is not to do away with competition, but to make it really free
and fair by equalising opportunities as much as possible." It
might have been well to state more explicitly the relation between
this unfettered competition and " organisation," or trade-
unionism, which in the case of female labour, at least, the writer
recommends as a panacea. This difficulty might have been
cleared up, and the usefulness of an excellent primer would have
been enhanced if references to original authorities had been
given less sparingly. The writer of a text-book should both
point to higher worlds of knowledge, and lead the way. Miss
Benson does the latter only.

The Positive Theory of Capital. By EUGEN v. BÖHM-BAWERK.
  Translated, with a Preface and Analysis, by WILLIAM SMART,
  M.A. (Macmillan & Co.), 1892.

THE excellence of this translation lends weight to a suggestion
made by the translator in the preface to a work, of which the
present one is the sequel, namely, " that a valuable service
might be rendered to the science, and a valuable training in
economics given, if clubs were organised, under qualified pro-
fessors, to translate, adapt, and publish works which are now
indispensable to the economic student." Mr. Smart would be
eminently qualified to superintend the work of translation, to
judge from his able performance of it. He has elucidated his
author, not only by a faithful and happy rendering of the text,
but also by a critical and exegetical apparatus, consisting of,
first a substantial preface, then a masterly analysis in the form
of a table of contents, lastly, by headings affixed to each page,
so as to form a running commentary or summary. Thus the
reader is not only enabled to contemplate the Austrian master-
piece through the transparent medium of clear English, but also
he is, as it were, conducted to new standpoints from which either
a better general view of the whole work may be obtained, or the
parts may be observed more closely. These opportunities of
re-examination will not be without effect on the judgment of
the English reader who is already conversant with the original.
Features which he admired before he will probably now admire
the more. On the other hand, he will have more confidence in
offering criticism now than when there might remain some
doubt whether he had fully apprehended the author's meaning.
We have been thus differently affected in considering two distinct
parts of the work before us : on the one hand, the analysis of

the motives to which the practice of paying interest may be
ultimately traced back; and on the other hand, the consideration
of that higgling of the market by which the rate of interest is
evaluated.

Dr. Böhm-Bawerk's treatment of the first subject (in the
fifth book of the English edition) is, possibly, destined to be
classical, like Adam Smith's treatment of the Division of Labour,
or Jevons's of Final Utility. Dr. Böhm-Bawerk happily dis-
tinguishes the instinctive unreasoning preference of present
above future goods from " considerations which affect the
expediency, in the eye of reason, of consulting future interests,
at the expense of the present," to use Mill's words (Political
Economy, Book I, ch. xi. p. 2). Of the latter kind is the motive
which prompts to store up ice in winter against the coming
summer—a sort of consideration which may, of course, cut both
ways, since in summer the value of ice six months later is small,
not only on account of the futurity, but also the cold of winter.
There is, thirdly, the advantage of possessing means of produc-
tion in the present so as to make use of them in the " roundabout "
methods of production which are generally more effective the
longer the period over which they are extended.

We content ourselves with merely indicating the heads of a
beautiful analysis, which is probably already familiar to our
readers, if not from a study of the original, at any rate through
the admirable paraphrase given by Mr. James Bonar in the
Quarterly Journal of Economics (1888-9), and through the
abridgments which have already found their way into text-books,
such as Dr. Andrew's excellent Institutes.

Dr. Böhm-Bawerk not only analyses the motives to which
we have summarily referred; but he also shows them at work
by presenting a vivid picture of that process of production by
which the future is continually becoming present. He sheds
new light on that subordination of means to ends which Mill
has described in the following passage and its context :—" The
miller, the reaper, the ploughman, the plough maker, the wag-
goner, and waggon maker, even the sailor and shipbuilder, when
employed, derive their remuneration from the ultimate product
—the bread made from the corn on which they have severally
operated, or supplied the instruments for operating " (Political
Economy, Book I. ch. ii. pp. 1 and 2). The Austrian term for
products which are at the extremity of this train, which are
ends, not means, namely, " goods of the first order," is doubtless
an improvement on Mill's " ultimate product," or " article fitted

for human use " (*ibid.*). Dr. Böhm-Bawerk assists us to realise the important conception that the national produce is " a Flow, not a Fund "—to use the words of Professor Newcomb, quoted with approbation by Professor Marshall. Representing successive years by a series of concentric circles, Dr. Böhm-Bawerk allows us to imagine the stream of products flowing across these lines towards the outermost circle which corresponds to goods of the first order; the stream continually broadening as it flows outwards. Very just and beautiful is the conception of the " Subsistence Fund," gradually ripening through successive processes of production to the final stage of consumption.

Dr. Böhm-Bawerk not only shows why future goods are in general less highly prized than present ones, but also how the lower price of the former in exchange for the latter is determined. The determination of the price of future goods, or, in other words, of the rate of interest, comes under the general theory of value. In Dr. Böhm-Bawerk's statement of this theory the conception of " marginal utility," which Jevons made familiar to the English public, has a prominent place. But the Austrian exposition of the subject is not embarrassed by the symbols and ideas of the differential calculus. There is much to be said for thus presenting a conception which is essentially mathematical in a form free from scientific conventionalities. It may be expected that the general reader will derive the sort of advantage from this simplification which we have already admitted that the English student derives from the translation of a profound German work. But it is not every translator who, like Mr. Smart, is penetrated with the genius of the original language. There is one mathematical idiom—to pursue the metaphor—which seems to be very imperfectly rendered in Dr. Böhm-Bawerk's version of the theory of value. The term " marginal " as frequently used by him fails to express adequately the distinction between infinitesimal or differential quantities and those which are finite and integral. In fact, the author may seem not to have realised the part which the differential calculus plays in the solution of that class of problems to which, as Malthus has profoundly observed, many of the " questions in morals and politics " may be reduced, " the problems *de maximis et minimis.*" The nature of the charge which we prefer will appear from a consideration of the following passage in which the distribution of a given quantity of means among different applications is discussed.

" Suppose that in one branch of employment there are four opportunities [four different ways of employing the goods],

indicated according to importance by the figures 10, 8, 6, 4, and that in another branch there are four opportunities indicated by the figures 9, 7, 5, 3; and suppose that a man possesses in all five individual goods; there is no doubt that the five goods will be allotted to the opportunities 10, 9, 8, 7, 6, and that the last figure (which accidentally belongs to the first branch of employment) is the real marginal utility and determines the value of the goods, while the employment that comes next in the second branch, that indicated by the figure 5, must according to our formula become the " pseudo-marginal utility " (*Positive Theory of Capital*, Book III. ch. vii. p. 165). This distinction between the real marginal and pseudo-marginal utility appears to us unhappy, and calculated to obscure the broad general statement that of all alternative branches of employment or sources of advantage, one does not play a greater part than the other in determining economic equilibrium. To use a metaphor of Professor Marshall's—when two balls are placed in a basin, one does not determine the position of the other more than the other that of the one. The general idea is that the advantage of the economic agent depends upon, or is a *function* of, the quantities of means assigned to different kinds of wants, or " different branches of employment " in the phraseology of the passage from which we have quoted, " *e.g.*, timber wanted for building and burning " (p. 164). If a man possesses a limited stock of timber, he will in general distribute it between the two uses, so that the advantage which is a function of the quantities used in each branch of employment should be a maximum. The marginal utility of the first branch is not in general more real, or more false, than the marginal utility of the second branch.[1] They are interdependent and mutual. Suppose however that the function varied only *per saltum* in the case of one employment as compared with the other. Say, in the case of building, less than an unit load of timber is not a sensible advantage; while tenths of an unit may be taken into account in providing for the other use. One might say in that case that the *decimals* of the timber employed were determined exclusively by one use; the *integers* would still as before be an affair of both uses. This, as we understand, is the portion of truth contained in the contributions which our author has made to the theory of final utility.

[1] Let it be required to find A and B such that ϕ (A) + ψ (B) should be a maximum; given A + B = constant. The solution is afforded by the simultaneous system of equations : (1) A + B = given. (2) ϕ' (A) = ψ' (B). It is trivial to insist that ϕ' more than ψ' " determines " the solution.

To take a physical metaphor—one suggested by Dr. Böhm-Bawerk himself [1]—let us represent the two branches of employment by two upright tubes opening at their lower ends into a chamber full of steam. In each chamber slides a plug or piston driven upwards by the pressure of the expanding steam at its lower end, and downwards by a spring [2] pressing on its other extremity. In general the equilibrium of the system is determined as much by one tube as another. But let us suppose one piston to move only *per saltum ;* let it be arranged (by some apparatus of valves or notches) that, as the steam in the chamber is continually heated, piston A only moves when the pressure has been increased by a whole unit. Then with respect to the *integers*, it is still true that the position of equilibrium is determined as much by one tube as the other. But for fractional values of pressure we may say that the equilibrium of the system is determined only by the tube B. That is the fraction of truth which is added by the Austrian school to the theory of marginal utility. Of this character are all the " casuistical complications " (the author's own phrase) with which the simple theory has been perplexed; to this comes all the business of " alternative uses " and " substitutionary utility," and value travelling from one complementary good to another.[3]

Take, for instance, the case put at p. 156 :—" My only overcoat has been stolen . . . I shall . . . try to shift the incidence of the loss on to other kinds of goods " . . . either, if I am well off, " buy one luxury the less," or if I am not well off, " economise in my housekeeping expenses " . . . or, " if I am so far reduced that I can provide only for the most urgent concrete wants in the other classes," then " I needs must get along without an overcoat." Now the general idea appropriate to the case imagined, is that my satisfaction depends on all three species of commodities; my advantage is a *function* of, say, coats, meat, pudding, etc. At given prices of coats, meat, pudding, etc., I shall buy—having regard to the funds at my

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[1] *Positive Theory*, pp. 230, 231. " Production may be compared to a giant pump. Every branch of want has its separate pipe sunk down to the great reservoir of original productive powers, and competes with all the other branches of want in trying to draw its supply by suction from that reservoir."

[2] Or, keeping closer to Dr. Böhm-Bawerk's illustration with which we are making free, we might suppose the resisting force in each tube to be air, more or less exhausted by an air-pump.

[3] The conduction of value describes, as it were, a broken line. First it goes from the marginal products to the means of production and fixes their value; then it goes in the opposite direction from the means of production to the other products which may be made of them. (*Positive Theory*, iii., p. 188.)

disposal—such quantities as will render the above indicated function a *maximum*. In case of a deficit occurring, the general theory, applicable to rich and poor, is that there will be a rise of the margin to a higher final utility *all round*—a contraction of every branch of expenditure more or less. To one taking a general view, the marginal utility of a coat is not more determined by that of the meat or pudding than *vice versâ*. It is therefore very perplexing to read that in general—" in all the other cases " but the one in which I am much reduced—the value of the coat " is determined by the marginal utility of foreign classes of goods and wants " (p. 157).

No doubt, if you make the supposition that I had only the one (top-coat), and further regard the expenditure on a coat as considerable, integral rather than differential, then the sort of fractional truth which we have above indicated may be attributed to the formula that the value of the coat is determined by that of the meat or pudding. But it should be observed that the Austrian formula, far from prevailing in all cases except extreme poverty, becomes more inapplicable, the richer we suppose our man, the smaller in respect to his income the expenditure on a coat.

The preceding remarks have been directed specially against the theory of value set forth in the third book of the work before us. But they are equally applicable to the similar doctrines in the fourth book relating to price. Some other incidents in that book may be more mildly censured, not as misleading complications, but as simplifications of which the gain in respect of ease is not compensated by the loss in respect of generality. We allude to the conception of the *Grenzpaar*, the " limiting couple " of dealers in a market. The author illustrates the play of demand and supply by supposing a market in which, on the one hand, there are a number of dealers, each with a horse to sell, and, on the other hand, a number of would-be buyers (*Positive Theory*, p. 203). The latter are arranged in the order of their strength : first is the one who is prepared to give most for a horse, the highest price which the second can afford is less, and so on. Parallel to this arrangement is that of the would-be sellers : first, he who can sell cheapest; and so on. Upon this hypothesis it might happen that the fifth would-be buyer is willing to give a little more than the lowest figure which the fifth would-be seller will take; while the sixth on the side of the buyers is not willing to give quite as much as the sixth horse-dealer stands out for. In this case five horses only will be sold,

and the couple who are the last between whom a bargain is possible—buyer No. 5 and seller No. 5—enjoy a mighty distinction as the *Grenzpaar* ; an honour which appears to be to some extent shared with Nos. 6, the first couple between whom a bargain is impossible.

Now this attention to a particular couple is not always appropriate. How if the weakest actual buyer should prove to be, not buyer No. 5, but buyer No. 1, as to a *second* horse ? Professor Böhm-Bawerk, indeed, has thought of this case, and called attention to it in a note (p. 214). So far—although the whole simplicity of the scheme is destroyed when we permit second and third horses to the different buyers and sellers—the conception of a " limiting couple " may still be retained. It will be found, however, that this idea is not appropriate to the general case of a divisible commodity, which a single individual on one side of the market may buy from or sell to a large number on the other side. That general case is much more clearly represented by a diagram like that employed by Messrs. Auspitz and Lieben (*Theorie des Preises*), where the inner curves represent the dispositions of the individual dealer, the outward thick curves the collective supply and demand. No doubt Dr. Böhm-Bawerk's conception is appropriate to a particular case, that in which the *Kleinste Marktübliche Mengeneinheit*, in the phrase of Messrs. Auspitz and Lieben (*ibid.* p. 123), is considerable. But it is better with those theorists and with Prof. Marshall (*Principles of Economics*, Book III. ch. iii. §§ 4 and 5, 2nd ed.) to begin with the general or, at least, the simple case.

Altogether, the leading characteristic of the Austrian theory, the elaboration of formulæ appropriate to the case in which the *minimum vendibile* is finite and large, may appear one of those things which ought to have been done, provided that other more important things were not left undone. But attention to the rue and cummin of the theory of value may result in neglect of the weightier matters of the law—the great Ricardian law of cost. Dr. Böhm-Bawerk regards this law as " secondary " (Book III. ch. x.); " the whole truth about the celebrated law of costs " may, according to him, be derived from the received theory of marginal utility combined with his own doctrine of " complementary goods." That " costs exert a causal influence on the price of products " (Book IV. ch. vii.) he does not admit; that the desire to minimise effort and sacrifice—as well as to maximise gratification—is an economic force is a truth not conspicuous in his pages. We read little about the mobility of

labour seeking the position of minimum cost in the sense of effort and sacrifice; little about the equation of net advantages in different occupations. How completely the law of cost, as it has been understood by the English school, has been evacuated of its significance may appear from the reflection that, as far as we have observed, all that our author says about the correspondence between value and cost of production would be equally true whether the labour world was, or was not, divided by impermeable barriers into " non-competing groups." But there is all the difference between these two cases, as Cairnes, among others, has pointed out.

We may connect the disposition to degrade the element of cost with that imperfect view of a maximum problem to which we have already adverted. Because economic equilibrium is determined by utility, it is assumed that it cannot also be determined by *disutility*, cost and sacrifice. To recur to the physical metaphor which we indicated above, comparing the different branches of production to tubes of different sizes, in which pistons are driven by expanding steam against resisting springs, not only does our author suppose that equilibrium is determined by one piston rather than another,[1] but also it has not occurred to him that there is another condition of equilibrium represented by the varying pressure of the steam in our metaphor. The quantity of the vapour and other things being supposed constant, the pressure against the pistons will become less as the steam expands. At the position of equilibrium the diminished pressure of the steam will just balance the increased resistance of the springs. The question whether utility or cost determines normal value may appear as trivial as the question whether in our illustration the equilibrium of the system is determined by the pressure of the steam rather than by that of the springs.

These remarks relate particularly to that mode of sacrifice which labour constitutes. It is a nice question of interpretation whether the same criticism is applicable to the sacrifice of abstinence or waiting as conceived by our author. The excellent observations upon the sacrifice involved in the formation of capital (Book II. chs. v., vi.) may be cited against that interpretation. Elsewhere, as it seems to us, with respect to abstinence as well as labour, the Austrian, as distinguished from what may be called the English theory, is limited to " market values " or " short periods " in Professor Marshall's phrase. It is only upon some such view that we can explain the reiterated state-

[1] See above, p. 26.

ment, that "in the subjective circumstances of the capitalist
a sum of present goods is as a rule worth as much as the same
sum of future goods" (see *Positive Theory*, pp. 315, 330, 382).
Upon any other interpretation what is the quarrel between our
author and Senior, prolonged through many pages of the earlier
work to which the volume before us is a sequel? We venture at
any rate to regard Senior's statement of the relation between
abstinence and value as clearer, if not more correct. Indeed,
as much may be said of an earlier writer, S. Bailey, whose *Critical
Dissertation on Value* contains the following remarkable passage
(p. 218, ed. 1825) :—

"The time necessary to produce a commodity may, equally
with the requisite quantity of labour, be a consideration which
influences the mind in the interchange of useful or agreeable
articles. We generally prefer a present pleasure or enjoyment
to a distant one, not superior to it in other respects. We are
willing, even at some sacrifice of property, to possess ourselves
of what would otherwise require time to procure it, without wait-
ing during the operation, or of what would require labour with-
out personally bestowing the labour. If any article were offered
to us, not otherwise attainable except after the expiration of a
year, we should be willing to give something to enter upon present
enjoyment. On the part of the capitalist who produces and pre-
pares these articles, the time required for the purpose is evidently
a consideration which acts upon his mind. If the article is wine,
he knows that the quality is improved by keeping; he is aware
that the same excellence cannot be imparted to any wine, with-
out the employment of capital for an equal period; and that
people will be found to give him the usual compensation rather
than employ their own capital in producing a similar article."

Upon the whole, the most important question raised by the
new theory appears to be, whether it is worth while taking account
of effort and sacrifice as a regulator of value in a regime of com-
petition, as stated by Ricardo and—with less liability to mis-
interpretation—by Professor Marshall. Without presuming to
prejudge this question, we have but endeavoured to clear it from
side issues. We may have contributed also something to the
controversy by selecting as a worthy antagonist of the Ricardian
principle, not those whose hostility may be ascribed to distaste
and inaptitude for all abstract reasoning, but one whose specula-
tive genius has placed him among the foremost exponents of the
deductive method in his country.