
Robert Burns Woodward (1917–1979) A Personal Profile

Gie me ae spark o' Natures fire, That's a' the learning I desire.

– Robert Burns
(1759–1796)

Robert Burns Woodward was born in Boston on April 10, 1917, Massachusetts, to Margaret (née Burns, an immigrant from Scotland) and Arthur Chester Woodward, Roxbury, Massachusetts. When Robert was one year old, his father died in the flu pandemic of 1918.

Although his mother remarried, she was soon abandoned by her second husband and left to bring up her son in straitened circumstances. Woodward received his primary and secondary education in the public schools of Quincy, Massachusetts, where he was allowed a triple promotion, enabling him to enrol in MIT (Massachusetts Institute of Technology) at age of 16! In the remarkably short span of four years Woodward completed both his BS (1936) and PhD (1937) in chemistry with the sympathetic support of Professor James Flack Norris, who remarked in June 1937 that “we saw we had a person who possessed a very unusual mind and we wanted it to function at its best. If the red tape necessary for less brilliant minds had to be cut, we let it go. We did for Woodward what we have done for no other person like him in our department. We think he will make a name for himself in the scientific world” (*Boston Globe*, 8 June 1937).

From a very early age, Woodward was attracted to and engaged in private study of chemistry while he attended the public primary and secondary schools of Quincy, Massachusetts. By the time he entered high school, he had already managed to perform most of the experiments in Ludwig Gattermann's then widely used textbook of experimental organic chemistry. In 1928, Woodward contacted the Consul-General of the German Consulate in Boston, and through him, managed to obtain copies of a few original papers published in German journals. Later, in his Cope lecture, he recalled how he had been fascinated when, among these papers, he chanced upon Diels and Alder's original communication about the Diels–Alder reaction. Throughout his career, Woodward was to repeatedly and powerfully use and investigate this reaction, both in theoretical and experimental ways. Woodward's doctoral work involved investigations related to the synthesis of the female sex hormone estrone. MIT required that graduate students have research advisors. Woodward's advisor was Avery A Ashdown, although it is not clear whether he actually took any of his advice. After a short postdoctoral stint at the University of Illinois, he took a Junior Fellowship at Harvard University from 1937 to 1938, and remained at Harvard in various capacities for the rest of his life. In the 1960s, Woodward was named Donner



Professor of Science, a title that freed him from teaching formal courses so that he could devote his entire time to research.

What kind of a person was Bob, and how do we remember him? He was a genius and a very sensitive individual with a prodigious memory. He also had a drive to solve difficult problems and liked teaching in the broadest sense of the word. His lectures were models of clarity, originality, and insight. He enjoyed starting at the upper left-hand corner of a very large blackboard and finishing at the lower right-hand corner with precise formulation of his ideas and thoughts and a total package that was characteristically Woodwardian. He eschewed the use of slides and drew structures by using multicolored chalk. Typically, to begin a lecture, Woodward would arrive and lay out two large white handkerchiefs on the countertop. Upon one would be four or five colors of chalk (new pieces), neatly sorted by color, in a long row. Upon the other handkerchief would be placed an equally impressive row of cigarettes. The previous cigarette would be used to light the next one. His Thursday seminars at Harvard often lasted well into the night.

He had a fixation with blue, and many of his suits, his car, and even his parking space were coloured in blue. In addition, in his later years he had a well-loved blue Mercedes sedan that occupied this parking space during the days and nights when he was doing science in Converse Memorial Laboratory. He detested exercise, could get along with only a few hours of sleep every night, was a heavy smoker, and enjoyed Scotch whisky and martinis.

As Woodward's post-doctoral student I have imbibed his personal work habits. On an average he used to put in 14–15 hours a day (Saturday half day); when I joined he told me that he expected me to work for 100 hours a week! Towards the end it came to much more than that. His only regular round was between 10:30– 11:00 pm perhaps ensuring our presence.

His intensity as a scientist is well known (*vide supra*), but he was just as intense in the non-scientific areas of his life. When he wanted to be, he was quite a social person. I remember some of the parties at his Belmont, Massachusetts, home, where puzzles and games were played at his behest and with his participation. He loved such challenges, and as an example, I should tell you that he loved doing *The New York Times* crossword puzzle every day, but of course, only in ink. It wasn't necessary for him to erase. He loved and appreciated good food and also good drink. As we know from some of his scientific activities, symmetry played a large part in his thinking and, in fact, it played a part in his personal life. He had a very symmetrical license plate, and he tried to have symmetrical relations with his children, although that was not always successful. I can testify that he also liked adventure in areas other than science. I remember well when I bought a new twin engine fishing boat in 1960, and we tried it out one day by going from Cuttyhunk to Doxie's homeport of Bridgehampton on Long Island. The day was very foggy, and we did not have



any instruments aboard except a compass and a depth meter. Did Bob want to try running the boat? "Of course," he said. He loved it, and actually very much enjoyed piloting the boat for several hours without incident (an account by Professor Albert Eschenmoscher, ETH).

In 1938 he married Irja Pullman; they had two daughters: Siiri Anna (b. 1939) and Jean Kirsten (b. 1944). The second marriage with Eudoxia Muller in 1946 had very good times as well as many rough spots. As a result of this marriage he fathered two additional children: a daughter who Bob and Doxie named Crystal and a son named Eric. This marriage broke apart in 1966.

I have learned much more from Professor Woodward's personal life than his chemistry. His deep obsession with chemistry made every other aspect of his life a tragedy. His total negligence of his own health (heavy smoking and drinking) and even more typically his family suffered greatly. In his heady days even his children had to wait for days to talk to them with the result that except his son Eric, none others fared well. The last time I was in Harvard, RBW said, "Sorry Subram, I cannot drive you to the airport. I am waiting for a call from Eric!" I felt sad! How the tables have turned! When his second marriage broke up in 1966, he left his 5-Belmont residence and moved to a Hotel where he passed away! Friends took turns to take care of him!

Central to all this was Ms. Dolores Dyers (Dodie), RBW's nearly lifelong secretary. Every day I have seen RBW coming with one red rose to give it to her! Dodie played a central role in RBW's accomplishments which has never been acknowledged! When Dodie passed away in the early seventies by cancer, RBW wrote to every one of his co-workers about this great loss! Colleagues tell me that in the ensuing days RB was so distraught that they feared for him.

Apart from his excessive fondness for the spirit, his smoking habit by any yardsticks was inadmissible. He used to smoke 3 packs a day with his own blue match folders. When the surgeon general's report in the early sixties stated that cigarette smoking is directly linked to heart, RB tried to give up smoking! Too late! Those days he was impossible and we kept clear of him. Fortunately he soon returned to his smoking.

His fighting spirit is illustrated in the following story narrated by Barton¹. By pure chance, the two great men met early on Monday morning on an Oxford train station platform in 1951. Robinson¹ politely asked Woodward what kind of research he was doing these days; Woodward replied that he thought that Robinson¹ would be interested in his recent total synthesis of cholesterol. Robinson, incensed and shouting, "Why do you always steal my research topics?", hit Woodward with his umbrella. This story must be true, because Woodward told me about it several days later.

¹Barton and Robinson are both Nobel Laureates in organic chemistry.



He was also fond of literature, art and music. We arrived at the night club and Armstrong was already playing. I introduced Bob to my friend saying, "This is Bob Woodward." My friend turned around impatiently, shook his hand, and returned his attention to the music. I said, "Look, Bill, Bob Woodward is to organic chemistry what Louis is to the trumpet!" At that my friend turned around slowly, looked Bob in the eye, and said, "Man, you must be one hell of a chemist!" Bob said he thought that was the most sincere compliment he ever got².

He had a fountain of stories to tell, some perhaps invented. One such is that, when he went to one of his postdoctoral lab at night, he found the man strangling himself making terrible noises; on enquiry it was found that he was merely imitating a play on the radio which was on.

When he was awarded the Nobel Prize, he took his entire Basal group including me, to Stockholm. Unusual observations aroused his curiosity. During the lunch for Nobel laureates at the palace, he found the waiters were wearing chest full of medals. On enquiry he found that many royals visit the palace and they give these medals which are cheaper than cash!

He was very fond of my late wife Darshan. He used to ask her particularly how she liked his lectures. On one occasion, his trousers got torn and he asked Darshan to loan her sari so that he could wear it like a Toga!

In his last years he became much more social, not in a global sense, but in his relationships. When he was in Cambridge we had dinner at least once a week. Even though he loved having a home-cooked meal practically every week with my wife, Gail (Ms E Blout²), and me, we varied the routine by occasionally going to local restaurants. The night before he died we had a wonderful dinner together at the Stockyard and left him in a very good mood when we separated at about 11:00 pm. During the next hours he suffered a fatal heart attack, and I never saw him again. Although in this period he had many symptoms of a cardiac condition, he ignored them as if they weren't important, and maybe such symptoms were not important to him².

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² E Blout (Late), *Academy Biographical Memoir*, Vol.80, The National Academy Press, Washington, DC, 2001.

