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About francis crick birth centenary

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Abstract
Francis Harry Compton Crick was born in Northampton, central England, on June 8th, 1916, was physical, molecular biologist, biophysicist and British neuroscientist best known for co-discovering the DNA molecule structure in 1953, with James Watson. Crick graduated in physics at University College, London, in 1937. Between 1937 and 1940 conducted research in hydrodynamics and during World War II, military artifacts designed for the Royal Navy. In the late 1940s, interest in physics began to cool he was more interested in the recent advances in biology, an area which, he believed, could become so important in the following years. In 1953, in partnership with James Watson based on experimental work of British Maurice Wilkins and Rosalind Franklin proposed the structure of the famous double helix molecule called deoxyribonucleic acid (DNA), a constituent of chromosomes and responsible for the transmission of hereditary characteristics of living things. Crick, Watson and Maurice Wilkins were awarded the Nobel Prize in Physiology or Medicine 1962 for their discoveries concerning the molecular structure of nucleic acids and its significance for information transfer in living material.

Keywords: Crick, molecular biologist, neuroscientist, hydrodynamics, deoxyribonucleic

1. Introduction

Sometimes a person gets all the credit for a scientific discovery, but that does not mean they worked alone. In particular, we will mention [4] are four in particular, James Watson, Rosalind Franklin, Francis Crick and Maurice Wilkins who helped reveal the structure of DNA. Watson and Crick were not the discoverers of DNA, but the first scientists to formulate a precise description of the complex structure of the double helix molecule. Furthermore, Watson and Crick work was directly dependent on the investigation of many scientists before them, including Friedrich Miescher Phoebus Levene and Erwin Chargaff. Many scientists, including the great Linus Pauling, were seeking to unravel the secret of life, and there was a sense of competition about who would solve the problem first. Physicist Maurice Wilkin and his assistant Raymond Gosling [10], began his studies experiencing technology, considered new at the time, called diffraction X-rays. The process was to focus the X-rays through the DNA molecules and then observing the dispersion of this beam. Based on this testing found that DNA has a simple repeating structure in the form of a helix. Meanwhile, Watson and Crick decided to leave for the construction of models. Molecular models resemble a kind of construction toys in which balls represent the atoms and the rods of the links between them. However, to build the model, they needed more clues. Such clues were provided by Rosalind Franklin to give a lecture that Watson was in the audience. So Watson and Crick built a model based on those indications and invited Franklin, Gosling and Wilkins to contemplate it and, therefore all approved the idea. Thus in 1953, Crick and Watson, based on experimental work of Maurice Wilkins and Rosalind Franklin proposed the structure of the famous double helix molecule called deoxyribonucleic acid (DNA), a constituent of chromosomes and responsible for the transmission of hereditary characteristics of living things. Representation reached by Crick and Watson is a long molecule consisting of two strands twisted around its own axis, like a snail type ladder. The connection between them is made by hydrogen bonds which are weak bonds, i.e. they rupture easily, leaving the nitrogenous bases with the handrail role of a circular staircase. This work was published on April 25, 1953 in "Nature" magazine; initially ignored, was gaining gradually recognize the scientific world, and Crick won the Nobel Prize in Physiology or Medicine 1962 jointly with James Watson and Maurice Wilkins. Rosalind Franklin had died. After helping to establish the pillars of molecular biology, Crick (1988) spent ten years focused on different aspects of embryology. At the invitation of a renowned research center, the Salk Institute in California, Francis Crick began investigating in the mid-1970s the neurobiological substrates of consciousness, an area which was dedicated until his death.

1.1 One of the Largest Scientific Developments of the Twentieth Century

DNA is the genetic material that contains critical information for the inheritance determining the phenotype of individuals. The discovery [3] of its structure represents a milestone in the development of biology of the last two centuries, which began with the discovery of the laws of inheritance Mendel by contributing to significant advances in the improvement of living organisms and understanding of biological processes. The discovery of DNA structure, with all its biological implications, was one of the biggest scientific events of the twentieth century. The number of searches that this discovery inspired is amazing; it caused an explosion that turned the biochemical and opened a wide door to the field of molecular biology. According to Brown [8] (1999), the proposition of this model was one of the great triumphs of the deduction in the history of science, as Linus Pauling, who was a chemist, belonging to another circle of knowledge, contributed Watson

and Crick, providing as of the reference protein structure model [8]. The focus for Pauling unravel the structure of DNA lies on the proteins on which Pauling was leaning for decades. Proteins at the molecular level, including the alpha-helix protein, DNA precursor. Before that, Pauling [5] was already considered the most influential chemist of his time. His book, The Nature of the Chemical Bond served as inspiration and reference for many scientists of his time and even today is considered a milestone in scientific publications. And to his method, uniting the construction of models, knowledge of chemistry and modern physics, served to James Watson and Francis Crick investigate DNA. What few know is that Linus Pauling just not discovered the structure of DNA before James Watson and Francis Crick for some details. Pauling was in the DNA of the track and by chance had been able to travel to England fatally would have seen the new plates X-ray done at King's College London and the new technique of X-ray diffraction that would help to interpret the helical structure of DNA and the internal position of bases. When reading one of Pauling on the topic, Watson found a mistake made by Pauling and tried to convince Wilkins and Franklin that had the correct interpretation. The discovery of Watson and Crick [7] has also been made possible by recent advances in the construction of the model or assembly of possible three dimensional structures based upon known molecular distances and bond angles, advanced technique by American biochemist Linus Pauling. In fact, Watson and Crick were concerned with the model proposed by Pauling, it was a different model for the three-dimensional structure of DNA. In the end, however, the Pauling's prediction was incorrect. The sight of Watson, unlike Pauling, was what led Wilkins to show Watson their latest images of diffraction X-rays of DNA. These images revealed Watson [9] that his idea was correct. However, comments that were high quality images of the DNA molecule that made these discoveries were only possible thanks to Rosalind Franklin, used by Wilkins.

1.2 Crick Played A Crucial Role In Research

Crick was an important theoretical molecular biologist and played a crucial role in research related to the revelation of the genetic code. It is widely known the use of the term "central dogma" to summarize the idea that the flow of genetic information in cells has essentially a single direction, from DNA to RNA to protein [3]. During the remainder of his career, he held the position of J.W. Kieckhefer professor emeritus researcher at the Salk Institute for Biological Studies in La Jolla, California. His research later focused on theoretical neurobiology and tried to advance the scientific study of human consciousness. He remained in office until his death, "was editing a manuscript on his deathbed, a scientist until the bitter end," according to Christof Koch [4]. To publish the article [(1)] on the DNA, Watson and Crick were mere researchers and, even more, had to race against time, because they knew that Pauling, enjoying immense scientific prestige, was about to propose a triple-stranded template for DNA. Until they came to this model, Crick and Watson spent hours analyzing, thinking and exchanging ideas about how the data could fit a model. As the double chain model to adjust properly to the crystallographic data of Rosalind Franklin preparations, Pauling immediately gave up his model. After publication, Watson continued his studies in this area precursor of molecular biology, which is why most often appears associated with this subject. After the discovery, Crick has devoted most of his life to neuroscience [6], and one of his most notable lines of research and controversial in the field was a proposal on the biological function of REM sleep, the "hypothesis of reverse-learning." Crick and Koch worked with a view to understanding the neural basis of perception of color without jointly address the problem of how we each respond to the same stimulus. Maybe, they think, when they solve the "easy problem of consciousness" and learn enough about neural systems to be able to manipulate them, will be able to face the "hard problem of consciousness". In theory Crick/Koch [14] the process of visual consciousness and neurological activity that would be behind him, the role of the thalamus and the visual areas, the fundamental function of the pyramidal neurons of the V5 layer, the importance of oscillations 40 Hz, the performance of attention and memory, etc. The discoveries made by Crick [14] about the neurons and molecules and their relationship with the visual consciousness is the new element in the debate on the role of the brain in the process of consciousness.

In his research, Crick [14] considers that the most difficult aspect of consciousness to be studied is the "hard problem of qualia." The difficult problem of qualia is the resistance of qualia to attempt to reduce the neuronal correlates often associated with them. Qualia would usually have regarded as the qualities of our conscious experiences and are characterized as subjective, unique, private and not sharable, belonging only to the individual experiencing them. The characteristic features of qualia that hinder the reduction attempts were conscious experiences and the contents of consciousness.

Crick died on July 28, 2004 of cancer at age 88 in San Diego, California [6]. His body was cremated. On April 11, 2013 his medal of the Nobel Prize was auctioned in New York for 2.23 million dollars.

1.3 Final Considerations

The discovery of Crick, Watson and Wilkins opened a new era for science and since then has caused a revolution in scientific research linked to life sciences. When Watson and Crick began his studies on the structure of DNA, both had already read the Schrodinger classic book titled "What's life" or "What is life". In this work, the theoretical Austrian physicist Erwin Schrodinger [13] tried to explain using only concepts from physics and chemistry, as could be transmitted and coded heredity in living organisms. The idea of vitalism, according to which biological organisms were composed of a kind of magic force, élan vital, was already long losing strength and the book of Schrodinger, published in 1944, it was just an attempt to explain heredity without appeal for no trace of this exciting magic of living forces that was used as an explanatory model for life from ancient Greece. In his work, Schrodinger argues that the gene should be understood as a molecule; it was a molecule such as large and stable as a crystal. She, however, could not be just as well-organized and rigid as a crystal for a very simple reason: she needed to store information; biological information for cellular function and heredity. A crystal is well known, is a highly ordered assembly of molecules and which, in order as accurate and repeatable, it is not able to keep complex forms of information. Schrodinger's importantly contribution, prepared the theoretical bases for DNA discovery, but his contribution

did not come from an observation of the way molecules to suggest the most likely way to carry such information. On the other hand, biologists [10] considered proteins, most studied molecules at the time as the most probable molecules for the transmission of information. Furthermore, it was the best known molecules while showed marked and beautiful features such as fermenting enzymes. So it was not a very big leap to imagine them also to keep the hereditary code.

The acceptance of the duplex template was the starting point for attempts to clarify the genetic transmission at the molecular level. The circle of knowledge, defined by Fleck [11] as formed by the producers of knowledge, started working with this guidance as DNA molecule structure as the model proposed by Watson and Crick. But we cannot forget that the proposition of the DNA molecule structure model was the result of several decades of investigations by numerous scientists, predecessors and contemporary scientific fact, whose observations and theories were indispensable as scientific production stages. There was a movement of inter collective ideas which provided the conditions for that to happen. Fleck [11] states that "the complex structure of modern society carries the collective thoughts intersect and interrelate in various ways, both temporally and spatially." Of course the record that Watson and Crick need were, to say the least, ungenerous in its recognition of the importance of Franklin data for the double helix. Many people wonder if Watson and Crick were really fair to Franklin once did not give him the credit for much of the evidence discovery that made the discovery possible. But what is amazing is that a whole historiographical research tradition has been built from an attitude of lack of scientific recognition [12].

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