Eulogy of David Charles Watts BSc MSc PhD DSc

David Charles Watts was a person of tireless energy. He was a loving father and husband, who lived a rich full life, and who managed at the same time to make an enormous contribution to society.

Born to Charles and Daisy Watts, David grew up in humble surroundings, in a small house in Enfield.

His dad was an engineer on a cable laying ship in the West Indies, and was rarely home. His mum was a dressmaker who earned a modest living making clothes for the neighbours in the street.

David attended the local Enfield Grammar School, which he walked several blocks to and from each day.

Each week, from a very early age, David would push a wheelbarrow four blocks to the local gasometer to fetch the weekly supply of coke for the kitchen range, which was the only source of heat in the house.

Since he didn't get much pocket money, David did a paper round, and collected cardboard from local stores and residents to sell for re-cycling.

When the war came, neighbours helped the family install an Anderson shelter in the back garden. This saved their lives when a V1 buzz bomb landed in the field behind the house, and all the rear windows were blown out. A neighbour's son (and David's friend) was badly injured by a glass kitchen door which was blown into him.

David was evacuated to a farm in Chippenham, settled down at a new school and made friends. However, David became deeply homesick.

David's father Charles returned home, as skilled engineers were needed to keep the power stations running for the War Effort.

When his sister Christine was born he wrote a letter to his mother saying that if a new baby could live in London during the Blitz, so could he! Eventually, he was allowed to come home despite the danger.

The end of the war came and David joined the local Scout troupe, where he discovered a love of nature, wildlife, and camping. He later became a senior scout, in charge of a group of regular scouts.

David's father became ill. Conditions at the power station were poor, and Charles contracted tuberculosis brought on by coal dust. He died when David's was 15.

To make ends meet, David's mum took in lodgers, Tom and Rosie Brogan. Tom introduced David to photography and helped him to build a tripod. David learned how to do his own Developing and Processing, getting better results by hand than the bulk film processing companies of the time. Word got round, and David was soon doing a roaring trade, developing photos for people all round the neighbourhood.

The photographic work was to continue throughout David's time at Enfield Grammar. It kindled what became a life-long passion for photography, and also laid the foundation for his later interest in chemistry.

Thanks largely to the education reforms of Howard Wilson, David (despite his working class background) was given the opportunity to go to university. He elected to pursue his love of nature and studied Zoology at Kings College London.

David began participating in biology field trips organised by Kings. On one trip he met Rosemary Randall, a fellow Kings student who was studying biology, and the two fell in love. Rosemary had a passion for nature and photography, and the couple went on countless rambling and camping expeditions throughout the UK.

They were married in 1957, and went on honeymoon in Wales on the motorbike. Unfortunately, it rained the entire time, and after a few days the newly-weds gave up and came home to dry out.

After graduating from Kings, David moved to University College where he decided to do a MSc. in chemistry.

Upon completing his MSc., David was required to do two years of National Service as, despite the end of the war, army conscription was still in effect (as was rationing).

David was first posted to Catterick for Basic, then Colchester for specialist training as a radio engineer. He was then posted to Bournemouth to construct electronic equipment, and was later caught in mobilisation for Suez crisis.

Based on his Boy Scout experience, he thrived in the military environment, although he missed Rosemary and his family. He took pride in having an immaculate uniform and well-polished kit. Since his mum was dressmaker, he was an expert at ironing and always had the smartest pressed uniform. Other men in his squad asked him to teach them how to iron properly.

David has a story of one surprise inspection by the sergeant and visiting major where he was complemented for his shiny plimsolls. Asked by major if he was staying on, he said that he was going back to university for a PhD. The major said "My my we are wasting our time, aren't we?". David replied that actually he thought the military was fine career, and it was a bit of a shame he had to go. David felt he probably shouldn't have spoken up but that the sergeant and major left pleased.

Near the end of his National Service, David was sent to a local gymkhana to set up the PA system. When the mayor didn't turn up to open the show, he stepped forward and did so himself. For this, and generally good military performance, he was promoted to Corporal which was rare for a post-war conscript. He was put in charge of base's fire engine and given a squad to run it.

At the end of his service, he was asked if he wanted to stay on, receive a promotion and possibly officer training. Though a little saddened to not take the opportunity, he knew instinctively that he wanted to pursue an academic career, and turned the offer down. After being demobbed, David returned to University College to do a PhD. conversion course in Biochemistry.

At that time Biochemistry was in its infancy, and seemed to be a logical step based on David's zoology and chemistry background.

Today we take DNA for granted, and it is a little extraordinary to think that Watson and Crick only made their discovery in 1953. When David started his PhD, DNA had only been taught at university for two years.

David had a story of a lecture introducing DNA by an enthusiastic member of the UC staff, and attended by students, faculty and visiting scientists. At the end, a student stood up and said it didn't make any sense, and then a senior scientist (possibly Crick) stood up and said to the lecturer "I'm terribly sorry old chap, but you've got one of the base pairs backwards!".

For his PhD, David researched an enzyme known as Creatine Kinase which is related to the storage and use of energy in our bodies. In 1960, David published a paper on Creatine Kinase in the world-renowned journal "Nature", and in 1961 David completed his PhD. and earned the title of Doctor.

David then joined the U.C. faculty as a Lecturer in Biochemistry, and was awarded a scholarship for further enzyme research by the highly prestigious Beit Memorial Fellowship.

For several years, David studied the way that enzyme catalysts involved in energy regeneration in muscle vary between different animal species, and he spent several weeks at the Marine Biology Station at Plymouth studying Creatine Kinase and Arginine Kinase enzymes in marine animals.

In 1966, David moved to Guy's Hospital Medical School, becoming a Reader in Biochemistry at the unusually young age of 35. He joined his wife Rosemary, who already had a job in the Guy's Paediatric Research Unit.

At Guy's, David taught Biochemistry to medical students studying to become doctors and dentists. He also broadened his research to study the role of enzymes in disease processes, and especially in the diagnosis of diseases such as Duchenne Muscular Dystrophy.

Muscular Dystrophy is unpleasant progressive disease where a baby is born deformed, and will spend its short life in a wheel-chair. Not surprisingly, foetuses which were thought to be dystrophic were terminated before birth. Working with Rosemary in Paediatric Research Unit, David was able to develop a much more accurate screening test which saved the lives of dozens of healthy babies which would have previously been terminated. David and Rosemary's test has since been superseded by more accurate again (but much more expensive) DNA based techniques.
Rosemary and David also did fund-raising work with the Muscular Dystrophy Society charity.

David's was awarded his D.Sc. for research into muscle biochemistry in relation to animal evolution and disease.

Shortly afterwards, Rosemary was forced to retire from Guys because of budget cuts. She became involved in the Co-op movement, and became very active in various committees for CRS (Co-operative Retail Services). In the 1990s she was elected to serve on the Central Executive which was one of the highest positions available in the

Co-op. Though he remained behind the scenes, David supported her throughout her Co-op career, and helped to produce her newsletter for the 1960 ginger group.

Throughout his academic career, David was an active member of the Biochemical Society and served on the Editorial Board of the Society's Biochemical Journal.

In 1977 David became Managing Editor of the journal "Biochemical Society Transactions" (an unpaid, but time-consuming role), and attended as many Biochemical Society meetings as he could round the UK.

From the early 1970s until 1986 David was also responsible for setting up the Biochemical Society information stand at meetings of the International Union of Biochemistry and the Federation of European Biochemical Societies and became a well-known and popular representative of the Society overseas.

By the time David retired from Guy's in 1996 he had published a prodigious amount of research, including over 30 papers in the Biochemical Society's main journal, the "Biochemical Journal", and several others in "Nature", and elsewhere.

Many colleagues and former students (some of whom are now professors) have fond memories of David's time at Guys. They describe his "open door" policy where he always made time to help and mentor. They also remember him as an "old school" scientist who brewed coffee in his office over a Bunsen burner, and who made his own painkillers out of chemicals from the store.

After retirement, David pursued his interest in Antique Glass. Back in 1964, while on holiday in Somerset, David had passed an antique shop which had in its window a solitary opaque twist stem glass (shown on the cover of the Order of Service). He stopped to investigate, and under its eighteenth century charm and the old world salesmanship of the dealer, Montague Rumsey, he not only purchased the glass but became hooked on an interest which has continued unabated for the rest of his life.

Like most collectors, David began with 18th century drinking glasses, but soon became interested in cut glass, particularly goblets, thought at that time to have been made only from about 1775 but now known to date from the first quarter of that century.

As his hobby progressed, he became fascinated in the manufacturing processes, and technology involved in early English glass making.

In 1973 he joined the Glass Circle, a society of glass collectors.

Shortly afterwards he became a member of the Glass Circle committee, and founded the circle's publication the *Glass Circle News*, which he edited until 2009.

For his outstanding contribution, David was made an Honorary Vice President of the Glass Circle.

David was also a founder member of the Glass Association and, based on his experience with the Glass Circle, helped to found the Contemporary Glass Society, and served as its Honorary Treasurer for a time.

As his knowledge of the subject grew, David used his teaching skills to present lectures on areas of glass interest at Glass Circle meetings, and later to the Glass Association, Guild of Glass Engravers, National American Glass Club, and many others.

Working at Guy's Hospital, David became particularly interested in the glass industry in Southwark which he studied extensively, drawing on the nearby Southwark Local Studies Library. He later expanded this interest to cover all of London, studying industries as diverse as porthole, bottle and radio tube manufacture.

David also became interested to American glass, and became a member of the National American Glass Club, and a Fellow of the Corning Museum of Glass. He made many visits to Corning, and to various NAGC conventions in America and elsewhere.

David has authored chapters on glass history in several books and has written two scholarly books on glass himself: Glassmaking in London, and Glass Recipes of the renaissance.

Towards the end of his life, David worked hard to complete the second edition of his book on Glassmaking in London, to make sure that everything he knew on his area of special interest was set down in writing. This edition, which was double the size of the first edition, was published in 2014 to critical acclaim.

David's life was one of prodigious achievement. David was a passionate academic, a restless creator, a mentor, a caring husband, and a father who was always, always there for his son.