

ment and public regulation. He assists his readers to strike the balance between considerations placed in opposite scales by able advocates, such as the two Professors surnamed Meyer. A slight but sensible weight appears now to be added to the scale with which Professor Hugo is identified. *Pro tanto* something is shown to be wanting in the scale preferred by Professor Balthassar; a name which, occurring in this connection, suggests an inclination of the balance more decided than we mean to indicate.

*Wealth and Welfare.* By A. C. FIGOU, Professor of Political Economy in the University of Cambridge. (London : Macmillan & Co. 1912.)

ORIGINALITY has set its unmistakable mark on Professor Pigou's work. But this distinction is not inconsistent with some resemblance to great predecessors. The author appears to have drawn inspiration from two very high authorities on wealth and welfare. The good which philanthropy and statesmanship should seek to realise is defined by him in accordance with Sidgwick's utilitarian philosophy; to investigate the means conducive to that end he employs the method perfected by Dr. Marshall. Like Sidgwick, Professor Pigou is not open to the imputation of materialism which is sometimes brought against economists. He lays down two propositions : " first, that welfare includes states of consciousness only, and not material things or conditions ; secondly, that welfare can be brought under the category of greater and less " (*Wealth and Welfare*, p. 1). These propositions (with their context) do not postulate a psychology (like that of J. S. Mill) specially favourable to utilitarianism ; but they do postulate the absence of a metaphysic (like that of T. H. Green) which denies practical significance to a conception such as " aggregate welfare " or " satisfaction." Much of our author's philosophy recalls Sidgwick's utilitarianism. For example, the following sentiment is not often met with outside the pages of Sidgwick : " If the life of an average workman contains, on the whole, more satisfaction than dissatisfaction, an increase in numbers, even though it leave economic welfare per head the same, involves an addition to economic welfare in the aggregate " (*loc. cit.*, p. 29). Like Sidgwick, Professor Pigou is prepared to admit that, in Sidgwick's phrase (*Politics*, p. 583), " One person may be more capable of happiness than another." According to Professor Pigou, " We may sometimes be able to say that the more cultured

Class A, has a keener appreciation of, and derives more satisfaction from, practically all objects than the less cultured Class B does" (p. 48). On the assumption, however, of similarity of temperament (p. 25), we may conclude with Sidgwick that the more equal distribution of wealth tends to increase welfare. To diminish inequalities in the distribution of the national dividend (among the members of the nation) is accordingly one of the modes of welfare of which Professor Pigou investigates the conditions in one Part of his treatise. To diminish inequality of distribution in *time* is the proximate end to which another Part is directed. Much the longest of the separate Parts is directed to the increase of the national dividend. In investigating causes conducive to these approximate ends Professor Pigou brings to bear a mass of facts and a power of reasoning which in their combination find a parallel only in the *Principles of Economics*.

The inductive element of the treatise, being necessarily diffused, cannot easily be exhibited here. We have not space to exemplify our author's frequent citations of relevant evidence. Our readers must take on trust our impression that the verification of general reasoning by specific experience has been adequately performed, especially with regard to British labour and charity. Professor Pigou seems to have fully utilised the information obtainable from official reports and contemporary economic literature. He is aware, of course, that facts are often not apposite. What he says about one of the methods of increasing national income which he investigates—Purchasers' Associations—is probably of wide application: "No great weight can reasonably be attached to historical examples, and we are driven forward to an analytical study" (p. 239).

Of the numerous valuable contributions to economic theory which are presented in this treatise, the most brilliant, no doubt, are those which assume the form of mathematical reasoning. But a considerable degree of practical importance attaches to other arguments which take the classical form of deduction from psychological generalisations. Of this simple type is the argument directed against the popular reasoning that if a person is *enabled*, by a subsidy, to work for less, he will therefore be *willing* to work for less (p. 348). The experience of the old Poor Law is not so conclusive as is commonly supposed: the subsidised workmen did not accept a wage lower than the worth of their work to their employers; rather the worth of their work was very small, owing to the system of differential relief (p. 349). Of the same simple type are some deductions concerning the

consequences of transferring resources from the rich to the poor; a nice distinction being drawn between the fact and the expectation of such transferences. It makes a great difference whether the transference is voluntary or coercive; the expectation of the latter leads to a diminution of the national dividend, while the new motive implied in the former tends to an increase of waiting and effort, and so of the dividend (p. 365). Again, the expectation of taxation to be levied at some future time will have a smaller restrictive influence on investment than an annual levy (p. 375). The influence will be particularly small when the tax is postponed till the investor's death. This consideration is to be set against, and may overbear, another presumption from which "it follows mathematically that, in general, the death-duty method [of taxation] is likely to trench on capital somewhat more than the income-tax method" (p. 353).

In the last proposition we have passed from simply psychological deductions to such as involve some tincture of mathematical reasoning, but not more than is generally presupposed in modern economic treatises. Even so classical an economist as M. De Foville now employs curves of supply and demand. In this category we may place Professor Pigou's theory of differential wage-rates, which occur when the wage payable for a particular kind of work performed by some men (say the more competent) is artificially raised above the wage payable for the same work performed by other men. With a minimum of aid from mathematics it is argued that "an artificial wage containing a differential element is less likely to imply a real transference from the relatively rich as a body to the relatively poor as a body than one which is free from such an element (p. 335). The properties of the demand-curve afford important deductions. The great elasticity of the demand for labour is used as a premise in arguing the old question whether labour-saving machinery is likely to be detrimental to the labouring classes. Going beyond Ricardo and J. S. Mill, Professor Pigou concludes that if an invention of the class considered diminishes the portion of the dividend accruing to labour, the magnitude of the diminution must be very small indeed (p. 89). And this, even on the supposition—which is, of course, far from being true in general—that the commodity in respect of which a constructive idea has been discovered is not consumed at all by the working classes. The same premise employed in another argument leads to a conclusion of quite classical trenchancy: that "generally speaking, a transference of resources from the relatively rich to the

relatively poor, brought about by interference with the natural course of wages at any point, is unlikely to do otherwise than injure the national dividend, and therewith in the end the real income of the relatively poor" (p. 343).

We shall notice in a separate paragraph some more technical matters which we cannot hope to make interesting to the general reader. In this category is probably to be placed Professor Pigou's "curve of marginal supply prices." This original construction is useful as rendering more distinct, by contrast, the conception of a supply-curve. It is still more useful as an adjunct to the test for maximum utilisation of resources, the far-reaching principle that the more nearly equal marginal net products in all uses are, the larger the dividend is likely to be. This principle, as applied by Professor Pigou, is one of the splendid novelties occurring in this treatise the importance of which a reviewer cannot be expected upon short notice to gauge accurately. It is certainly of great theoretical interest. Another difficult theorem relates to the shape of demand-curves. They are in general *concave*, according to Professor Pigou (p. 210, and p. 402, where "convex" is doubtless a misprint for "concave"). This statement may give pause to the reader who recalls that demand-curves are treated as *convex* by one of the highest authorities on mathematical economics, Dupuit. His view is referred to in a former number of the *ECONOMIC JOURNAL* (Vol. X. p. 287) in connection with the suggestion that in certain circumstances of common occurrence the locus may be treated as a right line. There are thus before us three propositions: that, probably, the demand-curve is concave, is convex, is neither. Paradoxical as it sounds, all three propositions may be right. For the first two refer to different circumstances; and when we are ignorant which of the two cases is present, the third, the intermediate statement, may be appropriate. Dupuit supposes that, as the price is lowered, new strata of customers are reached; and so the curve stretches away from the axis representing price. Professor Pigou must be understood to suppose that the customers are, or may be, treated as a homogeneous body. Indeed, the more exact statement of his doctrine is that which he has given in an earlier work to which he refers. "In the case of a typical individual," the *third* differential coefficient of utility (with respect to money) is negative. The third differential coefficient of utility makes its unfamiliar appearance in connection with another doctrine, namely, that "a diminution in the inequality of distribution, in the sense of a diminution of the mean square deviation from the

mean income, probably increases satisfaction." This follows from the expression of (aggregate) utility in ascending powers of the said deviations; since the first term of the expansion is zero, the second negative, and "we know nothing to suggest whether the sum of the terms beyond the third is positive or negative" (p. 25).

The last proposition employs, in addition to the calculation of utility, the *second* mode of physical mathematics, the calculation of probability. The probability involved is of the kind which has been called "unverified"; based on impressions which are the record of general experience, rather than on specific statistics. This species of probability is largely employed by Professor Pigou. It is the basis of his proof that the pursuit of economic welfare is compatible with higher aims: "When we have ascertained the effect of any cause on economic welfare we may, unless, of course, we have evidence to the contrary, regard this effect as *probably* equivalent in direction, though not in magnitude, to the effect on total welfare" (p. 61). The "unverified" species of probability is also employed in the construction of a new index-number (p. 47). Again, the principle underlies the presumption that certain phenomena are independent, or, at least, not closely correlated. Thus, the increase in the variability of real earnings in one industry might be so correlated with the (undiminished) variations in other industries as to diminish the variability of aggregate earnings (p. 421). So variations in the conditions of business might conceivably be compensated as to their psychological effects by mistakes in the business man's forecasts (p. 454). But such correlations are not *probable*. For "when a magnitude is made up of two parts, each of which varies more or less independently of the other, the variability of the whole is likely to be larger the larger is the variability of either part" (p. 454).

The ordinary or statistical species of probability makes its appearance in the proposition "that the precision of an average is proportioned to the square root of the number of terms it contains" (p. 141). The principle is largely employed in connection with the fluctuations of business and labour. This species of probability enters along with utility into the following theorem. Let A and B be two similar persons who have each a fluctuating income, or, more exactly, "a variable consumption." Let the normal consumption of A be much larger than that of B. Then "the economic welfare of A and B jointly is increased by any system of transferences which, while leaving the average consumption of each unaltered, diminishes the variability of B's

consumption, even though this diminution takes place at the cost of an increase in the variability of A's consumption" (p. 402). It is similarly concluded that "the exposure of £100 to a scheme of uncertainty whose range is narrow is easily seen to have a smaller value in the market than the exposure of this sum to a scheme whose range is broad" (p. 100). But does the latter argument require as a premise—what the former argument no doubt does—the new proposition above noticed regarding the *third* differential coefficient of utility? Is not the proposition regarding the *second* differential which is commonly employed in the theory of insurance sufficient? But it is with diffidence that we suggest a correction in a matter relating to insurance. For our author's treatment of that subject is particularly lucid and instructive. He arrests attention by announcing—in connection with the advantages of "voluntary transference" to which we have referred—a way by which "transference can be made economically profitable to the transferor." The way is simply mutual insurance. Those who are fortunate and escape the loss which has been insured against, may be regarded as relatively rich, making a transference to persons who have become relatively poor (p. 366). It pays to undertake the risk of such transference, even though the adjustment between the premiums paid and the risks carried by different members is imperfect—within limits. The limits are less than ordinarily narrow in the case of workpeople (p. 367).

From the extracts which we have given it will be gathered that this treatise abounds in new ideas. But it is impossible by extracts to do justice to the author's logical arrangement of topics and lucid order.

"Ordinis hæc virtus erit . . .  
Ut jam nunc dicat jam nunc debentia dici,  
Pleraque differat. . . ."

The latter part of the Horatian maxim proves a hard saying to many. But our author never dilates upon the obvious, never diverges into the irrelevant. He goes straight on, with even march, as it were along a Roman road. Flowers there are by the roadside, but not so frequent or so gaudy as to distract attention. Epigram is used only to clench argument. For example, as against the now fashionable doctrine that progress depends only on breeding, not at all on education and economic conditions, it is argued that though educational conditions may not influence offspring in the physical world, they do favour new births in the world of ideas. "Environments, in short, as well as people have children" (p. 59).

New ideas well presented are applied to many old problems. Even such familiar themes as the public control of monopoly and the public operation of industries are enlivened by *recherché* arguments. But the new weights put into the scales of deliberation are not over-estimated. For instance, with reference to the waste of resources caused by cost which hinders the movement of workpeople and by their mistakes in judging what is to their own interest; it is shown that where error of judgment exists, a cheapening of the cost of movement may prove socially *injurious*. The case is not merely academic, but is applicable to the aimless wanderings and useless changes of situation which are sometimes occasioned by facility of movement (p. 119). "But these exceptional cases are not subversive of old-established beliefs." When we are contemplating, from a general point of view, the consequences of these diminutions [in cost of movement and in falsity of judgment], "it is not the *possible*, but the *probable*, effect that concerns us" (p. 121). With regard to the more familiar considerations which Professor Pigou from time to time quite properly throws into the balance, we think that he might with advantage have more frequently referred to standard versions of similar arguments. Thus, in connection with the failure of harmony between private and social interest (p. 158), and context, there might have been expected a reference to Sidgwick's masterly treatment of that subject in the third book of his *Political Economy*. Again, when Professor Pigou places among the ultimate effects of an artificial wage-rate the circumstance "that the reward of employing power and waiting in industries in general being somewhat reduced, these factors are likely to be forthcoming in somewhat diminished quantities" (p. 343), he might have referred—with an expression of assent or of qualification—to some of the leading writers who have dwelt on that circumstance.

The originality which we have noted with respect to theory makes itself felt in several practical suggestions. The author has, we believe, only one precursor in the suggestion that it is possible to increase the national dividend by imposing differential taxes on industries governed by the law of diminishing returns (p. 179). Many suggestions are directed to improvements in distribution. Munificence might be encouraged by honours and decorations, a new "order," not interfering with the attractions of old ones. On more familiar lines Professor Pigou advocates a modified form of income-tax which should exempt resources devoted to investment in general (not to insurance only) (p. 371).

He mentions with approbation Rignano's plan of taxing inheritances with increased severity at each successive devolution (p. 376). But he would confine taxes on unearned increments to "windfalls" (p. 370). He would accompany transferences from the rich to the poor with strict conditions (p. 392). He is in favour of "taking some cautious steps" towards a very drastic treatment of the very unfit (p. 55). Among plans for reducing fluctuations of earnings there is adduced Mr. Balfour's suggestion that when industry is depressed, a bounty should be given to firms making for foreign orders, in such wise as to enable them to accept contracts. Why not to firms making for British orders, suggests Professor Pigou (p. 481). He is "inclined to believe" that a very considerable net benefit would result from a method of steadying prices such as that proposed by Professor Irving Fisher (p. 438; *cp.* p. 464). There would be available for the purpose the index-number proposed by Professor Pigou, in which the prices of commodities at one of two compared epochs are weighted with the quantities of the commodities consumed at the other epoch (p. 46). One of the most ingeniously deduced proposals is the one about the value of which we are least confident. With a view to maximising the national dividend, it is concluded that in the regulation of railways discrimination, or the "value of service" principle, should be adopted at one (probably brief) stage of a country's development, and "this principle should give place to simple competition, or the cost of service principle, as soon as population has grown and demand has risen sufficiently to lift it out of that stage" (p. 234).

The last topic introduces our principal difference with Professor Pigou. He seems to us in his estimates of probabilities not always to attach sufficient weight to *authority*. For instance, on a question of definition, the use of the term "joint-cost," more deference might have been shown towards Professor Taussig (p. 216). We think it very improbable that an "accident of language" (p. 217) should have conduced to a "fallacious general argument" on the part of Professor Taussig (p. 219). The following passage brings out the matter at issue: "Principal Hadley and his followers, not content with demonstrating that fact [that a certain case *may* occur in practice], add, without argument, that this case is typical of the whole railway world, and suppose themselves, therefore, to have proved that the value of service principle ought to be followed in the determination of all railway rates. Such an unargued inference is plainly illegitimate" (p. 231). It is plainly legitimate, we think, to defer to

the unargued judgments of the leading authorities on railway economics with respect to the question whether a certain abstract case may be taken as typical of the actual facts. This is just one of those matters which are amenable to the Aristotelian doctrine that we ought to attend to the unargued pronouncements of the practically wise, who have acquired by experience a certain power of mental vision.

Here arises the question : How far do our author's theories belong to the category of practical wisdom, or to that higher kind of science which the philosopher distinguishes as grand and wonderful and difficult, but not useful for human purposes ? Mathematical economics are certainly useful to some extent ; but does the further elaboration which that study has received in this treatise imply a correspondingly large contribution to the Art of Political Economy ? The analogy of mathematical physics does not help us to answer this question ; the calculus of utility and probability is something so peculiar and unique. " Ai posteri L'ardua sentenza ! "

*The Economy and Finance of the War.* Being a discussion of the real costs of the war and the way in which they should be met. By A. C. PIGOU. (London : Dent, 1916. Pp. 96.)

THE author of *Wealth and Welfare* here deals principally with the first of these subjects, and only incidentally with the second. The costs which he discusses are economic in a strict sense : " the costs that come into relation with governmental expenditure and the Chancellor of the Exchequer's Budget." In this technical investigation he displays a talent which is required in economics even more than in other sciences, the power of penetrating beneath the surface of appearances, discerning unobvious truths and exposing popular fallacies. For example, it will be a surprise to many readers to learn that a married soldier with dependants to whom separate allowances must be paid does *not* involve more real cost to the nation than a single soldier with no such dependants. This is one of several startling propositions which will probably appear at first sight to the general reader foolishness, and even to the expert a stumbling-block. They would certainly have so appeared if propounded at the beginning of the war. But since then the attention of students has been directed to the economics of war by many writers, notably Professor Pigou himself in the *Contemporary Review* of 1915 (noticed in the *ECONOMIC JOURNAL*, March