

THE THEORY
OF
POLITICAL ECONOMY

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WITH PREFACE AND NOTES AND AN EXTENSION OF THE
BIBLIOGRAPHY OF MATHEMATICAL ECONOMIC WRITINGS

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FIFTH EDITION

First Edition, 1871.
Second Edition, 1879.
Third Edition, 1888.
Fourth Edition, 1911.

PREFACE TO THE FIFTH EDITION

In writing the Preface to the fourth edition of the *Theory of Political Economy* I ventured to predict that it would be the last. That edition was in fact exhausted a few years ago; but Messrs. Macmillan were unable to see their way to reprint the book. I was glad therefore to have an offer from the representative of an American firm to bring out a new edition, for there is a continuing demand for the *Theory*, which has found a place amongst the economic classics of the nineteenth century.

Its appeal lies not merely in the Author's clarity and freshness of diction, but in its combination of two previously separate schools of thought — those favoring respectively the psychological and the mathematical methods in economics. It is still a matter of controversy whether economics should be regarded as a calculus of pleasure and pain or, more correctly, of positive and negative feeling, or whether it should be treated as the science of preferences in the satisfaction of human wants. For myself, I believe that those who refuse or neglect to study the psychological basis of economics as one branch of the science of human behavior are less likely than those who do so to arrive at sound conclusions

exceeds the desire of possession, including all the motives for exertion.

We must consider the duration of labour as measured by the number of hours' work per day. The alternation of day and night on the earth has rendered man essentially periodic in his habits and actions. In a natural and wholesome condition a man should return each twenty-four hours to exactly the same state; at any rate, the cycle should be closed within the seven days of the week. Thus the labourer must not be supposed to be either increasing or diminishing his normal strength. But the theory might also be made to apply to cases where special exertion is undergone for many days or weeks in succession, in order to complete work, as in collecting the harvest. Adequate motives may lead to and warrant overwork, but, if long continued, excessive labour reduces the strength and becomes insupportable; and the longer it continues the worse it is, the law being somewhat similar to that of periodic labour.

Symbolic Statement of the Theory

In attempting to represent these conditions of labour with accuracy, we shall find that there are no less than four quantities concerned; let us denote them as follows:—

t = time, or duration of labour;

l = amount of labour, as meaning the aggregate balance of pain accompanying it, irrespective of the produce;

x = amount of commodity produced;

u = total utility of that commodity.

The amount of commodity produced will be very different in different cases. In any one case the rate of production will be determined by dividing the whole quantity produced by the time of production, provided that the rate of production has been uniform; it will then be $\frac{x}{t}$. But if the rate of production be variable, it can only be determined at any moment by comparing a small quantity of produce with the small portion of time occupied in its production. More strictly speaking, we must ascertain the ratio of an infinitely small quantity of produce to the corresponding infinitely small portion of time. Thus *the rate of production* is properly denoted by $\frac{\Delta x}{\Delta t}$, or at the limit by $\frac{dx}{dt}$.

Again, the degree of painfulness of labour would be $\frac{l}{t}$ if it remained invariable; but as it is highly variable, we must again compare small increments, and $\frac{\Delta l}{\Delta t}$, or, at the limit, $\frac{dl}{dt}$ correctly represents the *degree of painfulness of labour*. But we must also take into account the fact that the utility of commodity is not constant. If a man works regularly twelve hours a day, he will produce more commodity than in ten hours; therefore the final degree of utility of his commodity, whether he consume it himself or

