



WILEY

Review

Author(s): W. F. S.

Review by: W. F. S.

Source: *Journal of the Royal Statistical Society*, Vol. 78, No. 2 (Mar., 1915), pp. 307-309

Published by: Wiley for the Royal Statistical Society

Stable URL: <http://www.jstor.org/stable/2340616>

Accessed: 27-06-2016 07:43 UTC

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at

<http://about.jstor.org/terms>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Royal Statistical Society, Wiley are collaborating with JSTOR to digitize, preserve and extend access to *Journal of the Royal Statistical Society*

that of 1897 and trebled again in 1899, sinking in the following year. Careful examination showed no increase in mercury production during the years 1898-99 to account for the rise, and the explanation proved to be the following: In 1898 a new medical officer was appointed as assistant to the old one. The latter censored the notifications—returning indeed fewer cases on behalf both of his colleague and himself than did the latter on his own account. In 1899 the new medical officer was in sole charge, and returned every case of gastritis and enteritis as due to mercury poisoning. Subsequently he modified his views, returning only moderate or severe cases as due to mercury, while the mild cases dropped out of the notification lists altogether. Further, after 1899, the physician seems to have returned slight cases of mercurialism as neuralgia, the notifications of which were few in 1899 and 1900 but increased rapidly thereafter. We think this section of Dr. Teleky's book will be of much value to the student of foreign sickness insurance records.

The English reader who entertains the belief that German is a cumbrous language, prone to lengthy and involved sentences difficult and wearisome to construe, will not be induced by a perusal of Dr. Teleky's flowing periods to change his opinion. M.G.

5.—*Report on the English Birth-rate. Part 1. England North of the Humber.* By Ethel M. Elderton. viii + 246 pp., 4to. London: Dulau and Co., 1914. Price 9s. net.

The plan of this work is to pass in review all the English registration counties north of the Humber and their constituent units. Changes in the birth-rate are shown diagrammatically and with the aid of statistical coefficients, and a comparison between the actual birth-rate and the potential fertility of the district, estimated by Tait's method, is provided. Statistics of housing and industry are generally given, together with verbal accounts of the conditions furnished by local correspondents. In the concluding sections, the relation between the fall of the birth-rate and industrial or social changes are studied. Miss Elderton's general conclusions as to the cause of the declining birth-rate are in agreement with those usually drawn from the evidence provided in the recent reports of the Registrar-General. Her detailed inferences and suggestions have also been foreshadowed in various publications by her colleagues and herself. The work, which must have involved an enormous amount of labour, is a solid contribution to the literature of social statistics, and should be in the hands of all students.

M.G.

6.—*Modern Instruments and Methods of Calculation; a handbook of the Napier Tercentenary Exhibition.* Edited by E. M. Horsburgh, M.A., B.Sc., Assoc.M.Inst.C.E. 343 pp., 1a. 8vo. London: G. Bell and Sons, 1914. Price 6s. net.

The tercentenary of the publication, in 1614, of Napier's *Mirifici Logarithmorum Canonis Descriptio*, was celebrated at

Edinburgh in July 1914 by an exhibition and a series of meetings for discussion. The handbook of the Exhibition, prepared by Mr. Horsburgh, has now been placed on sale, at a very low price.

In addition to a short sketch (pp. 1-16) of Napier's life and works, by Prof. G. A. Gibson, and a list of exhibits of antiquarian or historical interest, the handbook contains a very full description of slide-rules, calculating machines, planimeters, harmonic analysers, ruled papers, and other items of equipment of a mathematical laboratory; and also a useful list, partly based on Dr. Glaisher's article in the *Encyclopædia Britannica*, of mathematical tables.

To statisticians the sections of particular interest will be those dealing with Slide-Rules (pp. 155-180) and with Calculating Machines (pp. 69-135) respectively. The various instruments are not only described but illustrated, and in a good many cases the mechanism is explained.

For multiplication, division (*e.g.* calculation of percentages), extraction of square root, &c., where accuracy of three or four significant figures is sufficient, a slide-rule is useful. For scientific treatment of statistics, greater accuracy than this is required, and a machine is almost indispensable. The detailed descriptions in this volume are therefore of practical value, apart from their scientific interest.

Most of the machines used for multiplication or division are really addition or subtraction machines; multiplication being effected by successive additions. The Millionaire, or Steiger-Egli, appears to be the only true multiplying machine; in this the multiplication of a number by (say) 3542 requires only four turns of a handle, instead of $3+5+4+2=14$ (with three shifts), but against this advantage has to be set the disadvantages of increased bulk, &c. The ordinary adding machines are worked by a keyboard or by a handle. In the key-machines the pressure on the keys may set the quantity to be added (Burroughs) or may actually perform the operation of addition (Comptometer). In the crank-machines the handle turns in a vertical plane (Brunsviga, Colt), or in a horizontal plane (Archimedes, Layton-Tate, Mercedes-Euklid, Thomas). The choice between horizontal and vertical action is largely a matter of individual preference.

The first machine to perform multiplication by successive additions was designed by Leibnitz in 1671; but it was not until 1820 that the Thomas de Colmar arithmometer, the first satisfactory one of its kind, was brought out. It is, however, only in recent years that there has been an introduction of new varieties of machine, each more or less suited to special needs. The perfect machine, even for simple multiplication and division, does not appear to have been yet produced. It should be light, quiet, small enough to be placed on an ordinary desk without being in the way, and yet durable; and it should also be inexpensive. Further, as Mr. F. J. W. Whipple points out in an interesting general note on calculating machines (pp. 69-75), which should be read in connection with the more detailed individual descriptions, there should be

more possibility of automatic operations, so that, the "sum" being set on the machine, motive power alone (which could be produced by an ordinary electric current) should produce the result.

The variety of machines is increased by the necessity of making provision for the British money system.

The descriptions of the instruments referred to above form only a portion of the contents of this valuable work. To illustrate the wide range of its interests, mention may be made of the note on the development of calculating ability, by Dr. W. G. Smith (pp. 60-68), and of Dr. C. G. Knott's full description (pp. 136-154) of the soroban, the Japanese abacus. W.F.S.

7.—*Work and Wages*. Part III. *Social Betterment*. By Sydney J. Chapman, M.A., M.Com., with an Introduction by Earl Brassey, G.C.B., D.C.L., LL.D. viii + 380 pp., 8vo. London: Longmans, Green and Co., 1914. Price 9s. net.

In this third part Professor Chapman "completes," as Lord Brassey states in a short Introduction, "the task," undertaken at his instance some ten years ago, "of collating and comparing the "cost of labour, the problems of wages and unemployment, and the "conditions of life for the great body of workers, at home and abroad." Combined with two preceding instalments, published in 1904 and 1908, and dealing with Foreign Competition and Wages and Unemployment, the present book, concerned with Social Betterment, is the crown of a considerable achievement. The work as a whole has reached the size, and it deservedly possesses the importance, of a new comprehensive treatise. A mass of useful information, carefully collected, skilfully sifted, judicially examined and appraised, and forcibly presented, has been gathered together. It is now in a shape in which it will be conveniently consulted by economic students and social reformers. Originally designed to furnish a sequel, brought up to date, of Lord Brassey's *Work and Wages* and *Foreign Work and English Wages*, Professor Chapman's "researches" "have gone far beyond the scope" of the earlier inquiry. The veteran author of those books, which won a deserved repute a generation or so ago, alludes, in his Introduction, with a gratitude that others will share, to the "wide and masterly sweep," specially manifest perhaps in this concluding portion, by which his successor's handling has been characterised. We offer our congratulations on the final fulfilment of an enterprise that must have occupied much time and entailed no small amount of toil and care.

The extended range and copious comprehensive detail of Professor Chapman's discussion of the topics treated reflect the increased notice given to such questions in the interval. Private effort and State action have been at work grappling with difficulties, removing hindrances, and altering conditions, or even causing a complete transformation. This is, perhaps, particularly the case with the wide sphere of "social betterment." Lord Brassey's works indeed formed an attractive story mainly because they made