Watson crick wilkins and franklin wo

Watson and Creek describe the structure of DNA1953 Photo: A model of DNA molecule In the late nineteenth century, a German biochemist discovered that nucleic acids, long chain polymers of nucleotides, were made from sugar, phosphoric acid and several nitrogen-containing bases. It was later found that sugar in nucleic acid can be ribose or deoxyribosis, giving two forms: RNA and DNA. In 1943, American Oswald Avery proved that DNA carries genetic information. He even suggested that DNA might actually be a genome. Most people at the time thought that the gene would be a protein rather than nucleic acid, but by the late 1940s, DNA was largely accepted as a genetic molecule. Scientists still needed to figure out the structure of this molecule to be sure and understand how it works. In 1948, Linus Pauling discovered that many proteins take the form of an alpha spiral, a spiral like a spring coil. In 1950, biochemist Erwin Chargaff discovered that the location of nitrogen bases in DNA varied greatly, but the number of certain bases always occurred in a one-to-one ratio. These discoveries were an important basis for a later description of DNA. In the early 1950s, the race to discover DNA was on. The University of Cambridge was interested in the phD student Francis Crick and researcher James Watson (b. 1928), especially impressed by Pauling's work. Meanwhile, Maurice Wilkins (b. 1916) and Rosalind Franklin also studied DNA at King's College London. The Cambridge team's approach is to make physical models to narrow down capabilities and eventually create an accurate picture of the molecule. King's team took an experimental approach, looking, in part, at X-ray diffraction IMAGES of DNA. In 1951, Watson attended Franklin's lecture on her work to date. She found that DNA could exist in two forms, depending on the relative humidity in the surrounding air. This helped her to conclude that the phosphate part of the molecule is outside. Watson returned to Cambridge with a rather filthy recollection of the facts presented by Franklin, though clearly critical of her style of lecture and personal appearance. Based on this information, Watson and Scream made a bad model. This led the head of their unit to tell them to stop DNA testing. But the theme just kept coming. Franklin, working mostly alone, found that her X-ray diffractions showed that the wet form of DNA (at high humidity) had all the characteristics of a spiral. She suspected that all the DNA was helial, but she didn't want to announce it until she had enough evidence on another form. Wilkins was upset. In January 1953, he showed the results of Franklin Watson, apparently without her knowledge or consent. Scream later confessed: I that we have always used to take -- say, a patronizing attitude towards her. Watson and Creek adopted important conceptual conceptual assuming that the molecule was made of two nucleotide chains, each in a spiral, as Franklin found, but one goes up and the other goes down. Creek just learned of Chargaff's findings about the base couples in the summer of 1952. He added that to the model, so that the corresponding base pairs are interconnected in the middle of the double helix to keep the distance between the chains constant. Watson and Creek showed that each strand of the DNA molecule was a pattern for the other. During cell division, the two strands are separated, and a new other half is built on each strand, as before. Thus, DNA can reproduce itself without changing its structure - except for occasional errors or mutations. The structure fits so perfectly into the experimental data that it was almost immediately accepted. DNA discovery is called the most important biological work in the last 100 years, and the area it has discovered may be the scientific frontier for the next 100. By 1962, when Watson, Creek and Wilkins won the Nobel Prize in Physiology/Medicine, Franklin had died. The Nobel Prize is awarded only to living recipients, and can only be divided between the three winners. Was she alive if she had been included in the prize? Related Features For Other People named Maurice Wilkins, see Maurice Wilkins (disambiguation). Native English biophysicist Maurice Wilkins CBE FRSMaurice Wilkins with one of the cameras, which he developed specifically for X-ray diffraction studies at King's College London New YorkDied5 October 2004 (2004-10-05) (aged 87)Blackheath, London, EnglandEducationKing Edward School, BirminghamAlma materUniversity of Cambridge (MA)University of Birmingham (PhD)Known forX-ray difffraction, DNASpouse (s)Ruth Wilkins (div.) Patricia Ann Chidgey (m. 1959) Children5Awards Lasker Award (1960) Nobel Prize in Physiology and Medicine (1962) EMBOPhysiBiocs Doctoral John Randall Randall Hughes Hughes Hugh Frederick Wilkins CBE FRS (December 15- October 5, 2004) is a British biophysicist who won the Nobel Prize in Physics and Biophysics. promoting scientific understanding of phosphorescence, isotope separation, optical microscopy and X-ray diffraction, as well as radar development. He is best known for his work at King's College London on DNA structure. Wilkins' work on DNA breaks down into two separate phases. The first was in 1948-50, when his initial research produced the first clear DNA X-rays he presented at a conference in Naples in 1951 attended by James During the second stage, 1951-52, Wilkins produced a clear form of B X shaped images from squid sperm, pictures he sent to James Watson and Francis Crick, causing Watson to write Wilkins... received extremely excellent X-ray diffraction photos (DNA). In 1953, Wilkins' colleague Rosalind Franklin commissioned Raymond Gosling to give Wilkins a high-quality DNA image of the B form (Photo 51), which she made in 1952, but put it aside as she left King's College London. Wilkins showed it to Watson. This image, along with the knowledge that Linus Pauling proposed the wrong structure of DNA, mobilized Watson and Creek to restart the model building. Additional information from The Wilkins and Franklin Scientific Reports obtained through Max Peruz, Watson and Creek correctly described the double spiral structure of DNA in 1953. Wilkins continued to test, test and make significant adjustments to watson-crick's DNA model and study the structure of RNA. Wilkins, Crick and Watson were awarded the 1962 Nobel Prize in Physiology or Medicine for their discoveries concerning the molecular structure of nucleic acids and its importance for the transmission of information in living material. Monument to the early life and education of Maurice Wilkins, Main Street, Pongaroa, New york Wilkins was born in Pongaroa, New York, where his father, Edgar Henry Wilkins, was a doctor. His family came from Dublin, where his paternal and maternal grandfathers were, respectively, the principal of Dublin High School and the Chief of Police. Wilkins moved to Birmingham, England, when Maurice was 6 years old. He later attended wylde Green College and then attended King Edward's School in Birmingham from 1929 to 1934. Wilkins enrolled at St John's College, Cambridge in 1935. He studied science at Tripos, specializing in physics, and earned a Bachelor of Arts degree. (when?) Mark Oliphant, who was one of Wilkins' instructors at St. John's, was appointed to the Department of Physics at the University of Birmingham and appointed John Randall to his staff. Wilkins became a graduate student at Randall's University of Birmingham. In 1945, they published four articles in the journal Proceedings of the Royal Society on phosphorescence and electronic traps. Wilkins received his doctorate for his work in 1940. Career and research of the post-war years: 1945-1950 during World War II, Wilkins developed improved radar screens in Birmingham, and then worked on the isotope division at the Manhattan Project at the University of California, Berkeley in 1944-1945. Meanwhile, Randall was appointed to the Department of Physics at the University of St. Andrews. In 1945, he appointed Wilkins as an assistant lecturer in his faculty at the University of St. Andrews. Randall negotiated with (MRC) to create a laboratory to apply experimental physics techniques to biology problems. Combining these disciplines as biophysics was a new idea. The MRC told Randall that this should be done at another university. In 1946, Randall was appointed Professor of Physics by Wheatstone, responsible for the entire department of physics at King's College London, with funding to establish a department of biophysics. He brought Wilkins with him as assistant director of the unit. They appointed a group of scientists trained in both the physical and biological sciences. The management philosophy is to study the use of many techniques in parallel to find that looked promising and then focus on them. Wilkins, as a scientist with a wide variety of physics experience and assistant director of the unit, had general supervision of various projects other than direct participation in his personal research projects, which included new types of optical microscopy. King's College received funding for the construction of entirely new departments of physics and engineering, where storage facilities under the courtyard of Strand-level college were destroyed by bombs during the war. A group of biophysics, several other experimental physics groups and a theoretical group began to move in, in the first months of 1952. The laboratories were officially opened by Lord Cherwell on 27 June. Wilkins' article for Nature described both departments, in line with his leadership and prestige in college as a whole. DNA - The first stage at King's College, Wilkins pursued, among other things, X-ray diffraction work on ram sperm and DNA that were derived from the calf thymus by Swiss scientist Rudolf Signer. The DNA from Signer's lab was far more intact than the DNA that had previously been isolated. Wilkins found that it is possible to produce thin filament from this concentrated DNA solution containing highly proven DNA arrays suitable for the production of X-ray diffraction models. Using a carefully bundled group of these STRANDs of DNA and keeping them moisturized, Wilkins and graduate student Raymond Gosling obtained X-ray DNA photos that showed that the long, thin DNA molecule in the sample from Signer had a regular, crystal-similar structure in these streams. Gosling later said: When ... I first saw all these discrete diffraction spots... appearing on film in a developing dish was really a Eureka moment.... we realized that if DNA is a gene material, we've just shown that genes can crystallize! This initial X-ray diffraction work at King's College was performed in May or June 1950. It was one of the X-ray diffraction photographs taken in 1950, shown at a meeting in Naples a year later, that sparked James Watson's interest in DNA, forcing him to write I was excited by the chemistry... I began to wonder whether it would be for me to join Wilkins in working on DNA. At the time, Wilkins also introduced Francis Crick to the importance of DNA. Cry advised him to work on proteins, telling Wilkins: What you have to do is find a good protein. Wilkins knew that proper experiments on the threads of purified DNA would require better X-ray equipment. Wilkins ordered a new X-ray and a new microcamer. He also suggested to Randall that soon-to-be-appointed Rosalind Franklin should be reassigned from working on protein solutions to join the DNA effort. By the summer of 1950, Randall had organized a three-year research fellowship that would fund Rosalind Franklin in his lab. Franklin was put on hold at the conclusion of his work in Paris. In late 1950, Randall wrote to Franklin to tell her that instead of working on the protein, she should use Wilkins' preliminary work and that she should do X-rays of DNA fibers made from Signer's DNA samples. Rosalind Franklin arrives at King's College in early 1951, Franklin finally arrived. Wilkins was on holiday and missed the first meeting at which Raymond Gosling stood behind him along with Alex Stokes, who, like Scream, will tackle the basic maths that make possible a general theory about how the heliphflation structures diffraft X-rays. For several months, the lab has not had DNA work; the new X-ray tube sat unused, waiting for Franklin. Franklin ended up with DNA from Signer, Gosling became her graduate student, and she was anticipating that DNA X-ray work was her project. Wilkins returned to the lab, expecting, on the other hand, that Franklin would be his collaborator and that they would work together on the DNA project he had started. (quote necessary) Randall's management style causes confusion and tension Confusion over franklin and Wilkins' role in relation to the DNA efforts (which later turned into considerable tension between them) clearly explained by Randall. In his letter of appointment, he told Franklin that as far as experimental X-ray efforts are concerned, at the moment it will be just you and Gosling. However, Randall never informed Wilkins of his decision to give Franklin sole responsibility for the DNA effort, and Wilkins only learned of the letter years after Franklin's death. He later wrote: My opinion is very clear: that Randall was very wrong to write Rosalind telling her that Stokes and I wanted to stop our work on DNA without consulting us. After Raymond (Gosling) and I got a clear crystal X-ray pattern, I really wanted to continue this work... Trying to understand what actually happened when a very wonderful scientist (Randall) models himself on Napoleon is not easy... (but was very harmful to her and to me. Phase 2 1951-52 by November 1951, the year had evidence that the DNA in the cells, as well as the purified DNA, had a helium structure. Alex Stokes decided the basic mathematics of helium diffraction theory and thought that Wilkins' X-ray diffraction data indicated a heli structure in DNA. Wilkins met with Watson and Crick and told them about their results. This information from Wilkins, along with additional information received by Watson when he heard Franklin talk about her research during a research meeting at King's College, stimulated Watson and Crick to create their first molecular model of DNA, a model with phosphate bones at the center. After reviewing the model of the proposed structure, Franklin told Watson and Creek that it was wrong. Franklin based this on two observations. First, J.M. experiments Gulland showed that groups of CO- and NH2 bases could not be credited, and therefore probably were unavailable. Second, crystallographic data showed that the structural units of DNA were gradually separated by the addition of water, which led to the formation of the gel and then the solution. Franklin believed that the simplest explanation for this was for the hydrophilic part of the molecule to be on the outside. Creek tried to get Wilkins to continue additional efforts at molecular modeling, but Wilkins did not use this approach. In early 1952, Wilkins began a series of experiments on sepia sperm that were very encouraging. I am... got a much clearer model than the previous year..... when I met (Sir William Lawrence) Bragg by accident, I showed him a template that very clearly offered strong evidence for the helitic structure of DNA.... acute sperm were very inspiring, and had a particular interest, that sperm were real living objects, not just purified DNA extracted by chemists from living material. Wilkins was particularly interested in whether live samples would give meaningful X-ray diffraction models - his results showed they could. In 1952, Franklin also gave up her participation in molecular modeling and continued to work on a step-by-step detailed analysis of her X-ray diffraction data (Patterson's synthesis). By the spring of 1952, Franklin had received permission from Randall to ask for a scholarship so she could leave King's College and work in John Bernal's laboratory at Birkbeck College, also in London. Franklin remained at King's College until mid-March 1953. Linus Pauling published a proposed but incorrect DNA structure, doting the same basic error as Watson and Creek a year earlier. Some of those working on DNA in the United Kingdom feared that Pauling would quickly decide the structure of DNA once he recognized his mistake and put the foundations of nucleotide circuits on the outside of the DNA model. After March 1952 focused on X-ray data for A-shape less hydrated hydrated while Wilkins tried to work on a hydrated B-shape. Wilkins was disabled because Franklin had good DNA. Wilkins received new DNA samples, but it wasn't as good as the original sample he received in 1950, which Franklin continued to use. Most of its new results were for biological samples like sperm, which also suggested a helial DNA structure. In July 1952 Franklin informed him and Stokes that her newest results made her doubt the helical nature of the A-shape. In early 1953 Watson visited King's College and Wilkins showed him a high-quality image of a B-shaped X-ray diffraction painting, now identified as Photography 51, which Franklin produced in March 1952. Wilkins showed this image produced by Franklin without notifying or obtaining permission from the chief investigator who produced the image. Knowing that Pauling was working on DNA and presented a DNA model for publication, Watson and Creek mounted another concentrated effort to deduce the structure of the DNA. Through Max Perucaz, his dissertation director, Crick gained access to a progress report from King's College, which included useful information from Franklin about the specifics of DNA that she derived from her X-ray diffraction data. Watson and Creek published their proposed dual DNA heli structure in an article published in the journal Nature in April 1953. In this work Watson and Creek acknowledged that they were stimulated. ... unpublished results and ideas by Wilkins and Franklin. Watson Creek's first article appeared in Nature on April 25, 1953. Members of the laboratories of Cambridge and King's College agreed to report their interconnected work in three works with continuous pagination in nature. Sir Lawrence Bragg, Director of the Cavendish Laboratory where Watson and Creek worked, gave a presentation at Guy's Hospital Medical School in London on Thursday, 14 May 1953, and an article entitled Why You Are You was published in the News Chronicle in London on Friday, 15 May 1953. The closer secret of life. The news reached readers of The New York Times the next day; Victor K. McElheny, in a study of his biography of Watson, Watson and DNA: Creating a Scientific Revolution, found clippings of a six-point New York Times article written from London and dated May 16, 1953 with the headline Form Life Unit in a Cell Scan. The article ran in an early edition and then pulled out to make the space for news deemed more important. (The New York Times subsequently ran a longer article on June 12, 1953). Cambridge University student newspaper Varsity also ran his own short article about the opening on Saturday 30 May 1953. Bragg's initial statement at the Solvay conference in Belgium on 8 April 1953 was not reported by the press. (quote needed) Post-1953 After the original 1953 1953 Writing about the double helix structure of DNA, Wilkins continued the research as the leader of a team that conducted a series of rigorous experiments to establish spiral patterns, both valid among different species as well as living systems, to establish the versatility of the double helix structure. In 1955, he became deputy director of MRC biophysics at King's, and from 1970 to 1972 he succeeded Randall as director of the division. The Awards and Honors Memorial Plaque in memory of Maurice Wilkins and its inauguration, under the monument, Pongaroa, New zealand Wilkins was elected a Member of the Royal Society (FRS) in 1959 and a member of EMBO in 1964. In 1960, he was awarded the Albert Lasker Prize by the American Public Health Association, and in 1962 he became a Knight of the Order of the British Empire. Also in 1962, he shared the Nobel Prize in Physiology or Medicine with Watson and Crick for discovering the structure of DNA. On Saturday, 20 October 1962, the Nobel Prizes were awarded to John Kendre and Max Perutz, as well as Crick, Watson and Wilkins, in a short sketch on the BBC television programme It Was a Week, which was with the Nobel Prizes, called Alfred Nobel's Peace Pools. From 1969 to 1991, Wilkins was founding president of the British Society for Social Responsibility in Science. In 2000, King's College London opened the Franklin-Wilkins Building in honor of the work of Dr. Franklin and Professor Wilkins in college. The wording on the DNA sculpture (donated by James Watson) outside clare's Thirkill Court, Cambridge, England a) on the basis of: i) These strands are unravel during cell reproduction. Genes are encoded in the base sequence. (ii) The double spiral model was supported by the work of Rosalind Franklin and Maurice Wilkins. b) on helices: (i) The structure of DNA was discovered in 1953 by Frances Crick and James Watson while Watson lived here in Clare. (ii) The DNA molecule has two spiral filaities that are linked to each other Launched in 2002 as the Center for Molecular Biodistuntion at the University of Auckland, and was renamed the Maurice Wilkins Center in 2006. Wilkins' personal life was married twice. His first wife, Ruth, was a student she met when he was in Berkeley. Their marriage ended in divorce, and Ruth gave birth to a son from Wilkins after their divorce. Wilkins married his second wife Patricia Ann Reggie in 1959. They had four children, Sarah, George, Emily and William. His widow Patricia and children from their marriage outlived him. In the years before World War II, he was an active anti-war activist, joining the Anti-War Group of Cambridge Scholars. He joined the Communist Party before the Soviet Army invaded Poland in September 1939. Previously UK security documents show that Wilkins came under suspicion of leaking atomic secrets. The files, released in August 2010, indicate that Wilkins' surveillance ended by 1953. After the war, I wondered what I was going to do because I was disgusted to drop two bombs on civilian centers in Japan, he said in an interview with The British radio program Encounter in 1999. In 2003, Wilkins published his autobiography, The Third Man of the Double Helix. Links : Science mourns pioneer DNA Wilkins. BBC News. October 6, 2004. Received on June 25, 2016. b Maurice Wilkins EMBO profile. people.embo.org Heidelberg: European Organization for Molecular Biology. and b Arnott, S.; Kibble, T. W. B.; Chalis, T. (2006). Maurice Hugh Frederick Wilkins. December 15, 1916 - October 5, 2004: Elected by the Fed in 1959. Biographical memoirs of fellows of the Royal Society. London: Royal Society. 52: 455–478. doi:10.1098/rsbm.2006.0031. PMID 18551798. Robert Albee; The Path to a Double Helix: Discovery of DNA; p366 - James D. Watson, Annotated and Illustrated Double Helix p180 - Robert Albee; The Path to a Double Helix: Discovery of DNA; p369 - Maddox p178 - James D. Watson, Annotated and Illustrated Double Spiral p182 - Linus Pauling and Race for DNA. Arnott, Struter. Crystalography News: A Historical

Memoir in Honor of Maurice Wilkins 1916-2004 (PDF). Archive from the original (PDF) dated December 30, 2013. Received on December 29, 2013. Nobel Prize in Physiology or Medicine 1962. Nobel Prize in Physiology or Medicine 1962. G. F. J. Garlick; Wilkins, M. H. F. (1945). A short period of phosphorescence and electronic traps. Works of the Royal Society A: Mathematical, Physical and Engineering Sciences. 184 (999): 408–433. Bibkod:1945RSPSA.184. 408G. doi:10.1098/rspa.1945.0026. ISSN 1364-5021. J.T. Randall; Wilkins, M. H. F. (1945). Phosphorescence and electronic traps. Exploring the distribution of traps. Works of the Royal Society A: Mathematical, Physical and Engineering Sciences. 184 (999): 365–389. Bibkod:1945RSPSA.184. 365R. doi:10.1098/rspa.1945.0024. ISSN 1364-5021. J.T. Randall; Wilkins, M. H. F. (1945). Phosphorescence and electronic traps. Interpretation of long-term phosphorescence. Works of the Royal Society A: Mathematical, Physical and Engineering Sciences. 184 (999): 390–407. Bibkod:1945RSPSA.184. 390R. doi:10.1098/rspa.1945.0025. ISSN 1364-5021. J.T. Randall; Wilkins, M. H. F. (1945). Phosphorescence of various solids. Works of the Royal Society A: Mathematical, Physical and Engineering Sciences. 184 (999): 347–364. Bibkod:1945RSPSA.184. 347R. doi:10.1098/rspa.1945.0023. ISSN 1364-5021. Wilkins, Maurice Hugh Frederick (1940). The laws of phosphorescence decay and electronic processes in solids. jisc.ac.uk (Ph.D. thesis). Birmingham. Birmingham. Wilkins, 68 and Chris. DNA and social responsibility. Received on October 16, 2014. Wilkins, Ch 5 and Wilkins, M. H. F. (1952). Engineering, Biophysics and Physics at King's College, London: New Building. Nature. 170 (4320): 261–263. Bibkod:1952Natur.170. 261W. doi:10.1038/170261a0. b Wilkins, Maurice HF, 'Molecular Nucleic Acid Configuration'. 1962 Nobel Lecture, 11 December 1962 - James D. Watson, Annotated and Illustrated Double Spiral p25 - Wilkins, page 138 - James D. Watson, Annotated and Illustrated Double Spiral p25-26 - Robert Albee; The Path to a Double Helix: Discovery of DNA; p354 - Wilkins, p. 128 - Wilkins page 144-145 - Wilkins, page 145 - Wilkins, page 143-150 - see Chapter 2 eighth Day of Creation: Creators of the Revolution in Biology by Horace Freeland Judson, published by The Cold Spring Harbor Press (1996) ISBN 0-87969-478-5. Wilkins, p 179-181 - Wilkins, p. 210 - b Watson, J.D.; Scream, F. H. C. (April 25, 1953). Molecular nucleic acid structure: a structure for nucleic acid deoxyribose. Nature. 171 (4356): 737–738. Bibbod:1953Natur.171. 737W. doi:10.1038/171737a0. PMID 13054692. S2CID 4253007. Wilkins, M.H.; Stokes, A.R.; Wilson, H.R. (1953). Molecular structure of deoxypentose nucleic acids. Nature. 171 (4356): 738–740. Bibbod:1953Natur.171. 738W. doi:10.1038/171738a0. PMID 13054693. S2CID 4280080. Franklin, R.E.; Gosling, R.G. (1953). Molecular configuration in sodium timonucleate. Nature. 171 (4356): 740–741. Bibbod:1953Natur.171. 740F. doi:10.1038/171740a0. PMID 13054694. S2CID 4268222. a b Anthony Tucker (October 6, 2004). Maurice Wilkins. Keeper. Received on June 19, 2016. b Watson Fuller (October 9, 2004). Professor Maurice Wilkins. Independent. Received on June 19, 2016. New Scientist August 9, 1975, page 329 - Maddox, page 323 - Our story. Maurice Wilkins Center. Received on September 9, 2015. Wilkins, Chapter 3. Wilkins p 59 - Alan Travis. Nobel British scientist accused of spying mi5, documents show The Guardian, 26 August 2010 - Bunch genes. Radio National. July 4, 1999. Received on February 20, 2009. Books featuring Maurice Wilkins Library Resources about Maurice Wilkins Resources in your Library Resources at other Maurice Wilkins Resources libraries in your library resources in other libraries of Maurice Wilkins, Third Man Double Helix: The Autobiography of Maurice Wilkins. Oxford University Editing by Robert Albee; Editing by Robert Albee Wilkins, Maurice Hugh Frederick (1916-2004), Oxford Dictionary of National Biography, online Edn, Oxford University Press, January 2008 By Robert Albee; Francis Crick: The Secretary of State for Life, Cold Spring Harbor Laboratory Press, ISBN 978-0-87969-798-3, published in August 2009. John Finch; Nobel Fellow on every floor, Medical Research Council 2008, 381 this book is all about the MRC Molecular Biology Laboratory, Cambridge Robert Albee; The Path to a Double Helix: Discovery of DNA; First published in October 1974 by Macmillan, with a foreword by Francis Crick; ISBN 0-486-68117-3; the final DNA textbook, revised in 1994, with a nine-page postscript. Horace Freeland Judson, The Eighth Day of Creation. The creators of the revolution in biology; CSHL Press 1996 ISBN 0-87969-478-5. James D. Watson Double Helix: A Personal Account of discovering the structure of DNA; Norton Critical Edition, which was published in 1980, edited by Gunther S. Stent:ISBN 0-393-01245-X. Chomet, S. (ed.), D.N.A. Genesis of a Discovery, 1994, Newman-Hemisphere Press, London; NB multiple copies are available from the Newman Hemisphere at 101 Swan Court, London SW3 5RY (phone: 07092 060530). Maddox, Brenda, Rosalind Franklin: Dark Lady DNA, 2002. ISBN 0-06-018407-8. Syre, Anna 1975. Rosalind Franklin and DNA. New York: W.W. Norton and company. ISBN 0-393-32044-8. Scream, Frances, 1990. What Mad Pursuit: A Personal Look at Scientific Discoveries (Major Books Reissue Edition) ISBN 0-465-09138-5 Watson, James D., Double Spiral: Personal Account Discovery of the Structure of DNA, Atheneum, 1980, ISBN 0-689-70602-2 (first published in 1968) Krude, Torsten (ed.) Changing DNA Science and Society: Darwin Lectures for 2003 CUP 2003, includes a lecture by Sir Aaron Clug on the involvement of Rosadlin Franklin in determining the structure of DNA. Matt Ridley; Francis Crick: The Discoverer of Genetic Code (Outstanding Life) was first published in June 2006 in the United States and then in the UK in September 2006 by HarperCollins; 192 pages, ISBN 0-06-082333-X; This short book is in the publishing house Outstanding Life series. Light Messenger, Life and Science william Lawrence Bragg Graham Hunter, ISBN 0-19-852921-X; Oxford University Publishing House, 2004. Projects for Life: Molecular Biology After World War II Soraya de Chadareva; CUP 2002, 444 pages; ISBN 0-521-57078-6; It includes James Watson well kept secret since April 2003! Tate, Sylvia and James Francis Tate. IsBN 1-84401-343-X James D. Watson, Annotated and Illustrated Double Helix, edited by Alexander Gunn and Ian Witkowski (2012) Simon Schuster, ISBN 978-1-4767-1549-0. External Commons links have media related to Maurice Wilkins. Albee, R. (2003). Silent debut for double helix (PDF). Nature. 421 (6921): 402–405. Bibkod:2003Natur.421. 402O. doi:10.1038/nature01397. PMID 12540907. S2CID 4315521. Archive from the original (PDF) dated August 11, 2011. for the People's Archive/BBC 90 story interview with Scream and 236 story interviews with Brenner. Performing at the Nobel Prize ceremony in 1962. University of Reading website dedicated to the 50th anniversary of Discovery THE structure of DNA. Includes a list of books on the subject. Biography (from the Nobel) Biography (from the New zealand Edge) Discovery Story in BA Magazine DNA: The King's Story details Wilkins' involvement in clarifying the structure of the DNA and Social Responsibility Project: Archiving Maurice Wilkin's Personal Documents List of Classic Works in Nature by THE Structure of DNA Listen to Frances Crick and James Watson speak at the BBC To reproduce the original text in June 1953 the New York Times 50th anniversary series of excellent articles. First coverage in an American newspaper of the discovery of the structure of DNA: Saturday, June 13, 1953 The New York Times (PDF) Listen to an oral history interview with Maurice Wilkins - a life story interview recorded for National Life Stories at the British Library, extracted from the watson crick wilkins and franklin worksheet