

the author in respect to the work done during the past fifty to sixty years by Scandinavian, Russian and Italian statisticians, although much of this work is superior to that of the Pearsonian school.

Miss Walker, as a matter of fact, seems to have followed a bit too closely in the footsteps of the English biometricians. Professor Karl Pearson, unfortunately, does not rank as a high authority on historical matters where it often becomes necessary to combine fervent sympathy with glacial judgment. The eminent Englishman has plenty of fervor, bordering on the verge of eloquence, as it were, but the glacial historical judgment seems to be lacking.

Certain critical references by Miss Walker on Todhunter's description of the work of De Moivre appear to have been influenced by some of Pearson's vigorous editorials in "Biometrika." To the present reviewer Pearson's criticism of Todhunter seems picaresque, if actually not unjust and faulty.

We all are biased more or less, and Dr. Walker's preference and enthusiasm for Galton, Pearson and their disciples is perhaps not any worse than my own preference for the Scandinavian school under the leadership of Gram, Thiele, Westergaard and Charlier. But unrestrained and indiscriminating admiration is apt to magnify the innovator somewhat out of proportion, and to fix an iridescent nimbus, a veritable halo of sanctity about his head. Such things are apt to happen in foggy weather.

Adhering to the adoration of Pearson, for Francis Galton, Dr. Walker pays, for instance, a glowing tribute to the alleged founder of the correlation theory and the famous theory of regression. One might have wished that Miss Walker had mentioned Johannsen's famous experiments on heredity in "pure lines" from the period 1903-1910. These experiments have served to take Galton's "law" of regression down from its pedestal. Interested readers might indeed do well to look up the chapter on Francis Galton in Nordenskjöld's "History of Biology" after having read Miss Walker. The glacial judgment of the Swedish biologist mingles well with the sympathetic fervor of the American pedagogue and gives us a pretty good idea of the actual position of Sir Francis Galton in biological work.

Another evidence of rather indiscriminating admiration is found in Dr. Walker's mention of the numerical tables of the probability integral by Sheppard and her complaint that future authors do not always make "acknowledgment of the stupendous (italics are mine) labor he (Sheppard) performed that the labors of others might be lightened."

This comes, to borrow a striking phrase from Norman Douglas, dangerously close to an effort to "further the interests of the ego at the expense of the environment." Any ordinary computer could have done this work after the previous computations by Kramp, Encke and Glaisher. Moreover, since we are discussing historical facts, it may be of interest to point out that the Danish actuary, Thiele, anticipated Sheppard by more than a decade. For in Thiele's 1889 Danish text on "Almindelig Iagttagelseslaere"

there is also a table of the probability integral in practically the same form as Sheppard's table, the only difference being that Sheppard has introduced a common factor which equals the reciprocal of the square root of two times "Pi," or 0.3989422. Where lies, one might ask, the "stupendous" task in multiplying by this latter number, after we have had available since 1889 the table by Thiele?

A large part of Dr. Walker's text deals with the development in America of statistical work in the realm of psychology and education. When we bear in mind from former experience the at times specious and ephemeral success that has attended elsewhere similar efforts, we can well afford to discount the author's praise of Dr. Cattel for instance. Again one may be unduly biased, but it seems at least that in comparison with a psychologist of the type of Lehman of Copenhagen, for instance, (whose work is not mentioned by Dr. Walker) Cattel's work is of preciously little account.

The above criticisms leave unaltered, however, the fact that Dr. Walker's treatise gives perhaps the best survey of the modern English statistical school as yet available in handy book form. For many years to come, future critics will have to turn to her book as the most valuable historical information on certain phases of modern statistical research. One might indeed wish that Dr. Walker could be induced to do a similar piece of bibliographical research in relation to several of the modern continental statistical scholars.

ARNE FISHER*

Present-Day Labor Relations. By Paul F. Gemmill, John Wiley & Sons, New York, 1929, pages ix, 312.

The purpose of this book, writes the author in his preface, is to examine critically the leading types of collective negotiation, and to review their merits and defects from the point of view of employer, employe and the public. In the main this promise has been performed with a breadth of outlook which gives soundness to the book's point of view and general conclusions. The central emphasis upon equality of bargaining power as one of the important criteria of effectiveness in joint relations is good, as is also the insistence that genuine provision for disinterested arbitration should be provided. The description of plans and types is informing and compact.

If the book lacks in a certain dynamic quality, that may be due to its reliance upon secondary sources. The flavor of the study is stronger than the atmosphere of the shop. This tends to make the author timid and lacking in self-reliance as to his conclusions—where he might with greater effectiveness take fuller responsibility himself and show more affirmative courage. The otherwise admirable last chapter, to which his philosophizing is largely confined, suffers in this respect. An argument which develops too largely from the quoted support of a few selected writers of other books loses in conviction, especially to the unconvinced.

*Mathematician, The Western Union Telegraph Company, New York, N. Y.

A case in point is the discussion of the social consequences of scientific management, where the author quotes only the English economist, John A. Hobson; and fails to focus such material as is to be found in Hunt's "Scientific Management Since Taylor" or in numerous recent BULLETINS OF THE TAYLOR SOCIETY.

This is a useful and suggestive volume and it should exert a healthy influence in the thinking of many executives. Yet its internal strategy will, I am afraid, handicap it with this important audience. All of us who write on industrial subjects should, far more consistently than we do, ask ourselves as we sit down to write—"Am I writing in this way because I enjoy saying it, or because I am sure that written in this way it will carry the widest possible conviction?"

ORDWAY TEAD*

Restriction of Output Among Unorganized Workers.

By Stanley B. Mathewson, with chapters by William M. Leiserson, Arthur E. Morgan and Henry S. Dennison, The Viking Press, New York, 1931, pages x, 212.

This is the first book to deal in a factual way with the extent of conscious restriction of output among unorganized workers. The accumulation of evidence is impressive and important. Of particular interest to scientific management devotees is the discussion of restriction in relation to incentive methods of payment and in relation to the use of time study. That the relation of the worker to the introduction of the refinements of scientific management is still an unsolved problem is certainly suggested by these findings.

The author has well stated his own conclusions as follows:

1. Restriction is a widespread institution, deeply entrenched in the working habits of American laboring people.
2. Scientific management has failed to develop that spirit of confidence between the parties to labor contracts which has been so potent in developing good-will between the parties to a sales contract.
3. Underwork and restriction are greater problems than over-speeding and overwork. The efforts of managers to speed up working people have been offset by the ingenuity of the workers in developing restrictive practices.
4. Managers have been so content with the over-all results of man-hour output that only superficial attention has been given to the workers' contribution or lack of contribution to the increased yield. Attempts to secure increased output have been marked by traditional and unscientific methods, while the workers have held to the time-honored practices of self-protection which antedate time study, bonus plans, and other devices to encourage capacity production.
5. The practices of most manufacturing managements have not as yet brought the worker to feel that he can freely give his best efforts without incurring penalties in place of the rewards which usually accompany special attention to duty in other fields of endeavor. Regardless of how much the individual may or may not desire to contribute a full day's work, his

*Editor of economic and business books, Harper & Brothers, and lecturer on personnel subjects, Columbia University.

actual experiences often turn him away from good working habits."

A somewhat more analytical summary of possible conclusions appears in Professor Leiserson's excellent chapter. He points out that the restriction of output appears to be prompted by three types of fear.

"1. Rate cuts, re-timing of jobs and 'wage-incentive' plans which require the workers to deliver additional work at lower rates of pay;

"2. Lay-offs, part-time work and protracted periods of unemployment which show that the market cannot absorb all the labor the wage-earners can give;

"3. Unintelligent management that depends for results either upon driving, economic power and other dictatorial methods, or upon appeals to the business interests of the employees without understanding that these are not necessarily promoted by turning out more work at lower rates of pay."

The following conclusions reached by Professor Leiserson will be read with interest and sympathy by all who are familiar with the increasing account which scientific management authorities are taking of the relation of manual workers to improvements in production technique. He says:

"Reasonable regulation of labor output can only be assured when the workers have a voice in determining the amount they will turn out, just as fair prices can be maintained only by allowing farmers and manufacturers intelligently to regulate production. But the standards of reasonableness applied to the workers must be checked by the standards of the employers. Give and take is needed, and open criticism and defense and submission to public opinion and control in the interest of the community."

This book merits careful study and a wide reading among business men, for it emphasizes a problem which has both an ethical and an economic significance—a significance in no way lessened because at the present moment output restriction is the cry of the entire economic world.

ORDWAY TEAD*

Case Studies of Unemployment. Compiled by the Unemployment Committee of the National Federation of Settlements, University of Pennsylvania Press, Philadelphia, 1931, pages 1, 418.

This book consists of three parts: a Foreword by Paul U. Kellogg, an introduction by Helen Hall, and 371 pages of the 150 case studies presented. This is Research Study XII of the Industrial Research Department of the Wharton School of Finance and Commerce, University of Pennsylvania, and is edited by Marion Elderton of that institution. A review of this book is made very simple by the fact that Mr. Paul Kellogg himself does it. I cannot improve on his statement that:

In this book, the settlements of the country offer for inspection the makeshift payroll of the unemployed—intimate loose-leaf records of what families turn in, humanly speaking, to take the place of their lost wages.

No such body of concrete cases, lifted from the industrial life of America the country over, has hitherto been available. They make up a source book of intimate and objective materials. Students of every facet of the complex problem will