

## Eugene Braunwald

### Escaping Death and Prolonging Lives [Part 1]

Ruth Williams

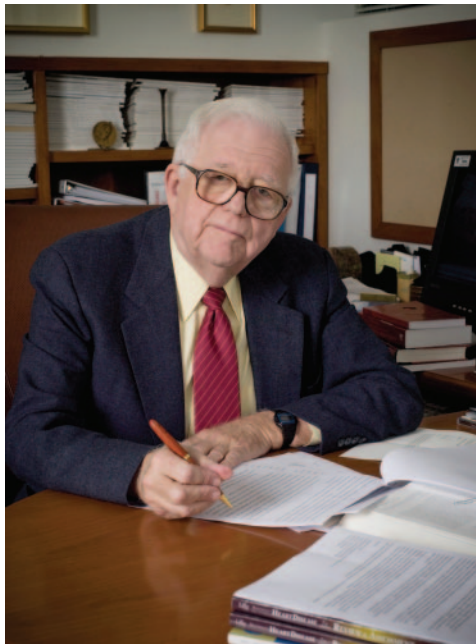
#### *Preamble by the Editor*

*Writing a preamble to the Profile of Dr. Eugene Braunwald is a daunting task, for it is impossible to convey the enormity of his impact on cardiovascular medicine in the limited space I have.*

*What can I say, in one paragraph, about Dr. Braunwald's research contributions? Surely it won't be enough to point out that he has laid the foundations of classic chapters of cardiovascular physiology, such as myocardial oxygen consumption, cardiac mechanics, and cardiovascular hemodynamics. Or that he has been pivotal in identifying the etiology, pathogenesis, and treatment of hypertrophic cardiomyopathy. Or that he has created and spearheaded the concept of infarct size limitation (inspiring my own scientific career). Or that he has illuminated our understanding of heart failure and revolutionized the management of postinfarction left ventricular remodeling. Or that he has led more than 50 TIMI trials, which have transformed the management of acute coronary syndromes. No, that won't do, because this list is woefully incomplete. There is so much more. I think the best way to put it is that his research has had a major impact on cardiovascular medicine, greater than that of any other contemporary investigator.*

*And how is it possible to describe the stature of this man in a few sentences? The best I can do is to mention some facts. For example, that the living Nobel Prize laureates in medicine or physiology have voted Dr. Braunwald as "the person who has contributed the most to cardiology in recent years." That he has published more than 1000 articles, is the editor of the premier textbook of cardiovascular*

*medicine in the world, and has the highest h index in the field of cardiology and cardiovascular science—a stunning 175. That his awards, prizes, and recognitions are too many to count. That he has trained generations of academic cardiologists, who have gone on to become academic leaders and train their own disciples. And that at the age of 81 (when most scientists are forgotten or marginalized), he continues to be a leader in cardiovascular medicine and is more productive than most of us, publishing seminal findings at an unabated pace. But I think even this summary is wanting, because many things have been left out. Probably the best way to put it is simply this: Dr. Braunwald has been the epitome of academic cardiovascular medicine for the past 50 years.*



*But there is much more to Dr. Braunwald than his scholarly work. His persona and his incredible charisma cannot be conveyed in words. Remarkably, this charisma is immune to the corrosive force of time. For example, I distinctly remember his keynote lecture at the 2009 meeting of the Association of University Car-*

*diologists in Carmel, California. The room was packed with Chiefs of Cardiology and other cardiovascular leaders, and there were even people standing at the back; so intense was their attention to the speaker that you could have heard a fly buzzing around between one word and the next. Just like 10, 20, 30, or 40 years ago, the audience was riveted by the lecture of this 80-year-old icon. Absolutely amazing. Looking back at my own life, I see that Dr. Braunwald was already my hero when I was in medical school, just as he is today. If anything, my admiration has increased over the years.*

*And then there is the prose. That extraordinary prose. Those pages that you want to keep reading. Perhaps it's because I am so sensitive to language (and to written language, in particular) that I must*

The opinions expressed in this Profile in Cardiovascular Science are not necessarily those of the editors or of the American Heart Association. E-mail [ruth.williams@ahsw.org.uk](mailto:ruth.williams@ahsw.org.uk) (Circ Res. 2010;106:1668-1671.)

© 2010 American Heart Association, Inc.

Circulation Research is available at <http://circres.ahajournals.org>  
DOI: 10.1161/RES.0b013e3181e87767

confess here my admiration for the manner in which Dr. Braunwald writes. His prose is simply beautiful, the most beautiful I have ever encountered in biomedical literature. It is simple, yet sophisticated; clear, yet profound; pleasant, but also accurate; informative, yet succinct; not overbearing, yet powerful; incisive, but also warm; and imbued with crystalline logic. Reading Dr. Braunwald is a pleasure for the mind. The style is natural, fluent. The form is elegant but not affected. The words flow effortlessly, almost spontaneously, as if nobody had worked to put them together. And his mastery of picturesque metaphors and similes is unmatched (I will just mention here the famous “myocardial stunning”).

As my colleagues know, one of my favorite tenets is the plumber’s rule, which states that if you can’t explain a medical concept to your plumber, you don’t really understand it. Dr. Braunwald not only adheres to this standard but also surpasses it: his ability to make the complex simple is truly uncanny. This is, of course, the gift of geniuses.

We are fortunate that Dr. Braunwald accepted to join our editorial team. Maybe it was written in the stars that *Circulation Research* would have a long relationship with him. As I mentioned in my inaugural Editorial,<sup>1</sup> his very first article (submitted at the beginning of his postdoctoral research Fellowship) appeared in this journal in 1954<sup>2</sup>; since then, he has authored 68 articles in *Circulation Research*. Intriguingly, he interacted personally with Carl Wiggers, our founding Editor, as he narrates in a 2003 article.<sup>3</sup> And 55 years after his first publication in *Circulation Research*,<sup>2</sup> he became the Senior Editor of the journal.

Talking about his connection with the journal, I can’t help but mention that I ran into Dr. Braunwald in the afternoon of August 13, 2008, at Reagan National Airport in Washington, D.C. I was on my way back from my interview with the Scientific Publishing Committee of the American Heart Association for the position of editor of *Circulation Research*. I had never run into Dr. Braunwald at the airport before, and I doubt if I will ever meet him in that venue again. That our paths crossed on the very day I interviewed for the editorship of *Circulation Research* was an incredible coincidence. I don’t know what the chances of an airport encounter right after my interview were, but they must be infinitesimally small, certainly less than one in a billion. I took it as a good omen. I told him about my plans for the journal, my concerns, and my goals. He listened with great interest, gave me excellent advice, and said words that were strongly supportive. Words that I will never forget.

I believe this Profile of Dr. Braunwald provides something new to our readers. You will find so much

interesting information and so many insights into his persona. Although most people are aware of his enormous contributions to cardiovascular research and medicine, I suspect that very few are familiar with his personal life. In the interview you are about to read, Dr. Braunwald narrates his extraordinary human adventure, starting from his serene childhood in pre-Nazi Vienna and continuing through his escape from Austria, his arrival as a poor immigrant in New York City, his falling in love with research during medical school, and his ascent to the summit of cardiology to become the legend that he is, the undisputed “king” of this discipline. His life is an amazing story that would be worthy of a novel. I hope this Profile will help our readers to realize the extraordinary human dimension of the greatest scholar in contemporary cardiovascular medicine.

—Roberto Bolli

## References

1. Bolli R: The new *Circulation Research*: a manifesto. *Circ Res*. 2010;106:216–226.
2. Gordon AJ, Braunwald E, Ravitch MM. Simultaneous pressure pulses in the human left atrium, ventricle and aorta: preliminary communication. *Circ Res*. 1954;432–433.
3. Braunwald E. *Circulation Research*: reflections on the founding editor, Carl J. Wiggers. *Circ Res*. 2003;253–254.

Eugene Braunwald is the Distinguished Hersey Professor of Medicine at Harvard Medical School and the Chairman of the TIMI Study Group at the Brigham and Women’s Hospital in Boston, Mass. His research career in cardiovascular biology has so far spanned almost 60 years, and he is still going strong.

Braunwald’s early work was on cardiovascular mechanics and hemodynamics, particularly measuring the function and dysfunction of the left ventricle in experimental preparations and humans.<sup>1–3</sup> Later, he focused on the determinants of cardiac oxygen consumption, myocardial ischemia, and methods to reduce the extent of the ischemic area and thus the extent of the damage in heart attack patients.<sup>4–6</sup> He has also studied pathologic hypertrophy, heart failure, and ventricular remodeling.<sup>7,8</sup> Since 1985, Braunwald has been Chairman of the Thrombolysis in Myocardial Infarction (TIMI) Study Group, which initially performed clinical trials to test fibrinolytic drugs on outcomes in heart attack patients but has more recently conducted trials on diverse topics, such as intensive cholesterol lowering<sup>9</sup> and novel platelet inhibitors.<sup>10</sup>

Braunwald has published more than 1000 articles in rigorously reviewed journals (the first in *Circulation Research* in 1954<sup>11</sup>). He has an h index of 175, the highest in cardiology and cardiovascular science, and is the longstanding editor of two of the most influential textbooks in internal medicine and cardiology: *Harrison’s Principles of Internal Medicine* and *Braunwald’s Heart Disease*. He has received countless honors and awards. The living Nobel Prize winners in medicine voted Dr. Braunwald as “the person who has contributed the most to cardiology in recent years.” He was the first cardiologist elected to the National Academy of Sciences of the United States in recent times.

*Circulation Research* spoke to Braunwald about everything from his reasons for studying cardiology and his research endeavors, to his relentless work ethic and his thoughts on medical training. We also talked at length about his childhood.

Braunwald was born in Vienna in 1929. He left the city in July 1938, 4 months after Hitler declared the “Anschluss” (annexation) of Austria. In part I of this interview, we discussed his early life in Vienna and his family’s narrow escape from Hitler’s plan.

### **Out of a Clear Blue Sky**

#### **Tell Me About Life in Vienna Before March 12, 1938**

My memory of my childhood in Vienna before March 12, 1938, is very positive. We had a closely knit nuclear family—my parents, my younger brother and myself—and a supportive extended family, with loving grandparents, aunts, uncles, and cousins. Our family ties were very strong.

We lived in the first district of Vienna, which is where all the action was, in terms of parliament, museums, the university, opera house, symphony hall, and beautiful parks. I remember visiting them all with my parents. We were upper middle class and could afford a piano teacher and, what turned out to be more important, a tutor in English for me. Both of my parents were opera buffs—they met at the opera—and I suppose a love of opera and classical music were in my DNA. I was introduced to opera and symphonic music at a very early age. I remember going to the Vienna State Opera at the age of 7. Of course, I also did the usual things like playing with friends from school and with the children of my parents’ friends.

#### **In This Carefree Vienna of Your Youth, Did You Have Any Thoughts About What You Wanted To Be When You Grew Up?**

No, but I do remember walking by the university on the way to the park with my mother. She would point to the university and say, “You will be a professor here 1 day.” So, the idea of being an academic was planted firmly in my mind by the time that I was 7 or 8. So, if my genotype was the love of music, my phenotype was becoming an academic.

#### **On March 12, 1938, Everything Changed. Being Just a Boy, Did You Have Much of an Idea of What Was Going On?**

I heard rumblings of the rise of the Nazis in Germany before 1938, and I understood dimly that something bad was happening there. I recall conversations by my parents with my aunts and uncles, behind closed doors. Then, when the Anschluss occurred, life changed within hours. For me, it was like being hit in the head with a 2-by-4 out of the clear blue sky. Immediately, my parents became extremely alarmed and frightened. The walks with my mother stopped. I was told that I could not return to school and that it wasn’t safe to go out and play. Within a few days, there were yellow signs that had been painted on the backs of the benches in my favorite park saying, “Jews can’t sit here.” On later reflection, it’s

obvious that this was so well orchestrated that even the details must have been planned for some time.

### **When Greed Became a Gift**

#### **An SS Officer Came to Oversee Events at Your Father’s Business. Tell Me About Him**

He was known as a “liquidator,” a gruesome word. Large Jewish businesses, such as my father’s, were being liquidated and closed. The Nazi party assigned the liquidators who pocketed most of the proceeds.

My father’s business was connected by a hallway to our home, and I can remember this SS officer (I later learned that the Nazis had just released him from imprisonment for his involvement in Austrian Chancellor Dollfuss’s assassination in 1935). He often came into our kitchen and dining room and asked my mother for coffee or snacks. I remember his shiny black boots and his black SS uniform. He was coldly polite but not abusive. Fortunately, he never made a move on my mother who was in her early thirties and a very attractive woman.

#### **He Ended Up Being Unwittingly Useful to Your Family One Fateful Day in May. Tell Me What Happened**

In the middle of one night in May 1938, my parents woke my brother and me, and my father told us that he was going away. He was given 15 minutes to pack some things into his briefcase and to say goodbye. My mother was hysterical. I recall my mother, brother, and myself looking down to the street from our living room window. There was an open truck, carrying about 10 or 12 men, and my father climbed up, they drove down the street and stopped, presumably to pick up another man. It was the most frightening episode of my life.

#### **What Happened Next?**

The liquidator arrived at the business the next morning as usual and asked for my father. My mother told him of the events of the preceding night. She then did some very quick thinking and convinced him that my father could still be useful to him because there was still a lot of money left in the business. He said something like, “You might be right,” and immediately phoned the people that had taken my father. My father was already on a train, and the authorities didn’t want to take him off, but as an SS officer, the liquidator pulled rank and said that he was not going to hear any argument. Forty-five minutes later, my father was returned home, frightened but physically unharmed. He had been gone for only about 8 or 9 hours.

By her quick thinking, my mother basically saved my father and, ultimately, the whole family. The pressure of the consequences of my father’s abduction gave her that little extra insight at a critical moment.

### **The Escape**

#### **Two Months Later, You and Your Family Fled Vienna. Why Did It Take Two Months?**

My father had actually been planning for us to leave since March 12, but he didn’t know to whom he could turn, and as



he told me later, he made several blind starts. He recognized that he had to get us out, but the time frame wasn't very clear. After the incident in May, it became perfectly clear. The work of the liquidator—temporarily his protector—would soon be completed. My father felt desperate and pulled a lot of strings. Ultimately, he made contact with a business associate in London, who helped with the arrangements.

### How Did the Escape Happen?

It was a carefully calculated plan, but neither my brother nor I understood what was happening. The four of us took a trolley, then a cab, and then a train; we walked and finally took another train. Part of the trip was during the night. We got to the French coast, then a boat took us across the English channel, and finally we took a train to London. Two women from the Jewish Relief Agency met us at the train station and took us to an apartment.

### It Must Have Been an Incredible Relief

Oh yes! My parents were overjoyed. And, of course, now I became Mr. Bigshot because I could speak a little English and they couldn't. I served as the family interpreter. The agency had found work for my parents, wrapping packages in the basement of Selfridges Department Store, and they were taking English lessons at night.

### What Happened to Your Other Relatives?

My grandfather joined us shortly after we arrived, and then, about half of our other relatives joined us later. The other half escaped elsewhere in Europe. Of 35 persons in the extended family, all but one managed to escape—an uncle who died in a concentration camp. Other than his tragic death, we were relatively fortunate. I certainly don't consider myself to be "a child of the holocaust." I was, of course, profoundly affected by the events, but I was never physically hurt and never missed a meal. In comparison with the vast majority of Jewish children in Europe at the time, I came off very well.

### What Happened Then?

England was a lifeboat, but not a destination. Ironically, we were classified as enemy aliens and would be forced to leave the country or be interned with other so-called enemies. We lived in England for 15 months. World War II began in September 1939. Two weeks later, my brother and I were evacuated from London with hundreds of thousands of other children (another instance of advanced planning). The fear was that London would be bombed, and of course, it was, but not until much later.

We ended up in a village outside of Northampton, in North-Central England, on a farm owned by a wonderful family—the Whites. They had several teenage sons, and they couldn't have been more hospitable to two very frightened foreign children.

But 2 months after we got there and were settling into school in a town nearby, we received a telegram from my father telling us to return to London as we were going to be leaving for the States. The Whites had a little party for us, and they gave me a book of stories to read on the boat to the United States.

### How Did the Decision to go to the United States Come About?

Actually, getting into the states wasn't easy. It required sponsorship—a person in the States who would assume financial responsibility. Luckily, my mother had an aunt, whom she had never met, who had moved to the United States some 40 years earlier. She sponsored us, and then, one-by-one, most of the rest of our extended family. Not surprisingly, she became a very celebrated member of the family.

### You Set Off for New York in November 1939

Yes. We took the USS *Harding*, a mid-sized passenger boat. There was great fear of German U-boats in the North Atlantic, but of course, the United States had not yet joined the war. I remember the ship flying a huge American flag outlined at night by a bright spotlight to signal the submarines, "don't touch us."

. . . *Interview continued in the next issue.*

### References

1. Sonnenblick EH, Braunwald E, Morrow AG. The contractile properties of human heart muscle: studies on myocardial mechanics of surgically excised papillary muscles. *J Clin Invest.* 1965;44:966–977.
2. Folse R, Braunwald E. Determination of fraction of left ventricular volume ejected per beat and of ventricular end-diastolic and residual volumes: experimental and clinical observations with a precordial dilution technique. *Circulation.* 1962;25:674–685.
3. Gleason WL, Braunwald E. Studies on the first derivative of the ventricular pressure pulse in man. *J Clin Invest.* 1962;41:80–91.
4. Braunwald E. 13th Bowditch Lecture. The determinants of myocardial oxygen consumption. *The Physiologist.* 1969;12:65–93.
5. Braunwald E, Covell JW, Maroko PR, Ross J Jr. Effects of drugs and of counterpulsation on myocardial oxygen consumption. *Circulation.* 1969;40(suppl IV):220–228.
6. Maroko PR, Kjekshus JK, Sobel BE, Watanabe T, Covell JW, Ross J Jr, Braunwald E. Factors influencing infarct size following experimental coronary artery occlusion. *Circulation.* 1971;43:67–82.
7. Spann JF Jr, Buccino RA, Sonnenblick EH, Braunwald E. Contractile state of cardiac muscle obtained from cats with experimentally produced ventricular hypertrophy and heart failure. *Circ Res.* 1967;21:341–354.
8. Pfeffer JM, Pfeffer MA, Braunwald E. Influence of chronic captopril therapy on the infarcted left ventricle of the rat. *Circ Res.* 1985;57:84–95.
9. Cannon CP, Braunwald E, McCabe CH, Rader DJ, Rouleau JL, Belder R, Joyal SV, Hill KA, Pfeffer MA, Skene AM. Intensive versus moderate lipid lowering with statins after acute coronary syndromes. *N Engl J Med.* 2004;350:1495–1504.
10. Wiviott SD, Braunwald E, McCabe CH, Montalescot G, Ruzyllo W, Gottlieb S, Neumann F-J, Ardissino D, De Servi S, Murphy SA, Riesmeyer J, Weerakkody G, Gibson CM, Antman EM; for the TRITON-TIMI 38 Investigators. Prasugrel versus clopidogrel in patients with acute coronary syndromes. *N Engl J Med.* 2007;357:2001–2015.
11. Gordon AJ, Braunwald E, Ravitch MM. Simultaneous pressure pulses in the human left atrium, left ventricle and aorta. *Circ Res.* 1954;2:432–433.