

**THE EVOLUTIONS OF  
ORGANIZATION: ADDRESS TO THE  
MEDICAL STUDENTS AT THE  
OPENING OF THE WINTER SESSION,  
UNIVERSITY OF GLASGOW**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649225835

The Evolutions of Organization: Address to the Medical Students at the Opening of the Winter Session, university of glasgow by John Cleland

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Cover @ 2017

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**JOHN CLELAND**

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*THE EVOLUTIONS OF ORGANIZATION.*

ADDRESS

TO THE

MEDICAL STUDENTS

*AT THE OPENING OF THE WINTER SESSION,  
UNIVERSITY OF GLASGOW,*

TUESDAY, OCTOBER 26, 1880.

BY

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GLASGOW:

JAMES MACLEHOSE, 61 ST. VINCENT STREET,

*Publisher to the University.*

1880.

~~NH 3558-60.19~~

S 7900.13.20



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## THE EVOLUTIONS OF ORGANIZATION.

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THE study of medicine presents to him who would view it properly two great aspects :—primarily, it exhibits an art for the relief of the sufferings of others ; but it also displays a wide field of investigation for the satisfaction and development of the inquirer's own mind. So evidently is this the case, and so naturally does the study of the body tend to a wider survey of the realms of nature, that in ancient, as well as more modern times, research of the most extensive character, and far-reaching speculations, have occupied the attention of physicians. As soon as the student begins his curriculum, by seeking a knowledge of the human body he comes into the presence of the great system of organization on the face of the earth, of which the structure of man forms the crowning object, not to be justly appreciated save in conjunction with the rest. As he becomes acquainted

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with the phenomena of life, and learns the mechanical and chemical processes involved in them, he naturally asks how far the laws of life are to be explained by the laws of matter, and what is the motive power of the order of phenomena both in the individual and in the series. There come up for his consideration the links uniting to the body that spiritual element which, in the actions of the individual, is never seen by us in operation, save in the closest association with physical structure. And the yet larger speculation, Is spirit or matter the prior, the underlying, unchangeable, and eternal element, constantly obtrudes itself on the horizon of more limited inquiries.

These are all questions which have been much discussed in recent times; and the order of the appearance of structures having been studied both in the form of paleontology and development, it is not wonderful that speculations have been rife as regards not only the nature, but likewise the origin of life, of species, of matter, and intelligence.

That there is a certain unity binding together the most diverse forms of organization is a doctrine which, at this date, I fancy no one will deny. The similarity of the units of life in plant and animal texture, and the general, if not altogether universal, pervasion of sexual distinction, are illustrations of

that; and if I confine my view to the animal kingdom, I think the days are past when any one will consider it chimerical to compare vertebrates with invertebrates, or the most dissimilar invertebrates one with another. At once it will be granted that ova, however various, are comparable, and that it is matter for observation to compare the stages of their growth as they give rise to forms that are far asunder. Nor will any serious doubt be entertained on survey of that highest and most important assemblage of animals the vertebrata, that they have appeared on earth in the order of their complexity; however great may be the mystery in which the rise of invertebrata may be wrapped. All this involves the conception of a complex unity acquiring its complexity stage by stage, even as the individual develops from the ovum to the adult condition; and such a conception may be justly termed Evolution.

But such an evolution may be conceived of variously, both in respect of character and cause. In its character it may be conceived of as a growth without aim, forming altogether an indefinite aggregation like the sum of the branches of a tree; or the view may be held that it is an orderly arrangement, like some vast temple in which every minaret and most fantastic ornament has got its

own appointed place and harmonies, while the central tower ascends to its pre-ordained completion,—an evolution like that of a plant from whose root-leaves the shoot ascends with leaves that change their character according to law, till the summit is reached, where definite groups converge, assorted to complete the flower.

And just as there are diverse notions as to the character of the evolutions of life on the globe, so there is difference of opinion as to the source from which it springs. There are some who still deny the genetic connection of different forms of life, and others who either consider genetic connection proved, or look on it as a hypothesis with more or less probability in its favour; and among these latter there are some who see no morphological facts which cannot be explained by reference to genetic relationship and its involved lines of heredity; while there are others like myself who, in heredity, can only recognise a phenomenon the origin of which demands an explanation.

It is a very remarkable circumstance that while all these views are held and have been known to the scientific world for a great length of time, the name of *Evolutionists* has, with curious obliviousness, been assumed as a distinctive title by those who believe that the evolution is merely indefinite

and entirely to be explained by heredity. It is for them to say if this exactness in the choice of a name is an index of the accuracy of the reasoning on which their views are founded. Had they called themselves Demolitionists, on account of their disbelief in morphological design, the name might possibly have been more expressive.

Looking, however, at evolution in the natural sense of the word, we may find it useful to give a glance to some of the more notable opinions that have been held on the subject.

In such a survey, however brief, the school of Schelling, as represented by Oken and Carus, must not be overlooked. Professor Häckel of Jena claims for Oken a foremost place in the pedigree of that system which he has himself put forward; and, undoubtedly, though there is little other affinity between Häckelism and the doctrine which Oken published at the same University of Jena in his "Naturphilosophie" in 1810, than that both draw largely on the imagination, Oken's is a theory of evolution embracing all Nature. It is built upon an *a priori* conception. It constantly declares that things must be after a certain fashion, simply because the conception demands it; and it is scarcely surprising that, proceeding by this method, not distinguishing between speculation and demonstra-