

researches at Heligoland, Trieste and Marseilles, and these he began in 1845.

Very likely other zoölogists as well as Eschscholtz used the tow-net before Müller. One can hardly see how an ardent collector of marine animals could have escaped resorting to something of the kind, even though he had never before seen such a thing.

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SCIENTIFIC LITERATURE.

The Principles of Sociology. By FRANKLIN H. GIDDINGS. Pp. 476+16. Macmillan & Co., New York. 1896.

Sociology has had a checkered and disappointing career. Its study began not because there was a body of men ready to devote their energies to its advancement, but because certain system makers found what they supposed to be a vacant field to which some attention must be given. The men who have done the most from this point of view are Comte and Spencer, though the main interest of neither lay in the development of this field. For these philosophers 'sociology' became the depository of the odds and ends of thought for which no other convenient place could be found. It is needless to say that such a method failed. The creators of a science must live in it, and with this condition these system-makers did not comply.

This new field, this land along the edge of which Comte and Spencer sailed, supposing it to be unoccupied, had residents and tillers. Its aboriginal inhabitants were called economists and, even though not recognized by the system-makers, had really created a science. It is not to be claimed that the whole field was cultivated or even that the occupied portion was cultivated to the best advantage. But work of a permanent character had been done and, at the same time, public opinion had been reconstructed in many important respects. It is the fulfilment of these conditions that justifies the claim of any science.

The second attempt to found a sociology grew out of the shortcomings of these economists. Those who resisted the narrowing tendencies of the definite creed formulated by the economists

found sociology a convenient name and took it to designate their field. But the latter were moved too largely by their sympathies to be scientific workers, and their energies were spent more in denouncing the hard-hearted economists than in formulating better laws. Sociology with them remained, as with the system-makers, a dumping ground for the crude doctrines and rubbish rejected by the economists. Such work and such men could scarcely found a science.

To neither of these causes is due the new American sociology. Professor Giddings is not a wandering philosopher looking for a job, nor is he an outcast economist of the soft hearted variety. Among economists no one has a better reputation. By his good work he has earned a place in their ranks and he leaves them with their hearty good will. The cause of the new movement lies not in personalities nor quarrels, but in conditions—conditions that can be made plain only by a restatement of the history of economic thought.

The science of economics is a product of Eighteenth Century rationalism. By the philosophers of the last century it was assumed that man was a reasonable being. Customs, habits, national feelings and the like were thought to be remnants of past conditions, due to the oppression from which the race still suffered. Conscious calculation should be the only guide; expediency the only rule of action. Each decision was to be made by a summing of utilities. The free man should have only two masters, pleasure and pain.

With such premises the social sciences could be divided into only two parts, economics and utilitarianism. Economics treated of the material sources of pleasure, the influence of the environment on their production and the pains which this production involved. The older forms of ethics, politics and law were to be displaced by utilitarianism, thus including within its scope all decisions where the pleasures and pains were immaterial. Welfare reckoned in material goods was economics; welfare reckoned in units of pleasure was utilitarianism. No rational being should consider other motives, and in time they would disappear through the elevation of the race. While this distinction

between economics and utilitarianism seems logical, it was obliterated by the subsequent development of economics. In the newer economic theories the measurement of welfare in units of satisfaction has displaced the old measurement of welfare in units of commodity. Each material good is valued by the satisfaction its consumption yields, and this satisfaction depends upon the quantity of goods already possessed. This is, in short, the theory of marginal utility which has revolutionized economic thought. It is of importance in the present connection because it destroys the difference between utilitarianism and economics. Utilitarian ethics is but a species of economics. There can be but one science of conscious motives. Conscious calculation is confined to a field where the influence of the environment is direct and where the actions of men are determined by a few dominant motives prompted by pleasure and pain. Perhaps the name economics is not a good one to designate this field, but it has been so monopolized by economists that it will be hard to displace.

Nineteenth Century progress, however, has not justified the hopes of the rationalists of the last century by making economics the only social science. Men have not become mere calculating machines. On the contrary there has been a revival of those modes of thought which seemed moribund. Custom and habit still hold their own; national spirit has shown its vitality in a way that would have astonished the cosmopolitan rationalist; while in law the old standards and customs have endured in spite of the attacks of Bentham. In ethics and religion the revival has been equally notable. What rationalist would have thought that Nineteenth Century ethics would be transcendental, or that its religion would be dominated by Methodism instead of by Unitarianism?

This failure of the utilitarian philosophy is too apparent to be overlooked. It shows that there was some defect in the analysis of its advocates. They assumed that the influences of the physical environment were greater, and the motives of men simpler, than later reflection shows to be the facts. The reasoning of the utilitarians might be saved by admitting a difference between positive and absolute utilities. Positive

utilities are made up of units of pleasure and they can best be secured by conscious calculation. Absolute utilities are, however, necessities upon which life depends and they can best be guarded by strong impulses which compel each man to secure them. In biologic language it might be said that each man and race has certain requisites for survival and certain requisites for welfare. The first group is secured by mental modifications generating strong desires and impulses acting too quickly to admit of calculation. The realm of welfare alone remains open to conscious motives and here the rationalistic attitude is supreme.

It makes little difference what line of reasoning a person uses to convince himself of the inadequacy of the old rationalistic program. The patent fact is that economic philosophy is not the whole science of human nature. Economics has succeeded by its emphasis of a partial man, and to include a study of the whole man in it, as some would have us do, would vitiate its best results. A glance at the history of the other social sciences will show that they have not filled the gap created by the defects in the utilitarian philosophy. Politics in the Aristotelian sense might have been such a science. Its field, however, has been narrowed until it is little more than a history of parliamentary government. Professor Freeman's doctrine, 'history is past politics and politics is present history,' shows how the fields of history and politics have blended. History has developed from a record of kings, battles and dates into a study of institutions. Utilitarian ethics has been absorbed in economics, just as politics has been absorbed in history, while transcendental ethics is more a history than a theory of ethical ideals. Law, like politics, has become a branch of history; its method is comparative and in it pure theory has no place.

It is evident that history is the only branch of the social sciences which has kept pace with economics. These two subjects have been vitalized by Nineteenth Century thought and have grown until, between them, they have absorbed all the social sciences. Only the historical and economic methods of study have been fruitful of results. Students of social

science are either historians or economists, and what is not economics is history. This failure of the other social sciences to develop a theory corresponding to economics has given to sociology its opportunity. Both economics and history will be benefited by a new science including the theoretic elements outside of economics and foreign to history. History cannot become theory without losing its intrinsic qualities, nor can economics absorb social theories without losing its purity and method. The only solution of the difficulty lies in a new theoretic science doing for other portions of social science what economics has done in its field. Economics would then remain a study of the environment and of the simple motives upon which conscious calculation depends. Sociology would give us a theory of human impulses, tradition, imitation and other forms of activity outside of conscious calculation.

There is at present no good word to designate the field outside of utilitarian calculation, and this fact prevents us from seeing its extent and importance. To it our institutions, national life and party feelings belong, as do also the moral, religious and æsthetic ideals of the race and the customs and habits of individuals. These are means of eliminating conscious calculation and through them the promptness, efficiency and regularity of actions are increased. For want of a better term, I am inclined to call all these extra economic elements the *socialry* of the race. I would use this term in so broad a sense as to include every device or habit or motive by which men are united and their activities harmonized. Together they make up a subjective environment which influences the conduct of men fully as much as does the physical environment upon which the economic motives depend. This socialry of men is the subject-matter of sociology, just as their goods are the subject-matter of economics. The latter science treats of the conscious economies due to the simple reactions between the environment of men and their desires; the former treats of the unconscious economies due to heredity and to the psychologic motives which it creates. The two theories supplement one another and when properly harmonized with history would complete the social sciences.

The distinctive merit of Professor Giddings' work is that it is neither economics nor history. It might be denied that he has created a science, but not that he has found a new field and devoted his energies to its exploitation. Too much of the so-called sociology is really disguised economics and elementary biology. The economist recognizes old friends when the sociologist talks of the sustaining system, the circulatory system and the stratification of society. The restatement of old doctrines and ideas may revolutionize a science, but it does not create a new one.

The chapters on Social Population and on the Social Constitution are among the best in the book. It is here that the method of Prof. Giddings shows itself to the best advantage. The problems of anthropology and ethnology are also fully and ably handled. Of the other parts I like best of all the discussion of tradition and of social choices; on these topics he shows the greatest originality. I have not the space to take up these or other doctrines in detail, nor would such work be of much value. A useful book must be read to be understood. A critic can point out merely wherein its value lies and save the student from the heavy burden of reading everything. In this book much more stress is laid on the harmonious relation of the various parts than on particular discussions. Its aim is to interest people in a new science, and in this its success lies. SIMON N. PATTEN.

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Water Supply (considered principally from a sanitary standpoint). By WILLIAM P. MASON, Professor of Chemistry, Rensselaer Polytechnic Institute. New York, John Wiley & Sons. 1896. 504 pp., 8vo.

The subject of the water supply of communities has always been an interesting one, and it has been known for more than two thousand years that the character and amount of sickness and death in a town or city is at times greatly influenced by the quantity and quality of the drinking water of its inhabitants; but it has only been within the present century that any precise and definite information upon this subject has been obtained.

Cholera and typhoid fever epidemics due to a