

JACQUES LOEB, PHILOSOPHER

PROFESSOR BRAILSFORD ROBERTSON'S LECTURE.

"The life and work of a mechanistic philosopher, Jacques Loeb," was the subject of an interesting lecture delivered by Professor T. Brailsford Robertson, before the Victoria League, at the Public Library lecture room on Wednesday evening. Professor W. Mitchell (Vice-Chancellor of the University of Adelaide) presided. The lecturer said that Jacques Loeb, the greatest experimental biologist of his age, pioneer in every branch of scientific endeavour which he undertook, and one of the greatest discoverers of new and uncharted realms of fact which "the world has even seen," was born at Alsace in 1859, and died in Bermuda early in 1924. The clue to Loeb's general objective was to be found in the literature of the encyclopaedists. All would be well in this world if it were not for faults of education and environment created by false beliefs, mistaken prejudices, and domination of ignorant and selfish despots. They could imagine young Loeb asking himself, "What is that which holds the masses most clearly under subjection? What is that which chains them to unwearied labour, the fruit of which others will reap? What is it that makes them bear their lot uncomplaining, and fetters them to the task to which they were born?" His answer was, "Religious dogmas, superstition, recognition of a higher will, and fear to assert their own individuality." Those dogmas came to be believed through ignorance of the forces which moved the world, and man, and it was in a solution of the problems of life, therefore, that they should seek for enlightenment. They should strip away life's mystery, and show that living beings, no less than inanimate bodies, were machines impelled by physical and mechanical forces. To those views and these objectives Loeb held unvaryingly throughout his life. One of those living phenomena about which mysticism most loves to linger, was the phenomenon of that development whereby an orderly growth of form and function evolved out of the simple and undifferentiated jelly-like mass of protoplasm, which constituted the egg-cell. If that process could be shown to be guided by physical and chemical forces, a severe blow would have been struck at the roots of the obscurantism which it was Loeb's main object to destroy. He showed for the first time that the development of organs and structures of animals was, in fact, directed by physical and chemical forces. He showed that if the animal were placed under exceptional conditions involving a change of the usual physical and chemical factors, development became abnormal in a direction determined by the new factors. The discovery that the same factors were involved in the phenomena of the attraction of plants towards light as in the phenomena of the attraction of insects towards the light, was destined to prove even more effective and important towards the promotion of his general objective. For several years Loeb devoted himself to the problem of fertilization, until at length he had succeeded in interpreting an accidental observation, which Morgan had made, in artificial fertilization, and in so improving upon the original chance experiment as to be able to produce at will a 100 per cent. of fertilized eggs from eggs which had never been fertilized by sperm. To-day the artificial fertilization of eggs was no more difficult than the development of a photographic film.

Loeb's main theses, culminated in the view that man was an automaton moved wholly by physical and chemical forces. So far as his writings were concerned, Loeb certainly might be classed as an epiphenomenalist. Undoubtedly he thought much more about the great central problem than he chose to express in his writings. He would probably have said that it was no business of his, as a scientific investigator, to throw frail bridges of hypotheses over abysses of ignorance. As for his doctrine that men and animals were machines, their attitude towards that depended upon what they meant by a machine. As he conceived a machine, possibly there were many who would disagree with him. But it might be questioned whether a machine was, in fact, anything at all, other than something that they understood, fully in its origin, in the way it happened and in its effects. Directly they achieved such comprehension events appeared to acquire a certain inevitability. They were pervaded by necessity, and volition disappeared, but possibly that impression arose merely from the relativity of human intelligence. (Applause.)

HUMAN MACHINES.

THE MECHANISTIC PHILOSOPHY.

An address on the work and life of Jacques Loeb was delivered by Professor T. Brailsford Robertson, under the auspices of the Victoria League at the Institute Building, North-terrace, on Wednesday night. Professor Mitchell occupied the chair.

The lecturer said Loeb was a descendant of those intellectually brilliant Jews who were forced to flee from Lisbon in the Middle Ages to avoid the persecution of the Inquisition, and with them deposited the intellectual glory of Portugal. He was born in Alsace early in 1859, and his father, who was a banker, was so strongly imbued with French principles that his son was never allowed to speak German in the home. Loeb seemed to have been brought up on the literature of the French Revolution, and the influence of this, particularly the works of Diderot, upon his outlook persisted until his death, which occurred in Bermuda early last year.

The central idea which emerged from all the writings of the pre-revolutionary period in France, was that human nature was not essentially bad, as the people were taught to believe at that time by their religious instructors, but essentially good. The evil in the world they believed was attributable to faulty education, lack of intelligence, and bad institutions, among which they reckoned the then-existing forms of Government and the dogmas of religion. The most vigorous and popular exponent of these ideas, through the medium of his great encyclopaedia and his many other writings, was Diderot. It was not Diderot, however, but Holbach, a somewhat younger man, who crystallised these ideas into one coherent system of mechanistic philosophy, and gave clear form to the political and ethical aspirations which arose out of them. The influence of Diderot upon Loeb extended further than the capture of his intellectual sympathies. There was a truly extraordinary similarity between the outlook and characters of the two men. On the professional side, however, Holbach whose "System of Nature" terrified Voltaire, and shocked Rousseau, had approached Loeb more closely perhaps, for Loeb's own conceptions were in no respect conventional and had terrified and shocked not a few of his generation. Believing that the masses were held in subjection and fettered to unwearied labor by religious dogma, superstition, recognition of a higher will, and fear to assert their own individuality, Loeb set to work to strip the mystery from life and show that living beings no less than inanimate bodies were machines impelled by physical and mechanical forces. He took his degree of M.D. at Strasbourg in 1884, and there he studied under Fick, the last of a great school of physical physiologists. At first he contemplated taking up medical practice, but the routine of professional life wearied him, and he turned instinctively to research, studying under Goltz, and dealing mainly with brain physiology. After a couple of years he returned to Fick, but spent three summers at the Zoological station at Naples, where he showed for the first time that the development of organs and structures of animals was directed by physical and chemical forces. He showed that if an animal were placed under exceptional conditions involving a change of the usual physical and chemical factors development became abnormal in a direction determined by the new factors.

In many of the simpler forms of life inhabiting the ocean-bed mutilation resulted in the regeneration or re-growth of the missing parts. He proved that the polarity of many of these organisms was entirely due to gravity, and that by altering the ordinary direction of action of gravity it was possible to produce these organs in unnatural situations. As the result of other discoveries of Loeb they now studied the behaviour of animals chiefly from an outside, asking what they did with a curiosity which increased rather than abated, but if there were any explanation ventured why they did these things, it was no longer based on an appeal to their thoughts, emotions, or desires. Hardly even could two different races of men thoroughly comprehend each other's thoughts or feelings, and the thoughts and feelings of any other individual were merely inferred; there was no immediate knowledge of them. But of the behaviour of men and animals they had immediate knowledge, for it required no interpreter, but their senses. This change of attitude of mind was due to Loeb. As Brent had said in his great work on the "History of Psychology":—"The kindly observers who from 1800 to 1850 entertained a large public with curious narratives were rudely silenced by the reports which Jacques Loeb published in the last year of that epoch. From this work arose a new type of comparative psychology, the Mechanistic School." The attraction of animals towards light was shown to depend upon precisely the same factors as governed the bending of plants towards light.

In 1891, following his marriage to an American lady, Loeb accepted a post as Associate in Biology at the Bryn Mawr College for Girls, and nine years later became Professor of Physiology and Experimental Biology at the Chicago University. Three years later he became Professor of Physiology at the University of California, and it was there that the speaker joined him as assistant. Loeb engaged in experiments connected with the fertilisation of sea urchins' eggs. He believed that if he could strip the mystery from this process of fertilisation he would have struck a deadly blow at the mysticism which revelled in the ignorance of natural phenomena. For several years he devoted himself to this problem, until to-day the artificial fertilisation of these eggs was no more difficult than the development of a photographic film. The highest form in which artificial fertilisation had yet proved possible was the frog, but many embryo frogs had been produced, and not a few reared to maturity without the agency of any male element. These researches afforded a remarkable example of the fact that fundamental discoveries need not always be of an expensive kind. The laboratory in which Loeb discovered the majority of these facts was a simple shed erected upon the sea coast of California, at Pacific Grove, close to the old Spanish capital Monterey. The equipment required was of the simplest and least expensive character, and the results were among the most valuable in biology. In 1910 Loeb left California to accept the position of director of a department especially created for him at the Rockefeller Institute for Medical Research in New York, devoting his time to the refinement and elaboration of his previous work. Loeb was not a scholar in the ordinary acceptance of that term, and his mentality was kinetic rather than assimilative. As a scientific man he owed more to the inspiration of English workers than those of any other nation.

At the conclusion of his address, which was illustrated by lantern slides, Professor Robertson was warmly thanked.

What should be said of his main theses culminating in the view that man was an automaton, moved wholly by chemical or physical forces? With regard to his doctrine that men and animals were machines, their attitude depended upon what they meant by a machine. It might be questioned, however, whether a machine was anything other than something they understood with a full understanding of its origin in the way it happened and its effects. As soon as they achieved such comprehension events appeared to acquire a certain inevitability. They were pervaded by necessity and volition disappeared, but possibly this impression arose merely from the relativity of human intelligence.

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Recently in one of his University extension lectures Mr. Clive Carey deprecated the fact that so little attention was being given by local musical authorities to the encouragement of the singing of British folk songs. He maintained that the English-speaking peoples possessed a glorious heritage in this respect, and he wondered why in the public schools of the State more attention was not given to this class of music than to some of the items of less value on the programme. Since then the subject has been discussed by Mr. Carey and Mr. F. L. Gratton, musical director of the State Education Department, and arrangements are being made by the latter to give more prominence to folk songs when teaching singing lessons in the schools. Mr. Gratton informed a representative of "The Advertiser" yesterday that he agreed with the suggestion made by Mr. Carey. All folk songs were not suitable for singing in the schools, but a great many of them were. He intended, with Mr. Carey, to draw up a list of those considered suitable and have them taught in the schools without delay.

ADVERTISER 1.8.25

At yesterday's meeting of the Council of the University of Adelaide, Mr. W. J. Isbister, K.C., M.B.E., was elected Dean of the Faculty of Law—the position previously held by Professor Coleman Phillipson. Mr. Isbister, who was admitted to the South Australian bar in 1888, and to



Mr. Isbister.

the Inner Temple in 1890, has been prominently associated with the legal profession in Adelaide. He retired from active practise just as he was talked about as a coming judge. Mr. Isbister was elected a member of the University Council in 1905, and for several years lectured on the Law of Property, part 2, in the Law School of the University.

MAIL 18.7.25



PROFESSOR COLEMAN-PHILLIPSON former Professor of Law at the University, who has booked his passage to leave Adelaide for England next Wednesday.

MAIL 18.7.25



PROFESSOR E. HAROLD DAVIES Director of the Elder Conservatorium and Professor of Music at the University, who is fifty-eight today.

NEWS 31.7.25

Sir Joseph Verco, the eminent Adelaide surgeon, will celebrate his seventy-fourth birthday tomorrow. He was born at Fullarton, and educated at the Adelaide Educational Institution and St. Peter's College. Proceeding to London University he had a distinguished academic career. In 1875 he took his M.B. degree with scholarship and medal in forensic medicine, and gold medal in medicine. In 1876 he graduated as M.D. with gold medal. In 1877 he took the B.S. degree with scholarship and gold medal in surgery. Dr. Verco became a Fellow of the Royal College of Surgeons in England in 1877. Sir Joseph was honorary consulting physician at the Adelaide Hospital for many years, and he was also lecturer in medicine at the University. He was president of the South Australian branch of the British Medical Association in 1886-7, and president of the first Intercolonial Medical Congress held at Adelaide in 1887. The doctor has been president of the Royal Society in South Australia for many years, and is well known for his philanthropy. He was created Knight Bachelor in 1919.

ADVERTISER 1.8.25

THE RHODES SCHOLARSHIP. At yesterday's meeting of the Council of the University of Adelaide the following were reappointed as the representatives of the University on the committee which is to meet towards the end of this year for the purpose of considering the award of the Rhodes Scholarship for 1926:—Professor Dainley Naylor, Sir Joseph Verco, and Messrs. J. R. Fowler and C. T. Madigan. The other members of the committee are:—His Excellency the Governor (Sir Tom Bridges), the Chief Justice (Sir George Murray), and Messrs. H. Thomson and R. J. Rudall.

NOV. 1.8.25.

UNIVERSITY SCHOOL OF ECONOMICS.

The question of a successor to Dr. H. Heston, lecturer in economics in the University of Adelaide and director of the Workers' Educational Association Tutorial Classes, was yesterday referred by the Council of the University to a sub-committee for consideration. Mr. G. McKinnon, secretary of the W.E.A., will carry on the administrative work of the association in the meantime, and Mr. A. L. G. Mackay, the assistant lecturer in economics, will continue the course of lectures still uncompleted.