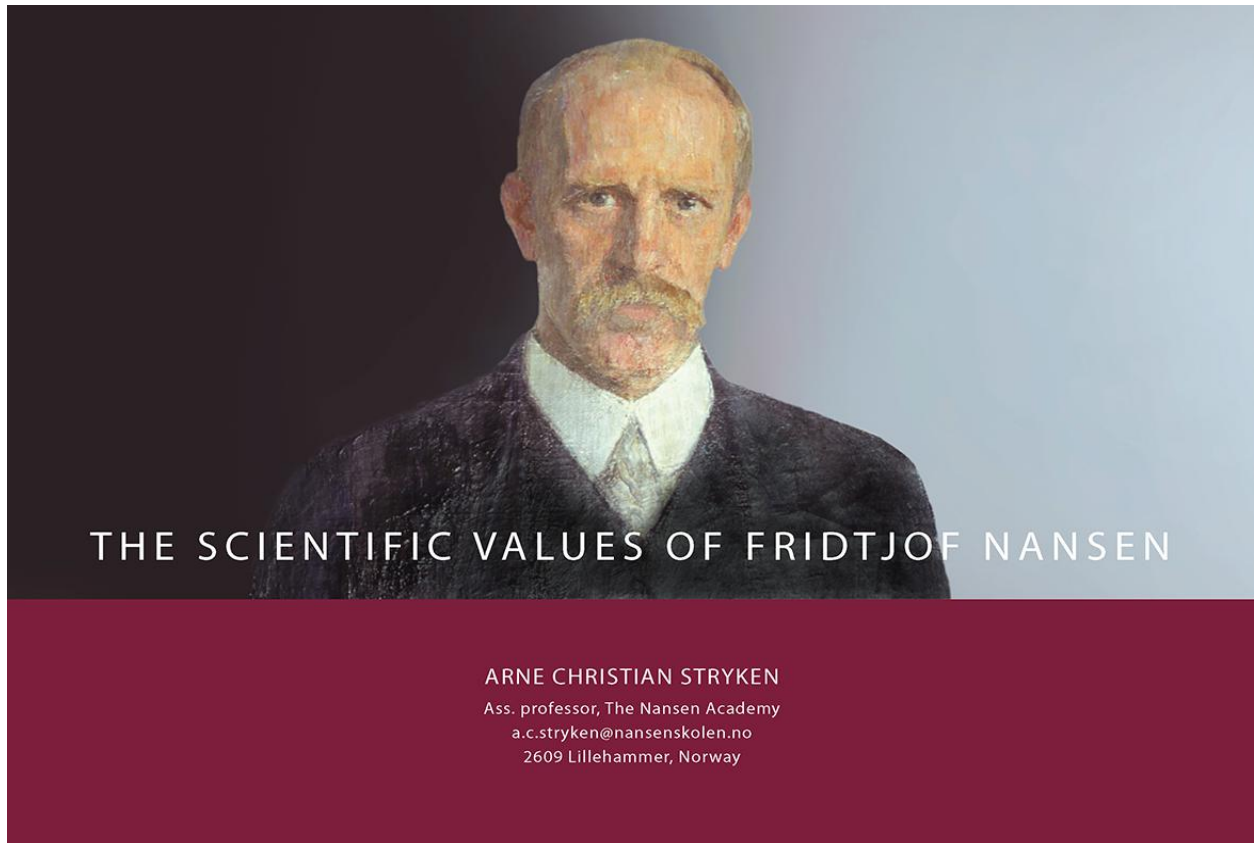


**"The scientific values of Fridtjof Nansen" By Arne Chr. Stryken**



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## SCIENTIFIC VALUES

The values of Fridtjof Nansen (1861 – 1930) can be seen in relation to the most important ideas and scientific paradigms in his young years, i.e. in the last end of the 19th century. His formative years as scientist were in the early 1880's. All his life he was a researcher in the nature sciences. He was educated in the empirical tradition of these subjects.



His Ph.D. (1888) was in marine biology on the nervous system of invertebrates in general, and *slimålen* (the slime eel) in special. He studied the general principles in the histological construction of the nervous system. He looked at the basic features in model organisms with a lucid nervous system using the most modern microscopes at that time.

*My question is: Did Nansen use his scientific and biological concept of reality when he considered sociological and cognitive issues? Did he join a biological way of thinking which was dominant in the end of the 19th century?*

My assumption is that the thinking of Nansen must be seen on the background of his scientific education. He was a rationalist and materialist in the sense that his worldview was rooted in the physical and material conditions. His faith was agnostic.

## THE SCIENTIST



Nansen covered many subjects in nature sciences. He studied, and partly developed, many fields in a way which in our specialised time would have been impossible. He had the versatile perspective of the universal genius. An example is his professorship in zoology (1898) which ten years later were changed to oceanography.

He studied geology and the shapes of landscapes, for instance connected to the origin of continental shelves. This knowledge gave a background in seeking for oil and gas on the Norwegian continental shelves in the North Atlantic and Barents Sea in the 20th century.

His first geological theories were developed on his ski expedition over the Greenland inland ice in september 1888. When Nansen and his men reached the capital Godthåb (Nuuk) they were obliged to stay there during the winter. The last ship to Denmark had already left.

But this gave him the opportunity to study the situation and language of the inuits (eskimos). He was fascinated of their ability to survive and wrote the book *Eskimoliv* (Eskimo Life). His observations were important and in an anthropological perspective.

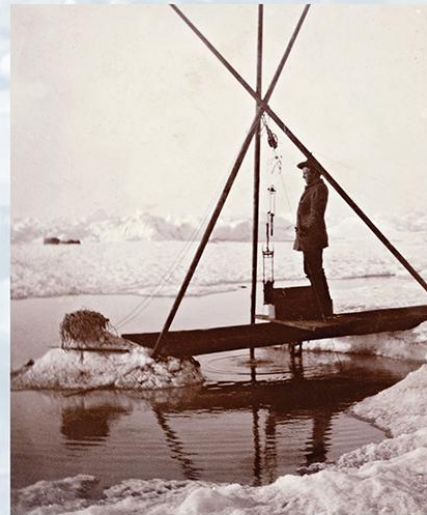


## NATURE SCIENCES AS UNIVERSAL SCIENTIFIC METHOD

The nature sciences in the 19th century became a universal scientific method which in general influenced the methods and concepts in all sciences.

The social theorist August Comte (1798 – 1857) would for instance substitute religion with a scientific faith. By using exact methods from nature sciences one should discover “natural life” in the human society. “Savoir pour pouvoir pour prévoir”, “To know in order to predict” was his parole.

Valid truth was only related to conditions which could be empirically investigated within a scientific frame. In many ways there was a superstitious attitude to nature sciences. But in this belief in progress there also paradoxically was a pessimism. A kind of determinism which thought sciences could cope with everything. What does this mean if it is transferred to the development of man and history? I mean that everything happens with necessity. On this background Nansen asked whether there really exists a free will.



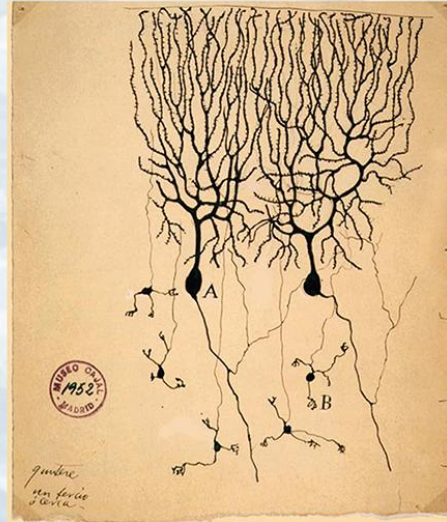
## NANSEN AND DARWINISM

Darwinism has a central position as epistemology. The publishing of Charles Darwin's (1809-1882) *On the Origin of Species* in 1859, gave birth to many different subjects in nature sciences. Phenomenons in nature were interpreted in a new and revolutionary way. Different functions of life were seen in new connections. It is a relationship between the evolutionary theories of Darwinism and what Ernst Haeckel (1834-1919) said about his oekologie (ecology) in the book *Generelle Morphologie* (General Morphology) (1866). The writings of Darwin and Haeckel developed ecological reasoning. As a young student Nansen studied both Darwin and Haeckel.

Nansen was without doubt influenced by the two brothers of his wife Eva. They were both professors at the university in Kristiania (Oslo). Their names were Ernst and Ossian Sars. Both were the first to lecture about Darwin and his theories at the university. Ernst was a historian and Ossian a zoologist.

## NANSEN AND THE NEURON THEORY

Nansen is one of the founders of the neuron theory stating that the neural network consists of individual cells communicating with each other. In his time there was a major discussion whether the nervous system was a continuous system of interconnected cells or if it consisted of separate neurons as key elements. Nansen's work supported the work of contemporary scientists in showing that nerve cells all were enclosed by membranes, implying that they are discontinuous. In that way he became an early proponent of the neuron theory, or doctrine, originally put forward by the Spanish anatomist Santiago Ramón y Cajal. He received in 1906, together with Camillo Golgi the Nobel Prize in Medicine.



Drawing by Santiago Ramón y Cajal of neurons in the pigeon cerebellum.

## PARADOXIS IN THE THINKING OF NANSEN

There are many opposites and paradoxes in the point of views of Nansen. An example is his belief in human and scientific growth on the one hand and reaction against the development of the modern society on the other hand. The belief in development is rooted

in science as basis for everything from ethics to technical development. But at the same time Nansen express through anti-mechanistic values a reaction against modernity.

## PERSONALITY AND CHARACTER

There are traits in the character of Nansen which indicate a belief in the outstanding person, which stands alone and force through his own opinion. One can also trace a doubleness in his character. A division between the independent renaissance man and the empirical rationalist. He writes about himself:

*Within me is brought to life the eternal conflict between the primitive man and the cultural man. The man from the wilderness with the impressible instincts, which doubts culture and the rights of cultural man. On the other hand the spirit of the scientist which always strives forward and upwards and sees in the veil of mist of future a more distinguished and higher existence. And both flee from the every day life of utilitarianism*  
[Greve: Fridtjof Nansen 1905-30]



## NANSEN SPEAKS

### *About the laws of nature:*

*We are led to presume that the whole universe, the living as well as the non-living world, the physical as well as the spiritual sphere, are governed by what we usually call laws of nature. All these laws are determining both the past and the future.*

*[Min tro | My Faith]*

*It doesn't help to abuse the sciences for its assertions. It has gone on and will for ever undisturbed continue its search for truth, even though so many illusions are turned out and many of us are left without hope.*

*[Videnskap og moral | Science and Morality]*

*We have to use the knowledge about the survival of the fittest. We have to use all our energy to adjust the organism to the environment and not waste time in meaningless efforts to have the environment adjusted to the organisms. *[Videnskap og moral | Science and Morality]**

### *About free will:*

*Even the most distinguished determinist acts under the illusion that, when being in doubt of what to do, the ultimate decision depends on himself and not the results of earlier reasons. *[Min tro | My Faith]**

### *About science and religion:*

*In man's feeling of his own weakness, and the irresistible power of the surrounding nature, the faith in supernatural powers was a deliverance which gave confidence and security in a difficult fight.*

*[Videnskap og moral | Science and Morality]*

### *Anti-modernity:*

*I tell you: The salvation doesn't come from the busy and noisy centers of the civilization. It will come from lonely places. The great reformers came from the wilderness. *[Eventyrlyst | Adventurousness]**

*The true wisdom is only to be found far away from the humans, out in the great loneliness, and can only be reached through suffering. Missing and suffering is the only ways to wisdom and only these can open the mind of a human for what is hidden for others.*

*[Eventyrlyst | Adventurousness]*