allow them to pay is too low. They are a part of the marginal production of that commodity and this economic rent is one of their necessary expenses of production.

Let us now take up part "B" of number I.

Under this head we are to compare the two theories as to which are the agents of production normally shifted from use to use at the margin of production of any particular commodity produced on land for which there are two or more sharply competing uses. This seems to be the part of the discussion which reveals the differences between the two theories most clearly. Marshall makes it clear, in the quotation given above that this matter of shifting is significant. That quotation may well be repeated at this point. He says: (1)

> "--we must watch the *marginal* uses, and the *marginal* efficiency of each agent. We must do so, simply because it is only at the margin that any of those shiftings can occur by which changed relations of supply and demand manifest themselves."

Now if it is by the shifting of agents at the margins that the changed relations of supply and demand are brought about it becomes the most significant part of marginal analysis to see what goes on in the way of shifting at those points. What are the agents which are normally on the margin of shifting from the production of one commdity? Whatever agents are shifted away from the production of a commodity are normally in marginal uses. Any such shifting will affect the supply brought to market and therefore will affect the marginal utilities and exchange ratios. The normal payments to such agents as would otherwise shift away from the production of any particular commdity are necessary marginal expenses of production of such a commodity. It is desirable to see where these two theories stand in that respect. Marshall's position is implicit rather than explicit in this matter. One more preliminary remark is needed.

The question of what land is in marginal use for the production of any particular commodity has been much confused by the fact that the term "marginal" has been much used in two distinct

(1) Principles, 7th Ed, page 522.

senses in writings on economic theory. For instance, the term has been used to indicate the poorest among any group of units of commodity or agent of a given kind which it was profitable to buy or to utilize. Again, it has been used to indicate the last one of a group of units of the same quality, of a commodity or agent, which it is profitable to buy or utilize. The latter is the proper use of the term in purely marginal reasoning.(1) It is impossible to come to any proper conception of the margin unless we condition our reasoning by the statement that all the units considered are *interchangeable*. This is not true if we think of differences in quality. In speaking of marginal utility it is common to suppose a supply of, say, 10 oranges. It is supposed that the consumer will have a decreasing desire for oranges, the more he has already consumed. But this will not be true if the second orange is of much better quality than the first. The oranges, in such a case must be of *equal desirability*. The same is true of laborers. In speaking of a "marginal shepherd" Marshall says that we should assume him to be "representative, that is of normal efficiency."(2) The same is true of land. The supplies of particular commodities are affected much more by the shifting of normal laborers than they are by the shifting of lunatics or other "no-wage" workers. And so it is with land. Good land is commonly "on the margin" of being shifted from one use and is therefore just as much in a *marginal use* as is the normal shephered who is on the margin of going to another line of work because the price of sheep makes it impossible to earn more than he could at the other work.

The question for this part then is, what are the agents shifted at the margin, according to Mar-

(1) See an article by P. H. Wicksteed, Economic Journal, 1914-pages 19, 20 and 21, especially.
(2) Principles, page 516.

shall, and according to the position I have taken? And which is correct?

I may say that, in the beginning of his discussion Marshall makes what seems to me a very complete statement of theory about the tendency of every factor of production to be shifted in search of the best possible return. The same statement is iterated and reiterated in his book. He says: (1)

"—each cultivator,—taking account of his own means, will push the investment of capital in his business in each several direction until what appears in his judgment to be the margin of profitableness is reached; that is, until there seems to him no good reason for thinking that the gains resulting from any further investment in that particular direction would compensate him for his outlay."

This statement surely means that the cultivator pays attention to every part of his problem. He pays attention to whether or not he is getting the best return for his land just as well as to whether he is getting the best return for his non-land agents. He uses each agent with reference to its contribution to *total profit.* He does not pay attention to the marginal returns of only a part of his agents for in that case he would frequently miscalculate. He shifts any or all agents whenever there is an opportunity to increase his gains by so doing. But in spite of this good beginning Marshall abandons the position as soon as he launches into his main discussion. This will come out clearly a little later.

Marshall takes the position that, just as agricultural produce as a whole which is grown on land for which there is no competing use is marginal because of the tendency to shift on the part of non-land agents only, so a particular product which is produced on land for which there are other competing uses is marginal because of the tendency to shift on the part of the same factors.

(1) Principles, 7th Ed., page 435. See, for instance, pages, 341, 359, 404, 406, 515.

Ricardo said that the supply of agricultural prdouce tends to be regulated by the shifting of capital and labor to and from the no-rent margins on which it is produced: Marshall says that the same is true of a particular product. He claims that the shifting of non-land agents, only, regulates the supplies of the *different kinds of agricultural produce*, as Ricardo said that it regulates the supplies of urban produce and *agricultural produce as a whole.* My position is that land is in marginal use for the production of a particular commodity whenever it is on the margin of shifting away from the production of that commodity, whether that land be good or poor. This is a very common and a purely normal situation.

Marshall's position is clearly that it is only non-land agents which are normally shifted at the margin because he maintains that "wages and profits" are the only expenses of production of that part of the supply of any particular commodity which "only just pays its way," and that it comes from "the margin of cultivation, i.e. the margin of the profitable application of capital and labour to good and bad land alike."(1) If "rent does not enter as an element in the expenses of producing" such commodities, then it is clear that it is not land power which is shifting, or on the margin of shifting away from the production of such commodities. Marshall maintains that the units of a particular commodity which are marginal are so because of the fact that labor and capital producing them are on'y "barely induced" to continue for the "wages and profits" which they normally receive.(2) This labor and capital is not inferior productive power: it is "of normal efficiency"

(1) Principles, 6th Ed., pp. S. 437n and 427.
(2) Principles, p. 437.n.

but it can do as well at something else, albeit that something else may be utilities in the form of rest and recreation.

I maintain that the persons in control of the uses of agents are as eager to shift land as to shift labor or capital. Good pieces of land, like good laborers, are turned away from the particular commodity whose price has fallen. There are pieces of *good land paying high rents* which are *on the margin of shifting* away from the production of any particular commodity. All agents are on a parity in this matter of shifting, and all are on a parity in their effect upon the changes in the relative supplies of the different commodities. Normally efficient labor tends to shift, and is held in place by the payment of the normal wage. That wage is, therefore, a marginal expense of production. Normally productive land tends to shift, and is held in place by the payment of the normal rent. That rent is, therefore, a marginal expense of production.

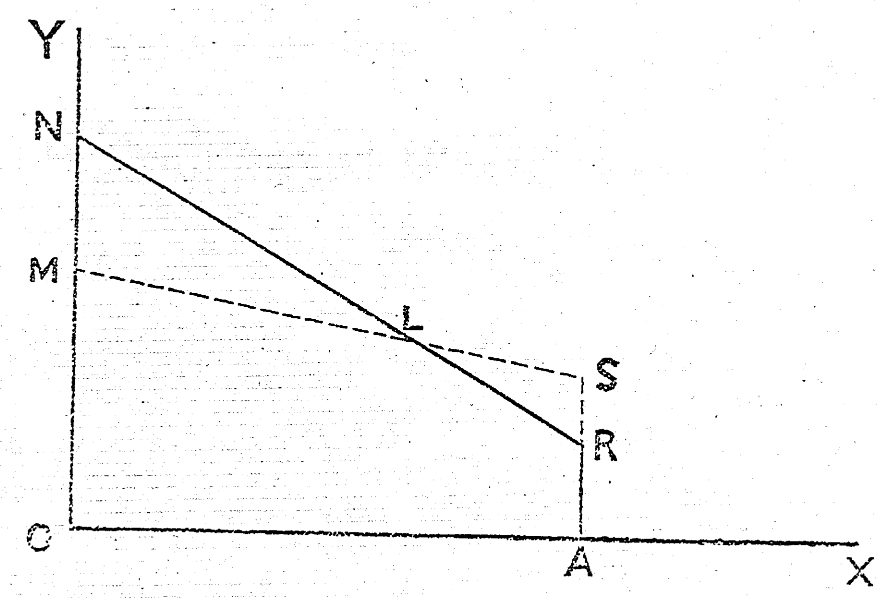
It may seem at first blush that the resulting commodities produced, together with their respective amounts, are the same whether we consider the shifting of land or not. That is, it may seem that entrepreneurs follow only the desire to distribute the crops, in case of agriculture, say, as to get the largest marginal product from their labor and capital: that the uses which give the largest marginal returns to non-land agents necessarily give the largest economic rents to the pieces of land. But this is not the case. If an entrepreneur were to pay attention only to those commodities which give high marginal returns to non-land agents he would, in many cases, produce entirely different commodities from those he actually does produce. This would make relative supplies different and, consequently, marginal utilities and exchange ratios different. This is true because, as we have already stated, (1) production curves do not proceed in just the same way for all particular commodities.

(1) This magazine for March, 1921, page 118.

One commodity may give a relatively small return to the last applications of a given amount of capital and labor on a given piece of land but, because the initial returns were high, a relatively high total return. Another commodity produced on the same land may give a relatively high return to the last applications of the same amount of capital and labor, but because of the fact that its initial returns were smaller its total return may be much smaller than the total return from the other commodity. The entrepreneur, always in search of the largest possible returns to his total productive agents, will produce the former commodity. But if he were in search of the highest marginal returns to non-land agents he would produce the latter. That is, he would produce a different commodity from that which he normally does produce, and the supplies, marginal utilities and exchange ratios would be different. In short producers do normally produce those commodities which give the largest total returns and they do not normally produce those commdities which give the largest returns to the last profitable applications of non-land agents.

The following figure may make this matter clearer. Let us suppose that in a given area in which economic competition is free, say, in a national territory, the normal thing has been to apply to a given amount of land of a given grade an amount of non-land agents represented by the line OA, and to get a total product represented by the area OARN. If conditions have been fairly stable for some time the grade of non-land agents used on such land will tend to get a reward per unit equal to their marginal productivity, in this case AR.

Now let us suppose that a new product is introduced which might so act as a substitute for the other as to leave the price of the other and the earnings of the agents used in producing it unchanged. That is, all agents of production continuing to furnish the usual article would get the usual rewards.



Let us suppose too that the new commodity has a production curve descending at a different angle andthatt he initial returns to non-land agents applied to the given area of land of the given grade are lower than in the case of the other commodity. Let the production curve be MS. And let the return to the last unit of the same amount of non-land agents as was applied to the production of the other commodity be AS. Now if this article is produced the total product will be OASM, or less than OARN, while the marginal product of non-land agents will be AS, or more than AR. The question is whether or not entrepreneurs will tend to produce the new commodity: whether or not they will seek such a distribution of agents as will give the highest marginal return to non-land agents.

The answer is that they will not. The reason is that such action would involve a loss equal to the difference between N L M and S L R.

Economic rent, considered as a payment for the use of land for the production of one among a number of competing particular commodities, is not the passive "surplus" which would be left to it if producers chose to use it for such commodities only as would give the highest marginal returns for non-land agents, and which those agents might receive. It is, rather, the competitive earning which the land can *demand* because of its productive possibilities in various uses. But neither the land nor any non-land agent is central in this matter. The earnings of land and non-land agents are mutually interdependent. (1) Such commodities will tend to be produced as will give the *greatest total of value for all the agents*, not the highest return to any one kind of agent.

Let us now take up part I "C". That is, let us compare the two theories as to the effect of a tax on the rent of land for a particular use upon the price of the commodity produced. Marshall should be explicit on this subject but it seems to me that his illustration is at fault in that he supposes a tax to be levied upon a particular commodity rather than upon the *rent of land for producing a particular commodity*. In speaking of the farmer's problem of determining how to apportion his crops he says:

"... the surplus which he could obtain from the land by growing, say, oats upon it would come into his mind when deciding where to set the limit to his production of hops. But even here there would be no simple numerical relation between the surplus, or rent which the land would yield under oats, and the marginal costs which the price of hops must cover". (2)

(1) Compare Marshall's *Principles*, p. 526.
(2) Principles, 7th Ed., page 436.

Supposing only that hops and oats are sharply competing for the use of the same general grade of land, and for the land considered by the farmer here, I believe that it is possible to show that there is, at least, a very *significant relation* between the "rent which the land would yield under oats and the marginal costs which the price of hops must cover." The whole question is, what are those costs which the price of hops must cover. I maintain that they are the competitive payments which the other possible uses would pay for the use of the different agents. Marshall has made it clear that the earnings of different units of land of the same grade will be equalized in all its different uses: that is, there will normally be a number of pieces of land just on the margin of going over from one of these products to another. Now the entire product from a piece of land on the m rgin of leaving the production of hops, is in every sense of the phrase, on the margin of not being produced at all. Pay for that land, at such a rate as it can earn in the production of oats, as well as pay for whatever non-land agents it uses, is a necessary condition of the furnishing of the normal supply of hops. When the farmer is considering "where to set the limit to his production of hops" the "rent which the land would yield under oats" comes very definitely into his mind. The "marginal costs which the price of hops must cover" are, in such a case, the normal rate of pay for the non-land agents and the normal rate of pay for the land. If, without the tax, the hop rent is only barely sufficient to keep the l nd from going over to oats then, when a tax is put on that rent, taking part of it away, the farmer will give land to oats which formerly went to hops. It is exactly the a same as if wages for the production of hops were taxed. Some of the labor formerly on the margin of going over to oats from hops would now go. The relative supplies of the two commodities in the market would change, their relative marginal utilities and exchange ratios would also change. There is a very significant relation between the "rent which the land would

yield under oats and the marginal costs which the price of hops must cover." If it is not a "simple numerical relation" that doesn't much matter.

I have attempted to show that Marshall's theory is erroneous in three respects. (1) First, it seems to me to leave out of account a very important share of the marginal units of the supply of any particular commodity which have economic rent of land as a normal part of their expenses of production. (2) Second, it seems to me to omit an essential part of the shiftings of agents at the margin where "changed relations of supply and demand manifest themselves". (3) Third, it seems to me that his contention that a tax a particular commodity, or, as it seems to me the statement should have been made, a tax on the rent of land for producing a particular commodity, does not affect its price is not true to the facts of the margin.

Let us now take up the second main part of our task and attempt to show some reasons why Marshall has come to these conclusions.

II.

I believe that Marshall has erred in this matter by carrying over into the discussion of the relation between economic rent and the price of a particular commodity produced on land for which there is a competing use, a part of the presuppositions of the problem of the relation between economic rent and the price agricultural produce as a whole, when there is no competing use for the land. I believe that the heart of the difficulty lies in his thinking and speaking of economic rent as a "surplus" in both cases.

Now there are different ways in which economic rent may be considered a "surplus". It is very necessary that the two be not confused. I believe that they are somewhat confused in Marshall's treatment of these two questions.

There are at least two ways in which economic rent may be considered a "surplus". (1) First, it may be considered a surplus, in that it is a payment for the use of a productive agent which was not produced by man. The land is a "gift of nature" and any product which may be attributed to it is the result of no human sacrifice. Malthus spoke of "this surplus produce, this bountiful gift of Providence". It is a "surplus" over and above the amount which would be necessary to reward the people working the land for all their sacrifice in working and waiting. This kind of surplus applies to land everywhere, whether it be considered as used for produce in general or for a particular kind of produce. (2) Second, economic rent may be considered a surplus in certain cases because it is a reward which is over and above what would be necessary in order to secure the contribution of the land to which it is paid, toward the production of the commodity for which it is used. This conception of "surplus" applies to the return to land for produce in general, if there is no competing use for such land: it applies to economic rent as it was discussed by Ricardo. But it does *not* apply to the return for land for a particular product when two or more products are competing for the use of the same land. It must not be thought that, because land furnishes a surplus above the normal reward for non-land agents, that its payment or non-payment will have no effect upon the relative amounts of commodities produced. If there is no competing use for the land, its payment or non-payment will have no such influence. But if these are sharply competing uses for the land its payment or non-payment affects the relative supplies of these particular competing commodities just as the payment or non-payment of the normal rewards for non-land agents does. If it affects the relative supplies of the commodities it affects their respective marginal utilities and exchange ratios, or prices.

It seems clear to me that, so far as its payment has an influence upon the supplies and prices of

particular commodities is concerned, the rent of land for a particular use should not be called a "surplus". I pointed out in my former article that the payment of agents according to marginal productivity means nothing apart from a consideration of the amount of each agent which shall be considered a unit. (1) The payment of any agent according to its marginal productivity is not a mere matter of arithmetic. Those payments are arrived at by the bargaining of the market, which may be considered to be, from the point of view of economic analysis, only bargaining to determine what amount of each agent shall be considered a unit, it being agreed at the beginning that all should be paid for at their marginal productivities. But this bargaining is conducted for the very purpose of dividing up the *entire product*. There is no such thing as a "surplus" after each agent has been granted all it can force from the others by getting itself paid according to the productivity of the largest possible marginal unit.

But this usage of the idea of rent for a particular use as a surplus leads Marshall logically to what I have shown to be only a partial conception of what actually takes place on the margin of production of such special commodity. If land is thus passive, the essential operations which result in the various supplies of the respective commodities are the shiftings of non-land agents. If this is true, then also it is only those units of the particular supply which are on the margin of not being produced at all because of the tendency to shift on the part of non-land agents, which are marginal. Then it is true that economic rent is not a marginal expense of production for such particular commodity. Starting with Marshall's usage of such rent as a surplus, the way is prepared completely for arrival at the conclusion which he reaches. I believe that I have shown that the start-

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(1) This magazine, March, 1921, 114, 115, 116, footnote.

ing point, the principal positions occupied on the way, and the conclusion, are all untenable.

But this usage of rent as a "surplus" causes the position taken by Marshall in this matter to be out of harmony with the main teaching of his own great book. In a book as extensive as Marshall's *Principles* it is impossible to quote all passages bearing upon a given question. I will quote a few passages which I take to represent the main tenor of the book on these points. In the first place Marshall does not consider the different parts of an economic problem to be entirely separated from each other. A great many forces are interacting upon each other, and no one part of the process can be considered as independent of all others. He says: (1)

> "The amount of the thing and its price, the amounts of the several factors or agents of production used in making it, and their prices— all these elements mutually govern one another, and if an external cause should alter any one of them the effect of the disturbance extends to all the others.
>
> In the same way, when several balls are lying in a bowl, they mutually govern one another's positions; and again when a heavy weight is suspended by several elastic strings of different strengths and lengths attatched to different points in the ceiling, the equilibrium positions of all the strings and of the weight mutually govern one another. If any one of the strings that is already stretched is shortened, everything else will change its position, and the length and the tension of every other string will be altered also."

The import of this statement is that no element is independent of the others. Payments for non-land agents are not independently determined, leaving rent as a pure "surplus". All these things are in part determined and in part determining. No one or more than one determines any other.

Again, he iterates and reiterates that every producer pays attention to all the parts of his problem: that he cannot concentrate on any one or two, leaving the others to themselves. A statement which

(1) *Principles*, 7th Ed., page 526

appears in several places is as follows:

> "-the alert business man — pushes the investment of capital in his business in each several direction until what appears in his judgment to be the outer limit, or margin, of profitableness is reached; that is, until there seems to him no good reason for thinking that the gains resulting in any further investment in that particular direction would compensate him for his outlay."(1)

It seems clear from this that in adjusting his investments and uses of agents the producer hires or rejects land just as he hires or rejects any other agent of production for any particular use. For it is specifically stated that "Land is but one form of capital to the individual producer" whether he be "farmer" or "manufacturer or trader" (2)

That this is the case is made clear by further statements. All the different agents are pitted against each other and certain ones are chosen for each use in accordance with their respective net efficiencies as gain producers. He says:

> "Every business man indeed,—is constantly endeavoring to obtain a notion of the relative efficiency of every agent of production that he employs; as well as of others that might possibly be substituted for some of them.----He endeavors to employ each agent up to that margin at which its net product would no longer exceed the price he would have to pay for it;"(3)

The same claim that agents are on just the same footing in being sought by producers and in being put to the different uses in such amounts as will best serve the desires for gain on the part of the several producers. The working of those forces tending towards equilibrium is clearly set forth as follows.

(1) Principles, page 359. See also Ibid., pages 355-356; 435; 520-521.
(2) Ibid., page 430.
(3) Ibid., page 406.

" To sum up the whole in a comprehensive, if difficult, statement :. " Every agent of production, land, machinery, skilled labor, unskilled labor, etc., tends to be applied in production as far as it profitably can be. ---

Thus then the uses of each agent of production are governed by the general conditions of demand in relation to supply : that is, on the one hand, by the urgency of all the uses to which the agent can be put, taken together with the means at the command of those who need it ; and, on the other hand, by the available stocks of it. And equality is maintained between its values for each use by the constant tendency to shift it from uses, in which its services are of less value to others in which they are of greater value, in accordance with the principle of substitution." (1)

The uses of the several agents, it seems, are so adjusted as to bring about equality of earnings for the different units of each agent, of a given grade, in all its separate uses. Some laborers of a certain grade are producing one commodity while others of the same grade are producing a different one. But "equality is maintained" between the wages in the different lines of production by "the constant tendency to shift" from the production of commodities giving a relatively low, to those giving a relatively high, return. The same is true of land. Some acres of a given grade are used for one product and some for another and some for still another. But "equality is maintained" between the rents in the different uses by "the constant tendency to shift" etc.. And so it is with all agents. There is a tendency towards an equilibrium in which the last unit of any agent, of any one grade, applied to the production of any commodity adds the same amount in general purchasing power (money) to the product which the last unit of the same agent of that grade adds to the product in every other line of production. In Marshall's summary just quoted it is specifically stated that this is true of "every agent of producion, *land machinery, skilled labor, unskilled labor,* etc.."

Ibid., pages 521-522.

Now this gives a very complete idea of the situation on the margin and in the tendency towards normal equilibrium. And Marshall begins the discussion of our problem with it clearly before him. The difficulty is that he loses this conception before proceeding far. This is the specific statement about the shifting of land and the equalization of its earnings, with which the discussion of the question is begun.

" .... each crop strives against others for the possession of the land ; and if any one crop shows signs of being more remunerative than before relatively to others, the cultivators will devote more of their land and resources to it."(1)

But the fact seems to be henceforth forgotten, for in the following discussion it is not again mentioned. In fact, in every illustration given it is either implicit or explicit that the land will earn much more in one use than in another. And instead of an emphasis on the fact that earnings of land tend to be equalized we find a statement of equilibrium conditions arrived at by the search of non-land agents for the highest possible return, and no mention made of the same being true of land. The idea that the land is passive, accepting whatever "surplus" the non-land agents leave it, entirely proper in the discussion of the other question, dominates here too. Just following the complete statement last quoted we find a reversion to this one.

"---in equilibrium, oats and hops and every other crop will yield the same net return to that outlay of capital and labor, which the cultivator is only just induced to apply. For otherwise he would have miscalculated ; he would have failed to get the *maximum* reward which his outlay can be made to yield : and it would still be open to him, to increase his gains by redistributing his crops, by increasing or diminishing his cultivation of oats or some other crop"(2)

(1) Principles, 7th Ed., page 435.
(2) Same citation.

This statement seems to me to be entirely out of harmony with Marshall's main position as stated in the preceding quotations. In those statements, land was put on the same footing with non-land agents. It was spoken of as being shifted from use to use and as having its earnings equalized in all its different uses. A statement of equilibrium conditions in harmony with those statements would have to include the further truth that every crop yield the same net return to that outlay of *land* which the person in control of it is "just induced to apply." I have already pointed out that the equalization of the earnings of labor and capital and the maximization of their marginal products is *not* the same as the equalization of the earnings of the different units of all the agents, and the maximization of the total product.

This statement of equilibrium conditions omits an essential part of them. It follows directly from the inapplicable conception of economic rent for a particular use as being a "surplus", and it leads logically to the partial view of the margin, marginal produce, and marginal expenses of production which we have examined.

プラトーンの國家觀と之れに對するアリストオテリーズの批評（二）

高橋誠一郎

四

既述の如く、プラトーンは其の理想的國家が絕對に實行不可能なるを承認するものに非ずと雖も、彼れは尙ほ現存せる雅典の國家が其の實現に取りて必要なる條件を給付することなきを知覺せり。現在生存しつゝある所のものより全然隔絕して敎育せられたる新世代のみ獨り克く自ら進んでプラトーンの憧憬せるが如き國憲に服從するを得るなり。然れども其の子女に對して斯くの如き敎育を承認するが爲めには、現代の人士が旣に理想的なるを要するが故に、這般の循環より逸脫す可き唯一の道は亦た睿智の愛好者たる一個の專制君主が强力を以て斯くの如き制度の全部を誘導するに存するの觀あるなり。恐らくは又たプラトー