But how far does the reasoning of Adam Smith and his disciples require to be modified when the traders under consideration are not competitors aiming each at his own maximum profit, but agents of a foreign State aiming at the expansion of that State, and in combination with each other and the State employing discrimination between customers and other practices not contemplated in the classical theory of competition? Economic theory is based upon presumptions as to the normal conduct of business. Now, "these presumptions," as Professor Pantaleoni puts it, "are founded on experience. Accordingly, when experience shows that the character of others has features of which we were before ignorant, we should take account thereof in our conduct for the future. . . . Not without profound modifications in our manner of thinking and feeling, and consequently in our conduct, experience will have taught us that it is dangerous to devote ourselves to the arts of peace while a neighbour is preparing for war, that it is foolish to trust to treaties if the neighbour values them as 'scraps of paper,' . . . that even in time of peace there is possibly a penetration by foreigners anticipating or preparing for war [*prœbellica*] while clothed in the delusive forms of commerce and industry."

The Application of Official Statistics to Economic Problems. By J. C. Stamp. (London: P. S. King, 1916. Pp. 538.)

At least two reviewers would be required to do justice to the diverse merits of this work, which combines minute description of official regulations with comprehensive views on fiscal policy. We do not feel competent to appraise the accuracy of the descriptions. We shall, therefore, advert with some reservation to that large portion of the work which is devoted to the exposure of fallacies due to imperfect knowledge of details. With more confidence we shall praise the author's skill in handling figures and his subtlety in the treatment of economic and social problems.

Following an order suggested by these distinctions we begin by observing that the information compiled by Mr. Stamp will be useful and interesting to various classes of readers. The theorist who aims at reconstructing the income-tax so as to effect an ideally perfect graduation may find that it is not so easy as it seems on paper to shape the rough material of official statistics into forms of mathematical elegance. The tax-collector and all concerned with the administration of the income-tax will be assisted in the exercise of their functions. They will realise the truth of the maxim laid down by historical economists, that in order to know what an institution is, you must know how it came into being. Our meaning may be illustrated by reference to Mr. Stamp's description of the successive phases which have been passed through by the allowance for repairs under Schedule A, or the construction of farmers' incomes under Schedule B or D, or abatements and exemptions generally. The historical retrospect is sometimes carried back to the early years of the tax. The statistics of Pitt's income-tax are interesting as the only example in this country of compulsory returns for all incomes. But Mr. Stamp seems to think that not much is to be learnt with reference to the distribution of income at the present day from statistics relating to a period so remote, and perhaps not even then accurate.

Mr. Stamp has employed his immense knowledge of details to detect errors occasioned by want of such knowledge. He thus gives a new and impressive confirmation of the maxim that figures without facts—the statistics of one who is not conversant with the subject-matter—are illusory. One who taught that lesson last century, Lucas Sargant, in his collection of the "Lies of Statistics," gives an instance which typifies not a few of the errors now under consideration. The deterioration of the race in large towns was argued on the strength of statistics which were interpreted to mean that "there are more than twice as many children born to each country-dwelling pair as (than) are born to each couple in Manchester." On examination it proved that the number of births given related not to married couples, but to *marriages solemnised* in Manchester and elsewhere. As Sargant puts it somewhat coarsely: "Couples came into the city to be married and went back to breed." Similarly the statistics for Schedule E of the income-tax, given separately for London, the rest of England, and Ireland indicate only where the assessments are *made*, not where the officials carry on their duty. The conclusion drawn by eminent Home-Rulers that the number of officials in Ireland was (in 1909–10) 4,397, but in Scotland 944, is absurd. Their reasoning would prove that "while it required 944 officials to manage Scotland and 4,397 to manage Ireland and 82,896 to manage London, all the rest of England was managed by nobody" (quoted by our author from Samuel's *Home Rule*). So under Schedule D the investments of Irishmen in Irish companies are assessed not infrequently in London. The comparability of assessments relating to different times is rendered dangerous by changes in the proportion between gross assessment and the true income which remains after deduction of items figuring in the assessments. Well do the authors of the Inland Revenue Reports warn their readers against " an implicit reliance upon the inferences which the mere figures appear to warrant." The mere terms are equally deceptive. " Private dwelling-houses," in the terminology of Somerset House, include many kinds of premises which would not commonly be thus denominated. A " farmhouse " is an equally deceptive term. The amateur is puzzled by distinctions without any apparent difference; for instance, a Wesleyan or a Presbyterian minister is assessable under Schedule E, whereas a Baptist or Congregationalist is assessable under Schedule D. In short, there are pitfalls everywhere; and few there are who do not fall into them. A list of those who have not escaped these dangers would include some of the most distinguished names in the roll of economic honour. Baxter, Bonar, Colson, the *Economist*, Giffen, Goschen, Leone Levi, W. R. Lawson, Mallock, Palgrave, W. H. Price, Shaw-Lefevre, Snowden—they have all gone astray and fallen short of our author's high standard of statistical perfection. One name only among those that are frequently cited by Mr. Stamp is conspicuous by its absence from the black list which we have compiled. We trust that we have not presumed an exception where none exists; that Mr. Stamp would not disallow our interpretation—like the guidwife who, when twitted with professing a doctrine so narrow as to include among the elect only herself and her guidman, replied that she was " nae so sure of John." The position of John is possibly occupied by Dr. Bowley, not so much on account of his treatment of statistics as his treatment of official statisticians. To the strictures which have been made by Dr. Bowley and others upon the statisticians of Somerset House, Mr. Stamp replies : " Many of the criticisms urged against the income-tax statistics show a real failure to appreciate the genuine difficulties of the subject and its intractability for ordinary treatment. . . . Any one who imagines that a taxed ' income ' is—or *can* be—under the most ideal system, a simple objective fact like a death or a bale of goods or a cheque or a railway mile . . . is asked to devise . . . a scheme of taxation which shall fit all the complexity of modern life like a glove, pay over taxes without irritation, hesitation, or evasion, and yield statistics that a babe can handle."

Here naturally arises the question whether the author has himself committed any fallacies of the kind which he condemns in others. We can only say that we have been unable to detect any more serious slips than the following. First, we have to complain that our author sometimes uses a term or figure without any concurrent or previous explanation of its meaning—like an inattentive host who puts you beside a stranger without an introduction. You may perhaps find out in the course of conversation to whom you are talking; eliciting by an inductive process what you would like to have been told at first. For instance, we read at page 90, with reference to a change in the method of assessment for Schedule B, "The most frequent pitfall brought about by the change in method is in the comparison of aggregate assessments without allowing for the break of £37,000,000." Do we read before or in the immediate context anything about this figure thus mentioned as if it were familiar? It is not till on a later page (p. 288, referred to, indeed, at the passage quoted) that we find that £37,000,000 is an allowance made in one particular instance of the "pitfall" described generally in the passage quoted. Again, at page 340 allusion is made to "two preceding sets of figures," which no doubt do precede in the journal which is quoted, but in our author's version have to be interpreted by means of the table on a subsequent page (p. 342). On the latter page the reference to "this Royal Commission" is not very helpful, as a number of matters have intervened since the mention in an earlier page of the "R. C. on Agricultural Depression." The most serious instance of this sort of ambiguity is the use of the symbol $\pm$ which occurs early and often in the book. No doubt the practice of statisticians justifies and explains the use of the symbol to denote "probable error." But, on the other hand, Dr. Bowley, in an Address to which Mr. Stamp has particularly referred, uses the symbol in a somewhat different sense, to denote not the error which is as likely as not to have been committed, but the error against the commission of which the odds are about two to one. Further, Mr. Stamp employs the symbol in connection with the phrase, "range of doubt" (p. 405). There appears to us to be a range of doubt as to the meaning of this phrase. It might well designate not the "probable error," but an improbable one, so large as to be practically impossible, say four times the probable error as usually defined. Compare Mr. Stamp's expression, "margin of possible error" (p. 13). We were in real doubt as to the author's usage of the symbol until we found it almost at the end of the book used in connection with the term "probable error." One or two other ambiguities are due to misprints of the kind which makes, not nonsense, but an absurd sense, which might conceivably be attributed to the author. A mistake of this kind was made in printing the beautiful line in which Tennyson includes all the varied subjects of Virgil's *Georgics* :—

> "Thou that singest wheat and woodland, tilth and vineyard, hive and horse and herd."

One may imagine how annoyed the poet was to find that the printer, puzzled by the unfamiliar word "tilth," but presuming that it had something to do with agriculture, had put down "tithes." With similar feelings Mr. Stamp will find at his page 368 among the estimates of rents paid to absentee Irish landlords, 1691, £136,000; 1729, £627,799 (prior); . . ." A hasty or uninformed reader might interpret the parenthetic "prior" as denoting the period *previous* to 1729. But, of course, the reference is to Thomas Prior, the author of *List of Absentees of Ireland*. Again, at p. 83 and context, Mr. Stamp is arguing that though the farmer in Scotland used to pay only a third of the gross assessment, while the farmer in England paid a half, there was not so much difference, there tended to be an equality in the real burdens of the tax, since *ceteris paribus* the gross assessment was larger in Scotland. A misprint of "3" for "2" (at line 2 of p. 84) makes him appear to verify the argument by falsifying the arithmetic. Such are the only errors which our unusually severe scrutiny has detected. They are of a kind which can be altered by a stroke of the pen, and will no doubt disappear in a second edition.

Mr. Stamp does not confine himself to the negative result obtained by refuting fallacies. He is not like the officials of whom Dr. Bowley complains, content as it were to erect boards warning statisticians and journalists that there was Danger. Mr. Stamp has mended the public roads, so that, if we may use the language of prophecy, in future the way-faring men shall not err therein, "though fools," or at least though not as wise as Giffen and others for whom the old, unmended highway proved unsafe. One of our author's most useful tasks is to "purify" the figures in such wise as to allow of the comparison between incomes at different periods. Thus, under the head of "Taxable Income" he shows (Table G, 4) the true comparative series of figures computed first on the conditions of 1871 to 1893 (with £150 exemption limit and no repairs allowance); and secondly, on conditions since 1894 (£160 exemption limit and repairs allowance); in place of the official figures hitherto generally used for comparative purposes, but not properly adapted for such use. It would be interesting to exhibit the difference in the rate of growth presented by the different methods of computation. For a beginning, we find that, taking the three years 1853–4, 1854–5, 1855–6 as a base-period, with index-number 100, the index-number for 1913–14 is, according to the official figures, 378; according to Mr. Stamp's first computation, 450; according to his second, 469. In the construction of tables adjusted so as to exhibit consistent sequences Mr. Stamp occasionally used mathematical methods of interpolation; but in many instances he thinks "they do not give results so consistent and accurate as a freehand method which follows, on a technical instinct, the trend of each series of figures, and duly observes the numerous checks and limits afforded by other branches of the statistics." He employs mathematical constructions of a simple style appropriate to the character of his materials—less perfect than biological and physical statistics. Thus he makes frequent use of "Pareto's law," representing the distribution of incomes. He has employed an interesting method for obtaining a datum required in one of his ingenious investigations on the distribution of income and related subjects. In order to find that amount of rental which makes it an even chance that an occupier of a house of that rental should have an income of £160 or more the author put the question to many official acquaintances, and thus obtained forty "semi-statistical" observations, the grouping of which allows us to accept with confidence the average £28 10*s*. as the required figure. We notice that in the problem of determining the relation between income and house-rental Mr. Stamp has derived much assistance from the unpublished statistics of his friend Mr. Cowcher. We hope that these tantalising statistics will not remain unpublished.

The logic of statistics is applied by Mr. Stamp to economic and social problems, in conjunction with other powers, the organon of economic theory, and the speculative instrument of greater delicacy which is required for adjusting the burden of taxation, considered not merely as an arithmetical problem, but, as Mill says, having regard to the "wants and feelings" of the taxpayer. Thus, in order to determine the taxable capacity of Ireland, one of the problems treated by Mr. Stamp, the first step is to ascertain the ratio between the respective national incomes of Great Britain and Ireland regarded as numerical quantities. Mr. Stamp's scrutiny of the relevant income-tax statistics brings to light the surprising circumstance that advocates on the side of Ireland have under-rated her claims. They have used the gross assessments, the total incomes reviewed for the two countries as data for the determination of the required ratio; not noticing that the proportion of (gross) Schedule A (and B) bears a much higher ratio to the total in Great Britain than it does in Ireland, and that this difference is significant because Schedules A, B include the *whole* gross income from land and property, while in the other schedules the *exempt* income, for the most part does not figure. Making the required correction, Mr. Stamp finds that the ratio which Professor Oldham, on the basis of the gross figures, gives as 25 to 1 ought to be, in respect of this correction, 29 to 1. But this is not the only correction required. A more serious mistake has been committed (with respect to the older figures) in treating the assessments in Schedule B as representing *incomes* instead of annual values representing three times the taxable incomes. But even if we could ascertain the true proportion between incomes we should still be far from having determined the contribution which may properly be demanded from Ireland. What alleviation is required by the circumstance that a large portion of the Irish rental—one-third, according to Lord Milner—goes to England, and that another large fraction of the annual value of Irish land goes as interest to the Treasury or to English lenders? Mr. Stamp argues ingeniously that this circumstance would make no difference if the whole revenue were raised by the income-tax. But so far as the revenue is not raised by income-tax, or other taxes *shiftable to absentee consumers*, the drain must be allowed for in judging of the taxable capacity of Ireland. A more speculative question is raised when it is contended on the one side that the Irish surplus above the minimum of subsistence is less, and on the other side that the minimum required for subsistence and efficiency in Ireland is less than the corresponding amounts for Great Britain. Mr. Stamp, after weighing the arguments of Giffen and Sidgwick, Sir C. Hamilton and Professor Bastable, concludes: "For my own part I think that although the adjustment [made by Giffen and others in favour of Ireland] may be criticised, they contain a much smaller net error than the unadjusted figures and give a closer approximation to the truth." A cognate difficulty is raised by the question: What weight is to be attached to the circumstance that a larger proportion of the Irish taxable income is made up of small incomes, which, according to the existing system of abatements, are taxed at a lower rate? Mr. Stamp well says "it is a mathematical corollary from the marginal and progressive principles that the capacity of wide extremes is greater than that of [a set of incomes with] the same average distributed more evenly." He proposes as the best method of giving effect to this principle "to divide the total gross assessed income by the total duty paid in respect of it and obtain a factor which will be low if there are many rich people and high if there are not." The reciprocal is then to be used as a multiplier for the totals (after they have undergone a certain adjustment).

Statistical methods principally are required for another of the problems discussed, to determine the value of land over a period of years. In bringing under our notice the extremely discrepant estimates of site value made by good authorities our author may have had in view the speculative difficulties connected with the subject which he has considered in his article on Land Values and other articles in the ECONOMIC JOURNAL.

National Capital would require only statistical methods for the measurement of its amount if capital consisted only of material objects, business fittings, machinery, or—with reference to the classes who do not pay income-tax—workmen's tools or costermongers' carts. And we are still in the region of objective statistics while we follow Mr. Stamp's acute disquisition on the "multiplier" proper to discover the total amount of property from the statistics of the estate duty. But what are we to say about the variation in the capital value of objects corresponding to changes in the rate of interest? In what sense has the value [of land] diminished from 2,000 millions in the 'seventies to perhaps 1,000 millions at the present time? The "Giffen method" does not take into account prospective increase of productivity; as pointed out by our author in the *Journal of the Royal Statistical Society* last year. Again, the Giffen method does not take account of non-tangible wealth, personal capital invested in doctors, teachers, and preachers. "A very real step forward in the national well-being may take place while the Giffen measurement is stationary." Then there is the value of *living capital*, estimated as some five times the value of dead capital by Professor Nicholson in a well-known article in the ECONOMIC JOURNAL for 1891 (on "Living Capital," *not* on "Strikes and Social Problems," as misprinted in the work before us). Mr. Stamp's comment on these refinements is characteristic. "Except as a warning that the Giffen valuation cannot give the full story of national welfare, these considerations of an ultimate character are of doubtful value in relation to the practical aims of that valuation, because they complicate and diffuse the ordinary issues."

So with respect to the " National Income " he seems to consider that the figures representing exchange value are " sufficiently stable and homogeneous . . . for all ordinary purposes "; while fully admitting the justice of Dr. Bowley's remark as to the difficulty of attaching a perfectly definite meaning to the term " total national income." As Mr. Stamp points out, " the marginal significance of £1 to a rich man is different from what it is to a poor man; therefore, it is fallacious to say that a service that is *rendered only to rich men* is equal to and exchangeable for *a service that is rendered only to poor men,* simply because each costs £1 in money." Very felicitous is Mr. Stamp's reply to the common objection that " when a rich man with £20,000 a year employs a secretary at £500, and the secretary employs a gardener at £50, it is fallacious to reckon the aggregate income at £20,550." But, replies Mr. Stamp, " the services of all three *exist* and are measured in money terms at these values. One might as reasonably say that there is only one Japanese box because all the smaller ones fit inside it one within the other." The part played by usage and convention in settling the denotation of the term " income " is thus happily illustrated: " We do not regard the ' annual value ' of our furniture as part of our incomes, but if it were a general custom to hire furniture by the year . . . we should probably look at the matter differently. . . . If A at Reading lets his furnished house to B from Brighton, and takes a furnished house from C at Torquay, who in turn lives in B's house, the real position is not changed, and yet the taxed incomes go up by three rentals of furniture ! " The passage recalls the acute remark made on an earlier page that one who rents a park or " beauty farm," which yields no produce beyond the satisfaction of looking at it, pays an income-tax under Schedule B, which is not a tax on profits, but akin to a carriage licence—a unique feature in the income-tax.

Such subtlety of thought is not often associated with a mastery of the details of office.

National Power and Prosperity: a Study of the Economic Causes of Modern Warfare. By Conrad Gill, M.A., with an Introduction by George Unwin, M.A. (London: T. Fisher Unwin. Pp. 181). 1917.

Mercantilism as it flourished in the past, as it survives in the present, and the trade policy by which it should be replaced in the future—such are the large topics on which Mr. Gill discourses