Mr. Pierson's must be postponed. It has been attempted here
merely to indicate the principal additions which have been
made to the second edition of this standard work. A fuller
consideration might be more appropriate when the English
reader can be referred to chapter and verse in a translation;
which we earnestly hope will soon be forthcoming.

Istituzioni di Scienza delle Finanze. AUGUSTO GRAZIANI.
      (Torino : Bocca. 1897. Pp. 715.)

THE scope of this work is theoretical. The description of
actually existing taxes is introduced in order to illustrate the
general principles of taxation. This combination of the concrete
with the abstract is very happy. Especially with respect to
the finances of Italy, the reader obtains much valuable informa-
tion, enhanced by being, as it were, set in a frame of theory.

The author is conversant not only with the theory and the
facts, but also with the literature of finance. Both in the chapter
devoted to the history of the science and throughout the work
are to be found instructive references to writers whose names
will be new to most readers. Particularly serviceable are his
lucid statements of the views held by Dutch and German
economists, and all whose language or style may render them
inaccessible to the general reader.

To learning Professor Graziani adds logical acumen. He
possesses in a high degree the quality which a great Austrian
economist has called in a good sense " casuistry." For instance,
the new remarks (p. 45) on the old question whether services can
be accounted as wealth claim attention. In the spirit of the
Germans our author distinguishes between a tax and an impost
(p. 245).

" While the tax corresponds to a special service received from
the State, the impost is a contribution for the general assemblage
(*raggiungimento*) of public objects, and is not referred to any
individual service conferred by the community (*consorzio colletivo*)
on him who pays the impost."

Possibly, as Leon Say has remarked, all these logical dis-
tinctions never brought a penny into the Exchequer. Yet they
serve to cultivate a dialectical power which is adapted to the
subject. What confident assertions we have lately heard on
one side or the other of the question whether money spent by
Government on and in Ireland should be set off against her

imperial contribution ! It requires a little philosophy to perceive that such questions are not so simple as they look.

The most important ἀπορία in the philosophy of taxation relates to the proper distribution of the burden. Our author has brought all his powers to bear on this fundamental question. He criticises his predecessors with great force. Thus, with respect to the principle posited by Cohen-Stuart and other Dutch writers, that the proportion between the utility which one forgoes by having to pay taxes and the total utility obtained from one's income should be the same for all the tax-payers, Professor Graziani pertinently asks : Why postulate this proportionality, and not the equality of sacrifice ? His own principle somewhat resembles that of equal sacrifice; in fact, we have not seized the points of difference which he has indicated (p. 305). He thus states his first principle (p. 52) :

" The distribution of public burdens should be effected in such wise that each one obtains the greatest possible relative utility, and that the value of the wealth subtracted by the tax should be the same for each one " (p. 52).

" Relative utility," it should be explained, means much the same as, in Professor Marshall's phrase, " consumers' rent " (p. 50).

As we understand, Professor Graziani accepts the analogy between the sacrifice which the taxpayer incurs for the sake of public objects, and the sacrifice which the ordinary purchaser incurs for his private ends. He thus resumes his doctrine (p. 301) :

" We know that the tax tends to take away from each and all that quantity of wealth which they would each have voluntarily yielded to the State for the satisfaction of their purely collective wants, and that this quantity . . . should represent for all the same total utility, so as to secure to each the greatest relative utility."

The further explanation of the author's meaning would probably repay a sympathetic critic. We have been discouraged by the preconception, that in order to judge of such a relation as that between maximum utility and equality some mathematical precision is required. But this is the one quality which may seem to be deficient in our author's otherwise complete equipment.

It is interesting to inquire in the case of so considerable an economist how far this deficiency is serious. Accordingly we shall examine in some detail our author's treatment of that part

of the subject which most admits of pure reasoning, namely, the shifting of taxation. In the case of monopoly we have the following argument (p. 335) :—

" Let it be supposed that at the price of 5 [francs] per piece a monopolist can sell 1,000 units of his product, that each of these is attended with a cost of production of 2 francs, and that accordingly he obtains a gross return of $5 \times 1,000 = 5,000$ francs, and a net return of $(5 - 2) \times 1,000$ francs $= 3,000$ francs. Let it be further admitted that any other price, greater or less, than 5 gives a net return below 3,000 francs; it is certain that he will adopt the price of 5 per piece. Such being the circumstances, the State imposes a tax of 1 franc per piece; then the net return per piece is reduced to $5 - 3 = 2$, and the net total return is reduced from 3,000 to 2,000 francs. Now, if at the price of 6 per piece the consumption of the product falls to 700, as the cost per piece is 3, the net return is equal to $700 \times (6 - 3) = 2,100$. Granted that this is the highest net return that the new conditions admit, the monopolist will abandon the price 5, which enables him to obtain a net profit of 2,000 francs, to adopt the price 6, which enables him to obtain a clear profit of 2,100. Contrariwise, if the tax were $\frac{1}{4}$ franc, the cost per piece would increase from 2 to $2\frac{1}{4}$; the net profit resulting from the price 5 descends from 3,000 to $(5 - 2\frac{1}{4}) \times 1,000 = 2\frac{3}{4} \times 1,000 = 2,750$, while the clear profit [*lucro reale*] resulting from the price 6 would be $(6 - 2\frac{1}{4}) \times 700 = 3\frac{3}{4} \times 700 = 2,625$," and *admitting that the other prices yield profits likewise inferior*, the price 5 would be maintained."

The admission which we have italicised being made, the consequence alleged by the author would of course follow. But the admission is inadmissible under the circumstances. For if, when the cost per piece is 2, there is a maximum of profit at the price of 5, then, when the cost per piece is raised to $2\frac{1}{4}$, the price which yields maximum profit becomes greater than 5.[1] That this other price yields profits inferior to what 5 (after the imposition of the tax) does is in general inadmissible.

Professor Graziani proceeds (p. 355) :—

" The monopolist can never shift the tax *in toto* ; but he succeeds in shifting it in part and diminishing its burden."

The question here arises, How is the extent of shifting to be measured ? The answer which the author would give is, pre-

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[1] See this point proved formally and mathematically by Cournot in his *Principes Mathématiques*, Art. 31; informally and in plain prose by the present writer in a recent number of the ECONOMIC JOURNAL (Vol. VII. p. 229).

sumably, by the addition to the price consequent on the tax.[1] This answer seems consistent with his general view, and with those particular passages (pp. 337, 338) in which he impugns Professor Seligman's statements. When asserting the contradictory of those propositions, he implies that he takes the terms in the same sense. Now, Professor Seligman, as I understand, would measure the degree in which the tax is shifted as I have above proposed.[2]

Thus interpreted, the proposition above quoted cannot be accepted. For the price may be raised in consequence of the tax, not merely by a part of the tax, but to the full extent of the tax, and even to an extent greater than the amount of the tax.[3]

Professor Graziani goes on (a few lines further down, page 336) :—

" There may, therefore, be established a partial shifting of the tax, which will be the more probable the greater is the diminution of cost attending the diminution of the gross return." [4]

We are unable to interpret this proposition in any sense which is true. It purports, presumably, that the extent of shifting is greater [or less] according as the rate at which the cost of production decreases with the decrease [or increases with the increase] of the amount produced is greater [or less].[5] But the greater that this rate is, the *less* is the degree of shifting (measured as above). There is a repugnancy where Professor Graziani thinks that there is a parallelism.[6]

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[1] The extent of shifting might conceivably be measured by defining that there is more or less shifting according as the loss to the monopolist, consequent upon the tax, is less or greater. But this does not appear to be the definition adopted by the author. It may be worth observing that some, but not all, of the propositions mentioned in the text as false in the primary sense of the term " shifting " would be true in this secondary sense.

[2] See Seligman, *Shifting and Incidence*, p. 161 (referred to by Professor Graziani at his p. 338) : " The degree to which he [the monopolist] will add the tax to the price " . . . and pp. 151, 152 (alluded to at p. 161).

[3] Cournot, *Principes Mathématiques*, Arts. 33 and 38. *Cp.* ECONOMIC JOURNAL, Vol. VII, p. 227.

[4] Può dunque verificarsi una translazione parziale dell' imposta, la quale sarà tanto più probabile, quanto più diminuiranno i costi, rispetto alla diminuzione del prodotto lordo.

[5] *I.e.*, the rate at which Cournot's function $\phi'(D)$ [*loc. cit.*, Art. 29] increases with D.

[6] Designating, with Cournot, the amount produced by D and the expense of production by $\phi(D)$, we have by his reasoning, for δD, the variation in the quantity produced, consequent on the imposition of the tax of u per piece, $\delta D = u \div \left(\frac{d_2}{dD^2}D \times p - \phi''(D)\right)$ where p the price is of course a function of D. *Ceteris paribus* the variation of D decreases with the increase of $\phi''(D)$ (the rate of

Professor Graziani goes on (p. 336) :—

" If the demand approaches conditions of relative stability, a partial shifting [*la ripercussione parziale*] is probable."

If we are to understand by " conditions of relative stability " what Professor Marshall has called " inelasticity," then the proposition asserted appears to be the reverse of the truth. The more that the demand approaches perfect inelasticity,[1] the *less* is the increase of the price, *ceteris paribus*.

Professor Graziani may appear here and elsewhere to have fallen into a confusion not surprising in one who considers " the mathematicians—Cournot and the others—less important." [2] It is assumed that the conditions which favour the elevation of the price before the tax favour also its additional elevation after the tax. But the presumption is the reverse. The more the monopolist exacts before the tax the less he can exact after the tax. To take an extreme case : Suppose the monopolist to be a sole buyer, and those with whom he deals to be under the necessity of selling without a reserved price, the monopolist will exact the worst possible terms from the seller, will buy at nominal price, and accordingly will have to pay the whole tax. Analogously, the inelasticity of demand favours the elevation of the price prior to the tax, but not the shifting of the tax.

Professor Graziani next discusses the incidence of a tax on the gross returns of the monopolist. He says (p. 336) :

" We must distinguish two possible cases. It is well known that the price which is adopted by the monopolist is that which, taken in conjunction with the extent of consumption, procures him the greatest possible net return. Now it may happen that the price which allows him to obtain the maximum net return coincides with that which enables him to attain the maximum gross return ; but also it may happen that the price which secures the monopolist the maximum net return is not the same as that

increase which we understand Professor Graziani to designate), it being remembered that the expression in brackets which forms the denominator of δD must be *negative*, as the profits of the monopolist were at a maximum before the tax (*cp.* Cournot, *Principes Mathématiques, loc. cit.*). Whence it follows that the greater [or less] the rate designated as ϕ''(D) the less [or greater] is the diminution of the amount produced, and therefore (*ceteris paribus*) the less [or greater] the increase of price which is the measure of the degree of shifting.

This reasoning is independent of the sign of ϕ''; and it may therefore be employed to prove that *ceteris paribus* the shifting is greater under the law of increasing returns than under the law of decreasing returns.

[1] The smaller (in absolute magnitude) the F'(p) of Cournot, the less *ceteris paribus* is δp. See Cournot, Art. 31, equation 4, and the corresponding equation in Art. 38; and compare ECONOMIC JOURNAL, Vol. VII. pp. 227–8 note.

[2] ECONOMIC JOURNAL, p. 325 note, *cp.* p. 327 note.

which secures him the maximum gross return.[1] . . . On this last hypothesis shifting is impossible.[2] . . . But if, on the contrary, the maximum net return corresponds to the maximum gross return, it may happen that the monopolist may find it advantageous to alter the price."

The *second* hypothesis is the general case. In this case, according to the well-known analysis of Cournot, shifting will in general occur. It is difficult to understand Prof. Graziani's reasoning to the contrary. It is in virtue of his dictum respecting the *second* hypothesis that we altogether differ from his general conclusion that normally a tax on gross returns cannot be shifted. Surely it is not so normally, but only in particular cases.

One more specimen of the author's method. He argues on the next page (p. 538) that " the more in general that a branch of production is subject to the law of decreasing returns the more probable will shifting be." We submit that the exact reverse of this is true for reasons stated elsewhere.[3]

A similar, doubtless less serious, deficiency of mathematical precision may be suspected in the treatment of other less complicated, though perhaps more important, subjects—the incidence of international tariffs, and, as already suggested, the equity of taxation.

Leerboek der Staathuishoudkunde. Door N. G. PIERSON. Tweede
  Deel; 1e stuk. Tweede herziene druk. (Haarlem : E. F.
  Bohn. 1897. Pp. 376.)

THE second volume of Mr. Pierson's revised treatise maintains the high character of the first.[4] His solid sense and weighty learning move steadily along the main lines of economic reasoning like those vast engines which rolling over our material high roads render them more smooth, compact, and serviceable. We cannot follow his course methodically ; we must pass hurriedly over large tracts.

[1] The explanation of this phenomenon is thus given in the original : " in quanto la diminuzione delle spese inerente ad una produzione minore, od in taluni casi anche maggiore, cangi il rapporto fra il provento lordo e il netto."

[2] For a reason which is thus given in the original : " perchè l'imposta essendo regolata sul prodotto lordo, che è più grande relativamente al prodotto netto minore, da questo dovrebbe detrarsi maggior somma, che dal prodotto netto maggiore, et perciò il prezzo non verrebbe in alcuna guisa mutato."

[3] ECONOMIC JOURNAL, Vol. VII. p. 237 note; and see Index, s.v. *Monopoly*; Taxation in regime of.

[4] See above, p. 77.