

IN MEMORIAM

Edward S. Kennedy (1912 – 2009)



Edward S. and Mary Helen Kennedy

Edward S. Kennedy was born in Mexico in 1912, but the outbreak of civil strife a few years later obliged his American parents to move the family to his mother's home town of Easton, Pennsylvania, where "Ted" and his two brothers were shortly joined by three more boys. He graduated with a BS in Electrical Engineering from Lafayette College in Easton in 1932 and then, in part because of the lack of job opportunities created by the Great Depression, accepted an appointment to teach at Alborz College, a secondary school for boys outside Tehran, Iran, run by the American Presbyterian Mission.

He spent the next four years in Iran. Besides teaching, he coached the school basketball team and was Scoutmaster for the Alborz Boy Scout troop. He also became fluent in both spoken and written Farsi, and before

leaving Iran co-authored the first Farsi translation of the Boy Scout Handbook. His time in Iran stimulated an interest in Islamic culture and history, and on his return to the US he entered Lehigh University to pursue a PhD in Mathematics, which he completed in 1939. He then joined the University of Alabama as an Assistant Professor, during which time he began to pursue research on medieval astronomical tables, called *zijes* in Persian and Arabic.

A reserve officer in the US Army, he was called into active service in 1941. As one of the few American officers with a command of Farsi, he returned to Iran to be assistant military attaché in Tehran. Iran was a sensitive strategic interest to the US at the time, as the channel through which the Allies resupplied the Red Army in its struggle against the Nazis, and Kennedy was involved in efforts to monitor Soviet intentions in the Soviet-occupied northern part of the country while keeping track of German *agents provocateurs* throughout the region.

With the close of the war, Kennedy returned briefly to the US to work with Dr. George Sarton at Harvard University, Massachusetts. It was at this time that he began a close working relationship and friendship with Dr. Otto Neugebauer, founder of the History of Mathematics Department at Brown University in Rhode Island, a relationship that was to last until Neugebauer's death in 1990.

With the focus of his research involving the reading of medieval manuscripts written in Arabic, in 1946 Kennedy accepted a professorship at the American University of Beirut, Lebanon, in part with a mind to improve his knowledge of that language. In 1951 he married Mary Helen Scanlon, a teacher at what was then called the Beirut College for Women (now the Lebanese American University). Although Kennedy took periodic leaves to pursue his collaboration with Neugebauer at Brown, he continued to teach in the Mathematics Department for the American University of Beirut for the next 35 years, retiring in 1976 at the close of the first, most vicious phase of the civil war that afflicted Lebanon.

Retirement from teaching implied no let-up in his research activities, with stays at the American Research Center in Egypt (1976-1978) and the Institute for the History of Arab Science in Aleppo, Syria (1978-1980). Plans to take up permanent residence in what had been their summer house in the mountains overlooking Beirut were thwarted first by the 1982 Israeli invasion and the consequent upsurge in sectarian conflict in Lebanon, and then by the rash of kidnappings of foreigners by militants.

Professor and Mrs. Kennedy reluctantly left Lebanon permanently in 1984.

Four years at the Institute for the History of Arab and Islamic Science in Frankfurt were followed by a move to Princeton, New Jersey, in 1989. Despite his many years abroad, Kennedy passed away at the age of 97 not far from his Easton boyhood home, in Doylestown, Pennsylvania.

E. S. Kennedy was instrumental in raising scholarly awareness of the richness and sophistication of the exact sciences in the medieval Islamic world through his translation and analysis of hitherto little-known Arabic manuscripts. Professor Emeritus at the American University of Beirut, he was made a member of the Order of al Istiqlal by Crown Prince Hassan of Jordan in 2001 for his contribution to the study of Islamic culture.

He was much appreciated by those who knew him for his modesty and sense of humor as well as his keen loyalty to Mary Helen, a kindred spirit in her love of music and interest in the lands and cultures of the Middle East. He is survived by his wife, three children, and six grandchildren.

Nora and Michael Kennedy

Memories of Ted Kennedy

The following is the text of an *éloge* for Ted Kennedy prepared for his memorial service, attended mainly by his family. It was delivered by Michael Kennedy.

Besides the influence Ted had on his closest family, Ted lives on in the lives and work of his numerous *students and colleagues*. Today I speak for many of them, maybe for all of them.

We remember Ted for his love for the Near East and his healthy respect for its peoples. Ted travelled all over the Near East from Afghanistan to Egypt. His first love was Iran - for him, it had the friendliest people, the most beautiful language, the most exquisite poetry, and the best cuisine; I think he would have happily spent his life there. (Iran has a very different press these days, a development that Ted would have deplored.) His second love was, because he needed a job, Lebanon. He knew both Persian and Arabic, the keys to understanding and being understood in those parts of the world. He also knew French, German and Russian, and through his knowledge of Russian he kept the Western mathematical world abreast of relevant Soviet publications. His life-long research in the

history of astronomy and mathematics in the Islamic world grew out of a healthy respect for those men who were the leading scholars in the world in their time centuries ago. His research was made possible only because he knew Persian and Arabic, and because he knew the language of mathematics.

We remember Ted for his extraordinary mathematical abilities. The most complicated paper he ever published was his doctoral thesis from Lehigh University, a mind-boggling investigation of the so-called “Lambert series”. This ability was to stand him in good stead as Professor of Mathematics a long time ago at the University of Alabama and for the rest of his academic life at The American University of Beirut. The investigation of medieval astronomical and mathematical tables and texts was never beyond him. It was Ted who was the first to use the electronic computer as a tool for “cracking” medieval astronomical tables: determining their structure and investigating their accuracy and the way in which they were compiled centuries ago.

We remember Ted for the quality of his publications, all those dozen books and some 120 academic papers and 170 mathematical reviews that reflect his passion for his subject and his concern to convey it to others. He was as much interested in scientific ideas and developments as in the persons behind them. Three medieval scholars attracted his attention more than any others:

(1) al-Bīrūnī, who flourished in Afghanistan about a thousand years ago, the greatest scientist in Islamic history. It was Ted who revived interest in this outstanding scholar.

(2) Ibn al-Shāṭir, a Damascus astronomer who lived around 1350. It was Ted who in the 1950s discovered that his geometrical models for the sun, moon and planets were the same as those of Copernicus 150 years later. (We have since been able to show that Copernicus did indeed adopt Ibn al-Shāṭir’s models without reference to their source.)

(3) al-Kāshī, who lived also in Central Asia around 1410, a mathematical genius, a man after Ted’s heart, with the difference that al-Kāshī was not given to modesty.

Ted published three books on al-Bīrūnī, one on Ibn al-Shāṭir, and two on al-Kāshī.

Many of his papers have been reprinted in two imposing volumes: *Studies in the Islamic Exact Sciences* (1983), and *Astronomy and Astrology in the Medieval Islamic World* (1998).

Ted will be remembered for his writings as long as there are academic libraries to house them and scholars to use them.

We remember Ted for his humility, mistaken though it might have been. He had a healthy respect for his own teachers and senior colleagues: I name here in particular Otto Neugebauer, Abe Sachs and David Pingree. He never liked being referred to as “the world’s leading scholar of Islamic science”, but that he was, and for more than half of a century.

We remember Ted for his generosity as a teacher. Students have to get started somehow. In his seminars at The American University of Beirut Ted encouraged students to make serious discoveries and to write them up and publish them, usually in their own name, sometimes with Ted’s name besides theirs. Now students cannot write papers for international journals without a great deal of guidance from their teacher. The succession of about 30 papers bearing the names of Ted’s immediate students – those at The American University of Beirut – bears witness to his intellectual generosity. Ted’s library in Beirut was open to his students: I remember him saying “Look at anything you want.” Ted had a substantial collection of microfilms of medieval scientific manuscripts. One day in Beirut around 1970 my Lebanese counterpart George Saliba – the other student of Ted’s at the time (we have since been referred to as a Ṭūsī couple) – discovered that Kodak had a special offer to copy microfilms. Ted immediately agreed that we could borrow his entire collection, tape them altogether and have the lot copied for each of us. My own students in the 80s and 90s have made their own copies of these copies from Ted’s films.

We remember Ted for his dry humour. He used to love a good joke and his crackling laughter was a joy to hear. Much of his mirth was based on linguistic niceties that are difficult to convey.

For example, the Arabic word *zīj* stands for an astronomical handbook full of tables and explanatory text, these being often books of several hundred pages. Dave Gordon, a colleague of Ted’s at the American University of Beirut described the kind of work that Ted did on medieval *zīj*es as “zījing about”.

He was most touched when a colleague composed a line of poetry about his prowess with the French horn:

Der Kindi spielt den Doppelhorn, sowohl von hinten als von vorn.

But it was the incidents that inspired folkloric recounting over the years that deserve repetition. In the Spring of 1971, I organized a bus trip into

the Syrian desert for a group of AUB faculty and students interested in history and architecture. The Kennedys followed the bus in their Volkswagen minibus. One evening, for want of a road, we strayed onto a Syrian military base. Fairly quickly we were surrounded by a substantial patrol of Syrian military personnel and hardware. When we told and retold this story afterwards, we never failed to mention that the Syrian artillery-guns were all pointing at the Kennedys' minibus.

Whilst in Frankfurt Ted and Mary-Helen submitted to a German printer the 700-page computer printout of their overview of place-names and geographic coordinates in Islamic astronomical and geographical sources. Onto this had been taped several thousand Arabic names of the localities, prepared on an Arabic typewriter. The printer in his enthusiasm diligently trimmed the received text in one foul swoop and all the Arabic names fell out.

Other stories about incidents during Ted's visits to the Egyptian National Library and the Azhar Library cannot be published here. But Ted thought they were pretty funny, at least afterwards in the case of the Syrian artillery-guns.

We remember Ted as one link of a devoted couple. Mary-Helen was always in close proximity, and we respect her as much as we do Ted. We saw them in their home in Beirut and their secondary home in Ainab, up in the mountains above Beirut. We saw them in their temporary homes in Aleppo and Cairo and Frankfurt. We saw them when they spent some months in Barcelona. We saw them in Princeton and Doylestown. Their home was always welcoming. We saw Mary-Helen helping in the publication of a first-rate journal in Aleppo and helping with a computer-printout of thousands of data relating to Islamic geographical coordinates. So as we recall Ted's academic career, we should keep in mind that Mary-Helen was there more or less from the beginning in 1950 to the end in 2009.

Above all, we remember Ted for his humanity, for his love for the Near East and his respect for its peoples. His family and his students benefited from his kindness and generosity but we also appreciated his concern for non-violent solutions to political problems. He was an inspiration to his students, as much for his mathematical and historical ability as for his personality. He was a father-figure to some of us, his publications a model to be imitated as far as possible. And some of us were fortunate enough to work with him not just as students but also as close colleagues and friends.

One of the greatest tributes to Ted was the volume of studies that we dedicated to him in 1987. It contained essays by some 35 of his colleagues and former students and it was published by the New York Academy of Sciences.

Another tribute to Ted is that his pioneering work on Islamic *zīj*es – those astronomical handbooks with dozens of tables – is being continued by Benno van Dalen. Ted identified 125 of these works in the 1950s and Benno has now about 225. Benno's new Survey owes all of its inspiration to Ted.

Obituary notices for Ted will appear in the major journals of the history of science (*Isis*) and the history of mathematics (*Historia mathematica*) and the history of astronomy (*Journal of the History of Astronomy*), as well as journals in the history of Islamic science (especially the journal *Suhayl* from Barcelona and also the *Journal for the History of Arabic Science* from Aleppo). A complete bibliography of a dozen books and 120 academic papers will also be published in *Suhayl*.

My colleague Julio Samsó of Barcelona writes of Ted as his "Master". Ted was for all of us, his students and his colleagues, "El Maestro".

David King

It is difficult for me to write an obituary of E.S. Kennedy. The main details of his biography were published by George Saliba and David King in 1987¹. To these one could add the years in Princeton where Ted and Mary Helen bought an apartment in order to live near Ted's mentor, Otto Neugebauer (1899-1990) and then the final years in a nursing home in Doylestown, when Ted's health became increasingly worse. I believe these facts are sufficiently covered in the note, signed by Nora and Michael Kennedy, which appears in this volume, as well as in the bibliography compiled by David King and Benno van Dalen. Fortunately I remembered that Saliba and King added, to their more or less informal biography in Kennedy's *Festschrift*, extensive personal reflections on Ted Kennedy as a human being. Along the same line, I would like to add, here,

¹ *From Deferent to Equant - A volume of studies in the history of science in the ancient and medieval Near East in honor of E. S. Kennedy*, (David A. King and George Saliba, eds.), a special issue of *Annals of the New York Academy of Sciences* 500 (1987), pp. IX-XVI

a summary of the history of my contacts with him and of his many visits to the University of Barcelona, which were extremely influential for the development of the "Barcelona school".

It goes without saying that, when I met Professor Kennedy for the first time I was a young scholar in my early thirties, while Kennedy was universally acknowledged as the greatest specialist in the history of Islamic Astronomy. This is why I was so impressed when I met him in Aleppo (around 1977) in one of the corridors of the Institute for the History of Arabic Science. I had already published one paper in the Aleppo journal and Kennedy quoted, the Gospel. He said to me something like "I believe that if you give seven, you will obtain seventy times seven" and he gave me an enormous bunch of offprints of papers of his. I did not know how to thank him.

After that I met him and his wife Mary Helen again during the Congress of History of Science in Bucharest (1981); where I learnt that his son Michael was living in Barcelona. From this I had the idea that the Kennedys might not object to the idea of being invited to come to Barcelona. I was right and I began to look for opportunities to invite them. They always came either with the pretext of giving lectures or being members of the commission in charge of judging a doctoral dissertation. At the time in which they left Beirut and were staying in Frankfurt, I succeeded in convincing the authorities of the University of Barcelona to rent for them a small apartment near the University. I offered my office to Professor Kennedy and found a table for me elsewhere. I asked him to consecrate to me one afternoon per week and this is how I became, in a certain way, his student. This is why I have added, to Ted's bibliography, a paper of mine which was the result of our conversations and discussions every Monday afternoon. He stayed with us for three months and helped all of us, collaborating in the research of the whole group. In this way Ted Kennedy was the link that connected the Barcelona group with the school of Brown University. It was also during this stay that, on the occasion of a visit of David King to Barcelona, we decided, the three of us, to launch the project of a Commission on Arabic and Islamic Science: this was finally approved at the Hamburg International Congress in 1985. Kennedy was its first President.

The visits of Ted and Mary Helen to Barcelona continued in the following years. I visited them in Princeton in 1992 and I remember that, when I arrived to the railway station I did not know where to go. There was a public telephone and I talked to Ted. He arrived ten minutes later

riding a bicycle and wearing a helmet with an inscription that reminded me of Beirut taxi drivers. It said: “Allāhu ma‘a-nā” (God is with us). He even proposed that I could sit on the bicycle with him and that he would ride me home. I told him I preferred to walk.

During the last years I phoned the Kennedys once every two weeks until I realised, on one occasion, that he did not remember any longer who I was. I continued phoning and talking to Mary Helen, who gave me news about her husband. I learned of his death through an email sent by Sally Ragep to the Islamsci list serve. He passed away when he was 97 and had remained active until about age 90. A few months ago Benno van Dalen proposed to me that we publish in *Suhayl*, his last work, The Astrological History of al-Battānī, on which he had been working for years with the collaboration of George Saliba and Benno. I revised the text and thought that a minimum astrological commentary should be added to it. This has been my contribution and, in this way, the long paper will be yet another result of the collaboration of E.S. Kennedy, Colleagues and Former Students.

Julio Samsó

E. S. Kennedy (1912-2009). A bibliography

Introductory remarks:

Titles of books are in bold font.

Articles authored by immediate students of ESK – *i.e.*, mainly those at the American University of Beirut – are included here and are marked by an asterisk. They invariably owe their inspiration to him.

Over one hundred abstracts of journal articles in *Mathematical Reviews* have been omitted; abstracts of books are, however, included.

The *Kennedy Festschrift* appears at the end of this list; the bibliography on pp. xvii-xxiv of that work lists some works in preparation at that time (1987) that have not appeared in print.

Many of the publications have been reprinted. The following abbreviations are used for reprints:

AAMIW: ESK, *Astronomy and Astrology in the Medieval Islamic World* (1998).

Ibn al-Shāṭir: ESK and Imad Ghanem, eds., *The Life & Work of Ibn al-Shāṭir* (1976).

SIES: ESK, *Studies in the Islamic Exact Sciences* (1983).

This list was compiled by Benno van Dalen and David A. King; they will be grateful to be alerted to any errors or omissions.

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ESK, A review of P. H. van Cittert, *Astrolabes – A Critical Description of the Astrolabes, Noctilabes and Quadrants in the Care of the Utrecht University Museum*, Leiden 1954, in *Speculum* 31 (1956).

* Victor Roberts, "The solar and lunar theory of Ibn ash-Shāṭir - A pre-Copernican Copernican model", *Isis* 48 (1957), pp. 428-432. Reprinted: *Ibn al-Shāṭir*, pp. 44-48; *SIES*, pp. 50-54.

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