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disposed to pass over its wild statements and baseless arguments with a smile, and to dwell upon its stimulating and thought-promoting qualities. But one cannot but fear that the academic position and the, for many reasons, well-founded reputation of its author may give it a wide vogue in American colleges. I can hardly conceive anything more mischievous than to put this in the hands of students at a time when they ought to be learning the well-ascertained outlines of history, the methods of sound argument, the rules of evidence, and a lucid and unpedantic style. Lest I should be thought too severe, let me end with two examples of the sort of reckless assertion which proceeds from Puritan prejudice masquerading as psychological science. Professor Patten takes the Puritan side as against Laud with regard to the Book of Sports. There is a good deal to be said for that view. But what excuse can there be for such an assertion as this?

“The key to the situation lies in the once universal notion that the popular sports, by exciting the sexual passions, promoted the growth of population. The loss of virtue that the Puritans denounced in the May games was to the ruling class *an argument in their favour*. The noble who debauched the wives and daughters of his tenantry *did not think that he did wrong*; on the contrary he *told himself that he was doing the nation a service*” (p. 137). The explanation which the author provides for this remarkable condition of affairs only shows how dangerous a thing may be a little anthropology. And now read this:

“It must be remembered that the church was in reality a civil organisation whose main end was peace and security. Its clergy did not, therefore, express that condemnation of sensual indulgences which modern opinion demands, but *were content* if no breaches of the peace occurred, *in the belief* that the nation was safest when the attention of individuals was diverted from public affairs by opportunities to indulge their passions” (p. 133). This is not history: it is commonplace anticlericalism.

W. J. ASHLEY

Local Variations in Wages. By F. W. LAWRENCE. (London: Longmans, Green & Co. 1899.)

THIS essay, which gained the Adam Smith prize at Cambridge in the year 1897, is a most excellent and useful piece of work. It not only contains most valuable information about wages arranged in a diagrammatic form, but also suggests many lines of new inquiry for the student who shall proceed with any further investigations into this field. The following criticism is deliberately aimed at picking out any faults, and does not in any way profess to make a fair estimate of the value of the work, in the belief that more good is served in the case of such a careful and valuable contribution to economic science by deliberate criticism in detail and other than general praise. A serious piece of work deserves serious criticism.

The author has no right to discard the ordinary methods of statistical inquiry. We have local variations in wages—what are the causes of these variations? In such a case the ordinary statistical procedure is to determine whether the variations in the variable we are considering (in this case generally mean wages per hour) are correlated with some other variable (for instance, the density of the population). It may be urged that the theory of correlation is only completely useful and intelligible when the number of instances is large and the distributions are normal. But even if the number of instances is small, the correlation coefficient remains the best test we have of the possible causal connection between two sets of variables, and though the distributions are skew the correlation coefficient still has a meaning. In a paper published in the Proceedings of the Royal Society, volume lx., Mr. Yule states in conclusion that “We can now see that the use of normal regression formulæ is quite legitimate in all cases so long as the necessary limitations of interpretation are recognised. Bravais’ r always remains a coefficient of correlation.” This conclusion is, at any rate up to the present, unchallenged. It is therefore very tiresome to find Mr. Lawrence saying (p. 8), “In order to test the correspondence between this population curve and the mean wage, there is constructed a curve showing the difference between the two: so that the result may be expressed as—

$$\text{Mean wage per hour in pence, } \textit{minus} \frac{\text{square root of population}}{500} .$$

And in order to consider how far the population in any way explains the fluctuation in wages, this new curve must be compared with the mean wage curve to see which is the least irregular.” The construction of such a difference curve is, of course, a familiar statistical device and one of the greatest service in certain cases. But here the problem is—What is the correspondence between the population curve (that is, a curve showing the square root of the population divided by 500) and the mean wage? The answer is to be found by calculating the correlation coefficient. The answer to the inquiry is more simply and accurately stated as follows¹: In the case of 75 towns (London not being included) the mean wage is 7.86 pence per hour, with a standard deviation of 0.59 pence per hour. The mean of the function given by the square root of the population divided by 500 is 0.55, with a standard deviation of 0.265, and the correlation coefficient of these two is nearly 0.63—a high degree of correlation. The regression equation can now be written down, and in calculating the standard deviation we have done much “to form a numerical estimate of the total amount of the fluctuations for each of the two curves” (p. 9). The author adds together (irrespective of size) the amounts of the changes in passing from one town to the next. This procedure is open to the obvious objection (which the author very properly makes at

¹ Mr. Lawrence kindly supplied me with the figures.

the top of page 10) that the result depends to some extent upon the order in which the towns are taken, and by various experiments he shows that this does not seriously affect the result. Still any method depending upon the order in which the variables are arranged when that order is fortuitous (and not for instance the order in time) is somewhat unsatisfactory.

It is necessary to complain again that in another passage the author while practically stating a regression equation does not state the standard deviation and the correlation coefficient. On p. 17 we are told that $7\bar{d} + \frac{1}{300} \times \text{square root of population}$, is fairly representative of wages in the South and in Yorkshire. For 28 towns (including London) it appears¹ that the correlation coefficient between mean wages and $\frac{1}{300}$ of the square root of the population is 0.73—a very striking result, and the regression of the wages on the population function is 0.76. It is true that in this case the data are very small and rather skew, but if any statement of this nature is to be made it were well that the results should be expressed in the ordinary form.

But to turn from criticism of detail to the author's conclusions, which are best stated in his own words.

“(1) The variations in wages in the same trade from town to town are considerable.

“(2) In towns in which wages are high in one trade, they are generally high in another, and *vice versa*; this is more particularly true in the various branches of the building industry, where we find carpenters' wages approximating very closely in each town to the average of all the branches.

“(3) Comparing labourers' wages with artisans', we find they generally vary together, and the variations are more nearly equal in amount than proportional to their respective wages.

“(4) Marked changes in general level are noticeable as we pass from one part of the country to another, and in consequence, in saying that wages in a town are high or low, we shall be careful to notice its geographical environment.

“(5) Taken in their proper environment the large towns show the highest wages, and if we neglect the smallest towns we may say of the rest with an approach to accuracy, 'The larger the town the higher the wage.'

“(6) In attempting to estimate the correct allowance to be made for the differing sizes of the prominent towns, we may turn the square roots of their population into money at the rate of 800 a penny. But this is subject to changes of general level as we pass from one part of the country to another, and when smaller towns are taken into account the accuracy becomes less and the allowance has to be rather larger.

It is useless to expatiate upon the interest of these conclusions.

¹ Mr. Lawrence kindly supplied me with the figures.

They alone are sufficient to indicate the value of the work. Probably this book will in the future form the starting point for all investigations into the causes of local variations in wages.

C. P. SANGER

Sympathetic Strikes and Sympathetic Lockouts. By FRED. S. HALL, Ph.D. Columbia University, New York. 1898. (8vo., pp. VIII., 118).

DR. HALL'S short monograph forms one of the Studies edited by the Faculty of Political Science of his University. It is divided into four chapters, the first being introductory; the second dealing with "Origin and Development"; the third with "Analysis"; while the fourth and last treats of "The Future as indicated by the Past." A select bibliography of the history of strikes and lockouts is appended.

The whole of the essay is well worth careful perusal, and the student of Trade Unionism will not fail to learn much from Dr. Hall's diagnosis of that phase of the "labour movement" which is indicated by his title. At times, as when he speaks of the attitude of English federations as being decidedly favourable to sympathetic strikes, and gives the first place to a quotation from the rules of the Federation of Shipping and Allied Trades in proof thereof, he appears to have written with 1889 and the somewhat inflated and militant trade-unionism of the immediately succeeding years too much in mind. But on the whole his summary is discriminating. The instances he cites and the disputes that he describes are drawn from a world-wide area, and his conclusions show that he has been able to put the phenomena of the Great Dock Strike and of the beginning of the decade in their true perspective.

Dr. Hall's first chapter is largely devoted to the task of definition, and we wish that he could have seen his way to the substitution of some other word for that duplicated in his title, if for no other reason than that its retention appears to involve the risk of such a barbarous phrase as "striking sympathy" creeping into trade union literature. It is true that our author only introduces this phrase with the implied protest of quotation marks, but the horrid thing is there.

Definition turns largely on the analysis of motives, and we think that Dr. Hall has been led into error in the inclusion of a class of strikes as being "nearly related to sympathetic strikes though not identical with them," when those who cease work do so, either because there is nothing for them to do, in consequence of the original stoppage, or because of intimidation on the part of the original strikers. It is clear, however, that in the first case the men who cease work may or may not be in sympathy with the original movement, while in the second, since intimidation is necessary, they must be assumed to be either neutral or antipathetic, rather than sympathetic in their attitude. Dr. Hall suggests indeed, that both these cases of