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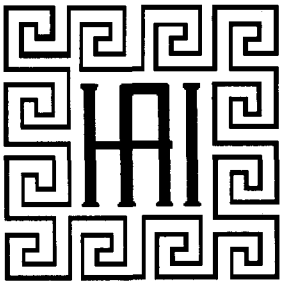
INTERVIEW WITH

RALPH W. MOSS

November 4, 2004



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Ralph W. Moss

Biographical Statement

Ralph W. Moss, Ph.D. is a science writer who has spent more than twenty years investigating and writing about cancer issues. In 1984 he completed a documentary film titled, *A Special Gift* about Albert Szent-Györgyi's work, and in 1988 he published a full-length biography of Szent-Györgyi, *Free Radical: Albert Szent-Györgyi and the Battle over Vitamin C*. Dr. Moss also has written several other books, including *Cancer Therapy*, *Questioning Chemotherapy*, and *The Cancer Industry*; an award-winning PBS documentary, *The Cancer War*; and the 1994 Yearbook article on alternative medicine for The Encyclopedia Britannica.

Formerly with the department of public affairs at Memorial Sloan-Kettering Cancer Center, Dr. Moss currently is director of *The Moss Reports* for cancer patients. He was a founding advisor to the National Institutes of Health's Office of Alternative Medicine, and is presently scientific advisor to the Rosenthal Center of Columbia University and the University of Texas School Of Public Health. He is also a member of the advisory board of the medical journal Alternative Therapies in Health and Medicine. In 1997, he was chosen as scientific advisor and honorary member of the German Oncology Society, the first American so honored in over 20 years.

Interview Synopsis

Dr. Moss recounts the circumstances of his first meeting with Albert Szent-Györgyi in 1980, which stemmed from their shared interest in cancer research. This interest led to Dr. Moss's production of a film documentary, *A Special Gift* (Pacific Street Films), and a biography of the Nobel prize-winner, Szent-Györgyi. As Szent-Györgyi's biographer, Dr. Moss traveled to locations in Europe and the United States to interview his subject's relatives and colleagues. This interview recapitulates Dr. Moss's unfolding insights into Szent-Györgyi's life and work, including some of the controversies surrounding the discovery of Vitamin C. Dr. Moss also describes his own and Szent-Györgyi's involvement with the National Foundation for Cancer Research [NFCR], as well as the novel approaches to research that were the essence of Szent-Györgyi's "special gift." Lastly, Dr. Moss offers an assessment of Szent-Györgyi's contributions during a long and very active life, not only to cancer research but also to biological science.

National Library of Medicine
Interview with Ralph W. Moss
Conducted on November 4, 2004, by Adrian Kinnane

AK: I'm speaking with Dr. Ralph W. Moss, who completed a documentary film on Albert Szent-Györgyi titled "A Special Gift," which premiered in Washington, DC in 1984 and who then wrote a biography of Dr. Szent-Györgyi titled, "Free Radical, Albert Szent-Györgyi and the Battle Over Vitamin C," which was published in 1988. Dr. Moss has written extensively on the subject of cancer research and cancer treatments. Now, Dr. Moss, the subject of a relationship between a biographer and his subject is always an interesting one and in this case I think it's even more so because you actually knew and interviewed your subject. In other words, you weren't just relying on letters, documents and interviews with others.

RM: That's true.

AK: You had a first-hand experience with your subject. Could you tell me a bit about your first interest in Szent-Györgyi?

RM: I had an interest in the cancer field and I wrote a book called "The Cancer Syndrome" which came out in 1980. It's still in print. The title was changed at some point to "The Cancer Industry" and it dealt with unusual types of cancer treatments and how they had been greeted over the years.

AK: Laetrile, for example?

RM: Laetrile and Vitamin C, but in the terms of Doctor Linus Paulings's theories about Vitamin C and Dr. Virginia Livingston and a few others. And it also dealt with what I saw as the neglect of less conventional methods, sometimes because they didn't fit in with a dominant paradigm of developing drugs based upon their patentability and profitability. And I can't say that I hadn't heard of Albert Szent-Györgyi; actually I had bought a book of his in about 1975 or '76 at a scientific meeting but I didn't include him in my book, "The Cancer Syndrome." And then in 1980, when the book came out, I was invited to go on Larry King's show which was at that time a radio show. I think they wanted to get somebody to debate me or oppose me or counter my argument and they contacted the National Foundation for Cancer Research.

I always suspected that they thought that they were contacting the National Cancer Institute because they were both based in Bethesda, Maryland, and this may have been some clerk's error. But in any case, they got Frank Salisbury, who was then the Director of this small foundation, to come on and be the other guest on the show. So when I was on that show, I would talk about different aspects of cancer and he would talk about Albert Szent-Györgyi and I would talk about some historical development and he would talk about Albert Szent-Györgyi and it was like a repetitive mantra. And he was very much insistent that I go visit Dr. Szent-Györgyi in Woods Hole and I guess the more he

pushed, the less inclined I was to do that. He offered to pay for my trip to go and so forth but I wasn't inclined to do that.

A month or two later, I had an invitation to go to a meeting in London, the Third International Congress on Cancer Prevention and Detection, and I didn't have the money to go. I remembered this invitation that he had made to pay for my trip up to Woods Hole, so I called him up and I told him my dilemma and I said if they would help me to get over to London for this rather important meeting, on the way back I would stop in Woods Hole and I would visit Szent-Györgyi and, of course, I'd give them a write-up on the trip and so forth. And they very generously did that and they gave me some money—I forget how much—to help defray the expenses of the trip, which was very, very beneficial for me. And then on the way back, I stopped in to see Szent-Györgyi.

Well, as I wrote in my biography of him, it was one of those turning point moments in my life. He came walking across this big, old-fashioned laboratory and he had an amazing charm about him; charisma, really, and brilliant blue eyes and a very loving expression and very interested, seemingly very interested in whatever person he was engaging with. He was charming and he came over and gave me a big handshake or embrace and that's where it started. As I said, it was like love at first sight. He was a hard person to resist and, of course, for me it was an amazing thing because he agreed with me philosophically about the poor state of the war on cancer and how badly things were going and the need for rethinking and for really new, radically new thinking in the

cancer war and, of course, I knew a lot of people who felt that way, but not many of them were Nobel Laureates. Pauling, of course, was and he interestingly also was involved with Vitamin C. But by and large, some of the people in the Laetrile movement had zero credibility in scientific circles, so whatever they said didn't matter from the point of view of the medical establishment, but here was a man who was still active. He was elderly but he was still active, scientifically.

He had made great discoveries that no one could gainsay and he was more or less saying the same things that I was saying, so I saw him as a very important and powerful ally in the battle that I was engaged in at that time. And I wrote an article about him at that time for the *Saturday Evening Post*, which was kind of inclined towards some non-conventional thinking in medical matters and it was well received. After that, I did some other articles about Foundation scientists. I went up to Boston to visit Harold Dvorak who I guess is credited with being one of the discoverers of apoptosis and a very important cancer researcher at Harvard and Beth Israel Deaconess hospital. So this connection gave me, as a science writer, access to a great many interesting people in the field. In '82 I spent some time in Paris with other scientists who were affiliated with NFCR so it became a closer and closer relationship. So it was only a logical step that at a certain point, with Pacific Street Films, I would undertake to do this film on Szent-Györgyi and then to do the biography.

RM: How did Szent-Györgyi himself feel about your writing his biography?

RM: Well, he basically felt good about it but I think his hesitation was that I needed to get financial support from the Foundation in order to do this because I didn't have any money and it was not a book that was likely to make much money, and in fact it never did. I think he felt a little bit resentful at times of the fact that I was asking for money to do it. He felt that it should be done purely out of love and interest and devotion, which would have been nice, but in the real world, you know, that couldn't happen. There was just no way that I could do that. That only came up once and I think he sort of got over it but it put a little bit of a strain, you know, because he was very idealistic, although he managed always to take care of his own financial needs. But, in general, his thinking very much tended towards idealism, and I think that he would have liked somebody whose sole motivation for this was just the love of his work and the love of what he was doing. And I had that. I had a strong feeling of love for him and of interest in his work but I also had a family to support and I needed to be funded in order to do the study.

AK: Did he have some notion that if the biography were funded, it would a different work than if it were not?

RM: I don't know if that was it. In retrospect, there were tensions between him and the Foundation that I wasn't aware of and that only emerged in the last year or two of his life.

AK: I see.

RM: He may have felt, and I'm speculating, that the fact that the Foundation was paying for it, it might have distorted things.

AK: I see.

RM: As it turned out, that didn't happen. Quite the opposite. But that may have been part of his thinking.

AK: He died in October of 1986 shortly before the biography was printed.

RM: Right.

AK: Had he ever seen the manuscript?

RM: He did. He saw it. He saw an earlier draft and he approved of it. And then he was sent a copy of the finished book, but by that time . . .

AK: And this would, of course, been absent the sections that were written after his death.

RM: Yes, of course. It was a draft, but I then added in the other sections about his death. Everything fell apart at the end in terms of his relationship with the Foundation, but he did see it. He did express his thanks and his praise to me, especially after I took my trip

to Hungary in '84. He was quite amazed at the amount of material that I had managed to dig up and the fact that I had contacted some of the key people and so forth. I also managed to do some work in the National Archives which was very amazing because it really did confirm some of the more outlandish statements that he had made to me.

In general, I must say that I did some very good detective work in the course of the book and a lot of it was based upon things he had said, and also a desire to please him. I think that was a big motivation for me, almost a paternal grandfatherly thing that I wanted to please him and there were a couple of points that he was quite interested in making in the book. One of them was that he wanted me to go into this question of the priority in the discovery of Vitamin C and to be able to substantiate his contention, which of course many people agreed with and history agreed with, that he had priority in terms of the discovery. But there were doubters about that and there always was kind of a shadow hanging over him about his relationship with Dr. King in the United States and whether or not Dr. King had, in fact, a better claim on priority of discovery than Szent-Györgyi did. And this remained a live issue, believe it or not, for a very long time for reasons we could go into.

The other point that he wanted me to get into was the priority of discovery for actin and myosin. He had formed a kind of obsession almost with trying to deny Bruno Straub priority for that discovery. There was no question that it took place in Szent-Györgyi's laboratory. It was considered, and I'm sure most people would agree, that it was enough

of a great discovery that Szent-Györgyi might have won a second Nobel Prize for that discovery if he didn't already have one in Physiology and Medicine. But late in life, Szent-Györgyi wanted to deny credit for that to Bruno Straub. He had another candidate in mind, a woman who had worked in the laboratory, and I went over there and interviewed her and I spent quite a bit of time with Straub.

AK: This is Ilona Banga?

RM: Exactly. I spoke, of course, to many, many other people, many Hungarian scientists and people who were there at the time and so forth. But I came to the conclusion that this was entirely wrong. Banga was basically the only one who supported that view, but nobody else who was present or involved shared that view, and Straub made a very convincing case in terms of facts and chronology for the discovery. What was behind this was that Straub had stayed in Hungary when Szent-Györgyi had left. Straub's wife was a Communist and though he was not, as far as I know, an open Communist or Communist party member, he was very close with the regime as a kind of fellow traveler and had profited from that and benefited and had become the Vice-Chairman of the Hungarian Academy of Sciences with the possibility of becoming the Chairman of this Academy.

When I got to Hungary, Straub sort of took me in hand and we traveled down to Szeged together to visit the laboratory where Szent-Györgyi had discovered Vitamin C, so I had

a lot of opportunities to talk to Straub. Just as a footnote, when I got to the states, Straub was going to help me to get the book translated into Hungarian. He called me. He was in New Jersey in about, oh, it must have been '89 and we had a nice chat. I was living in Manhattan and I invited him to come over to my house and he said he couldn't; he was with his daughter in New Jersey. His daughter I think taught at Columbia and lived in Jersey, and so we had a very pleasant chat and that was it. Straub told me "They made me the President." And I said, "That's wonderful," thinking that he had finally been made President of the Academy of Sciences. Finally, I said "Well, I'll see you the next time I'm in Hungary" which, in fact, I did.

But about a couple of weeks later, I got a call from the Second Secretary in the Hungarian Embassy and I mentioned to him that I had gotten a call from Bruno Straub and he said "You got a call from Bruno Straub?" I said, "That's right," and he said, "How'd that happen?" I said "Well, he was in town and he called me." And he said, "Well, you know, he's the President." I said, "Yes, the President of the Academy." But my friend at the Embassy said, "No he's not the President of the Academy; he's the President of the country." He was the last President of Hungary under the Communist regime. He'd been elected based upon the fact that he wasn't a Communist and as things began to fall apart, they had chosen him to be the President of the country.

AK: My goodness.

RM: So, you know, it was a funny thing. And that was the basis of Szent-Györgyi's dislike of him . . .

AK: I see.

RM: He saw him as a kind of a political operator and so forth, and he was a clever guy who had stayed when Szent-Györgyi had, with great difficulty and inconvenience, had left the country based on his principled stand against the Communists.

AK: Well, Szent-Györgyi himself, as you described so well throughout the biography, was a man of some contradictions . . .

RM: Yes.

AK: . . . let's take a look at the idealism that you've already touched upon in several contexts. I'll go to the National Foundation for Cancer Research and Franklin and Tamara Salisbury just as a context for that. On page 221 of your biography, you said "From the start, this peculiar partnership of Salisbury and Szent-Györgyi was a combination of high idealism and hard-nosed practicality." I think you were referring there to the idealism of Szent-Györgyi and the practicality of Salisbury.

RM: Yes.

AK: To continue, "Albert's friends worried that he was being used. If so, then Frank's friends might have worried as well." Tell me a bit more about that, because we have Albert's notion of idealism but there's also an idea that Albert himself is not above a certain amount of manipulation.

RM: Right. I mean, Albert had to be concerned about money and I'm not saying Frank was the devil—but Albert would have dealt with the devil if it meant getting funding for his research. At the core of it was idealism in that he would do anything to do research and to continue to do his research but he had to know that his days of getting NIH grants were over—NCI [National Cancer Institute] grants, especially. And even Nobel Laureates, once they get past a certain age, they're no longer so marketable, and there was a limit to what he could expect from society but he wanted to go on working. So they set up this operation and it was based upon a kind of sweepstakes or, you know, a direct mail campaign.

People were offered some sort of monetary prize if they joined. I guess they were sweepstakes—I'm not sure exactly if that's the correct term, but some people saw this as kind of a sleazy thing and they were going up directly against the NCI. It was a kind of privatization in a very early form. The war on cancer had barely come into existence and already people were attacking it as a big government bureaucracy. Going into the private sector is funny because, you know, Albert was always very left-wing in his views, and Frank was, I would say, probably the opposite. Frank was very much the business—the

Republican type—and Albert was anti-war and sort of a Social Democrat in his attitudes. So it was an odd couple, an odd combination.

And then again, Albert's theories were very hard to understand. It wasn't clear exactly what he was saying or promising or what he was up to, really, and I don't think Frank ever really understood them. But he saw the opportunity and he marketed Albert quite successfully. At one point, the Foundation really was booming at a time when there was mass disaffection from the official "War on Cancer." Money was just rolling in.

AK: Yes.

RM: It was all done in Albert's name but they couldn't control Albert, and as it turned out, it led to a big blow up between them. But Albert was a clever guy and he always managed somehow, whether it was with the NIH or with Armour or with the Salisburys, to land on his feet and to get the funding that he needed. And he had, as I say, this incredible charm and once he had the Nobel Prize, of course, that made him a very valuable commodity for a lot of people. There were a lot of Hungarian scientists who were kind of left over from the old days, and that formed the core [at the Foundation]. Maybe I'm being unkind, but, you know, there were still people whose reputations were formed by the fact that they were students of this famous Nobel Laureate at a time when Nobel Laureates were scarcer than they are today. And of course his achievements were considerable.

AK: Yes. Again, not to go into the NFCR for its own sake, but to use that as a context for some of these other issues, in your biography, *Free Radical,* you mentioned Constance Holden's February 9, 1979, article in *Science* titled "Albert Szent-Györgyi: Electrons and Cancer." This article described a variety of approaches that various NFCR-funded laboratories around the world were taking towards cancer research.

RM: Right.

AK: And people should know that the NFCR was an institute without walls. It set up the laboratories—funded laboratories around the world, but these NFCR-funded labs were not necessarily following Szent-Györgyi's bio-electronic ideas and furthermore, by and large, they were run by traditionally trained mainstream scientists and by no means an eccentric brotherhood devoted to a guru.

RM: Right.

AK: And the difference, said Holden, was one of style—the Americans' cautious data-grounded approach versus the more intuitive approaches of Europeans.

RM: Yes.

AK: And I suppose that might have been true of this earlier group that you're talking about, mostly European trained scientists who were familiar with Szent-Györgyi and his work.

RM: Yes.

AK: So, okay, so there's this problem of style, one that Szent-Györgyi himself referred to as a dichotomy of Apollonian versus Dionysian.

RM: Yes.

AK: But you mentioned another point in your book, and that is competition for funding.

RM: Right, and I think Holden brought that up in her article. And the ACS, American Cancer Society, had explicitly said they're competing with us for funds. So there was some strong antagonism there just based on that. But what happened was that the NFCR became more and more respectable because they felt they couldn't survive, given some of the antagonistic press reports that had come out about them. There was a famous instance where they sued . . .

AK: *Newsweek*?

RM: . . . *Newsweek.*

AK: Yes, the Jane Bryant Quinn article.

RM: Which was devastating to them. Mrs. Salisbury is still alive, I believe, and the son runs the Foundation. But I think that that experience—they were the sort of people who wanted to be perceived as very respectable, as most of us do, and they were pretty horrified at having their friends see them paraded in this way.

AK: Sure.

RM: And they started to restructure things for the maximum amount of respectability and acceptability. Their niche turned out to be basic research. They would support basic research, which was one of Albert's beliefs also. But with every year that went by, it became less and less concerned with his core concepts, the electronic dimension of cancer and so forth, and got watered down increasingly. They did attract some very eminent people and I look occasionally at their website and I've actually spoken to Frank, Jr., the son who runs the Foundation, within the last year and there's no question that this is all, you know, important research. It's now going on in a lot of very fine laboratories.

They've chosen well and I'm sure that these laboratories all appreciate the financial support for basic research, which is the hardest thing to get public support for. People don't really understand what it is and you can almost never draw a line between it and

practical results, which is what the public usually wants to fund, something that's going to mean something now or at least tomorrow. So, I think that when they came with money to fund fairly well-known and important scientists, people decided to go ahead and take the money even though there was a risk involved because at one point it had looked like it was a very kind of disreputable thing and had the anger of the media and the ACS which is so influential. But as each year went by, it became less and less to do with Szent-Györgyi until finally he was almost pushed out of the picture, I would say.

AK: Yes.

RM: And I don't see, by the way, I may be wrong, but the last time I looked, I didn't see any—maybe there was a passing mention of him at the website, but I'm not even sure of that. I think they may have completely severed any public identification with him.

AK: Well to a layman, of course, these intramural research disputes are often quite confusing because all of the ideas appear to have at least some surface credibility, while the experts are denouncing each other in the strongest terms.

RM: Right. And often it's just a mask for financial interests.

AK: Now I had the impression Albert Szent-Györgyi became something of a polarizing figure in this intramural scientific debate. He sort of lined people up very much against him or very much for him.

RM: Yes, I think, if I'm not mistaken, that the core group, the Europeans if you want to call it that, plus some of the Woods Hole people, owed their careers and livelihood and everything else to him and they were personally loyal to him. The other group were the people who would have been just as happy if he slowly, quietly disappeared off the scene or if he just let himself become a figurehead. They didn't want him putting forward his ideas anymore. They felt that he was way over the hill and that if they could use him as sort of a fundraising tool, that was fine but that he really represented a kind of science that was just of historical interest.

AK: Yes.

RM: Nothing to do with modern science at all. And of course, I think in his heart of hearts, he really wanted to be in on finding a cure for cancer, the Holy Grail, you know? And he took it seriously in a way that people used to take such things seriously. The other people were more modern in the sense that they worked on a little piece of the pile. Nobody works on the whole pile. To do so makes you almost *de facto* a crank or a quack, you know?

AK: Yes.

RM: Everybody works on their little area, their little piece, and nobody seems to have the overview of how the whole puzzle could be solved.

AK: Which is what he was developing.

RM: Right. As many people in alternative medicine do. I mean, that's sort of the hallmark of [Otto] Warburg, who was a great hero in some ways, not personally, but scientifically, for Szent-Györgyi. That's a very 1930ish, 1940ish kind of way of thinking and of working.

AK: This is a tough thing to tease out, but I'd like to get your thoughts on it. How much of his motivation to get involved in cancer research had to do with the death of his wife, Marta, and his daughter, too, of cancer?

RM: Oh, I have no doubt. I mean, I wrote this in my article for the *Saturday Evening Post* where I compared him to St. George, which is what his name means, slaying the dragon of cancer. Oh, I think it was a very big part of his motivation, was to get even with the dragon that had killed his wife and his daughter.

AK: Did he ever say that to you?

RM: Yes. Not in so many words.

AK: Right, but you knew that that's how he felt?

RM: Oh, yeah. Oh, definitely. It was a personal, kind of a Moby Dick thing with him, you know. It was partially that. It also was partially the fact that he felt that he really had something to contribute. He had been intrigued by this electronic dimension back in 1940 because I think he felt he had no where to go scientifically once he had plumbed the depths of biochemistry. Everything kept moving to a lower and lower dimension, so it was almost this quixotic quest for finding the secret of life, the true—where things really were happening. And he just intuitively felt that it was at this electronic dimension, although, it never was quite clear to me exactly what he meant by that, but it certainly was prophetic in the sense that he was way ahead of the pack in terms of looking at free radicals, which is the reason for the punning title of my biography, and anticipated a lot of other developments in cancer.

AK: Well, let me ask you a little bit about that because you mentioned that there were these mixed views about the quality of his research or the ultimate productivity or usefulness of his line of thinking about it, with people lining up on one side and sort of saying, "Well, look, you're very, very old. You did a great thing. Now, please, either be a figurehead or stand aside."

RM: Uh huh.

AK: In fact, you know, one reviewer of the biography that you summarized Albert's thinking as science-fiction, this business of alpha and beta [states] and the transformations from one to the other. On the other hand, there's this sort of intuitive, to a layperson anyway, this intuitive reality of bio-electronic theory. Well, of course things are made up of molecules and atoms. Of course there are electrons involved, you know?

RM: Right.

AK: From the perspective of 2004, how would you sum up his contribution? How is it currently seen? How do you see it?

RM: Well, I'm going to be reviewing all this for a lecture that I'm intending to give next year, so I think I'll have a better chance to say then. I haven't seen that it has really borne proof or gone very far since his death even in non-conventional circles. But on the other hand, I was very surprised at the Cancer Control Society Meeting which is a big meeting of alternative practitioners, a doctor got up and gave a lecture this year on Albert Szent-Györgyi's theories and treatments for cancer. Extraordinary. He knew nothing about my book, which should say something about him, but he was dealing entirely with Szent-Györgyi's earlier writings, like from the 1960s.

AK: Right.

RM: And sort of proposing and almost, you could say, marketing, some of these concepts and I learned a lot by listening to this because I hadn't realized that at one point this had actually gotten to the point of almost proposing a cancer treatment based on the idea. Albert himself never did so, but one could derive a belief from his writings that methylglyoxal is an effective treatment for cancer.

So a lot of this goes back to . . . it's a very strange story really, that he had come upon this molecule, methylglyoxal and decided that it was "retine," I think he called it the force that restrains the growth of cancer cells, and it turned out that another doctor in the United States named William Koch, had proposed the same thing in the 1920s and the 1930s and it had been a very big fight along the lines of Krebiozin or Laetrile with the AMA, which had more or less denounced him as a quack even though he was a M.D., Ph.D. who had a professorship at a university in Michigan and eventually was forced out of the country and it was a big scandal.

And Szent-Györgyi had sort of wandered into this same field and same substance and actually it's still kicking around in alternative medicine circles because there was a small, not very good, paper published about two years ago in an Indian medical journal, basically, again, rediscovering methylglyoxal. I don't think that that paper was derived from either Szent-Györgyi's work or Koch's work. So there may be, in that sense, that

something derived from his treatment may still be alive, for better or worse, in the world, and there is sort of a center, I think, that's been set up in India to treat people with this especially non-toxic substance. But on the deeper level, I don't know what the practical import is to say that cancer is a disease on the electronic level unless you can influence that some how and use that.

AK: Okay.

RM: Cancell is another alternative treatment whose theories were very similar to some of Szent-Györgyi's theories, although it didn't ever attribute him directly. But I'm not sure. I mean, what does it mean? Would electrical treatments fall into the same category? I think not because I think most of the electrical treatments are based upon basically electrocuting the tumor. They're non-ionizing radiation treatments, and that's alive and kicking in China, very much so, but that's just basically frying the cancer. It's not influencing cancer on the, you know, atomic level.

AK: Well, perhaps when establishment science, if we can use that term without explaining it is struggling with an issue and hasn't come up with answers, there's a romantic appeal, if not a very strong emotional appeal in the idea of the genius who has been denounced as a quack but who is eventually vindicated. That's a great story.

RM: It is. Stories and myths, that's how we make sense of the world whether we're scientists or artists. I think that the story is always a very compelling part of anything and that's whether it's Judah Folkman's story, or Steve Rosenberg's story or anybody's story. It's the story that is so important and Szent-Györgyi had a great story. And not only are there many stories of the persecuted lone genius, but his was especially compelling because he had the bona fides, you know. He had already won the Nobel Prize so he was struggling against the prejudice against a foreigner, the prejudice against old age, and he was a kind of a Promethean figure in some ways. But unless it turns out that methylglyoxal actually had some validity to it, I don't really see that the cancer work resulted in very much in the way of permanent effect. Peter Gascoyne might have some thoughts on this question.

AK: Right.

RM: He's at M. D. Anderson now and he still does some work that—just looking at his abstracts—it looks to me like it's still Szent-Györgyi influenced work.

AK: Uh huh. Is he still there at M. D. Anderson?

RM: I believe he is—the last I looked, he was there. But, you know, in the end, you have to come up with a treatment. Theory is not going to matter. What matters is the treatment, so what is the treatment? Szent-Györgyi backed away from methylglyoxal. In fact, I would say I only heard the term methylglyoxal from him once or twice. He never, as

clearly as this fellow did at this Cancer Control meeting, never quite said, "That was my treatment; that's what I believe is going to do it." And maybe he had decided that it wasn't. In the book I do have a couple of pages on methylglyoxal. He postulated an important biological role for methylglyoxal, but I don't think I ever did say that he thought this was going to be a useful treatment for cancer. He seemed to have backed away from that.

AK: Okay.

RM: Maybe he sensed that that would really put everything to the test and also put him into a different category. He was just sort of a pain in the neck, you know, to the ACS and the other forces, but once you step up and say, "I've got an effective treatment for cancer outside of the norm," then, of course, you're in a different ball game entirely.

AK: Right.

RM: And he never was in that.

AK: In the introduction to your bio, you wrote "No man is a hero to his valet or his biographer, I suspect." You went through some changes in your voyage through the life of Albert Szent-Györgyi.

RM: Yes.

AK: What did you discover about the man that caused you to say that?

RM: Of course, it was a long time ago, but I think some of the things were related to the fact that he was sort of vindictive with Bruno Straub. That was one of the issues. Not that I had such a strong personal bond to Straub, but I became convinced that this was a very petty, vindictive attempt to rewrite history and take away—and here, Szent-Györgyi had so much in the way of scientific credibility and Straub's one claim to fame in life was his discovery of actin and myosin, which was a major thing. But at the last moment to try to change history like that was kind of small-minded, I thought.

AK: Because he disagreed with his politics?

RM: Right. And was jealous of him.

AK: Because he had become President of Hungary?

RM: Well, he hadn't at that point become President, but he had a nice, comfortable life and was well regarded in Hungary. So I think that was part of what led me to say that.

AK: Dr. Moss, let me ask you one more question here because we're getting pretty close to the end. In your analysis, in your description of Szent-Györgyi, there's a strong theme of dichotomies, the artist versus the scientist, intuition versus reason, ivory tower detachment in the laboratory versus manning the barricades with many of his political views. A complex character, and you conclude, "if something of Albert Szent-Györgyi is remembered, it will probably be his intuitive, artistic approach to science."

RM: Right.

AK: So that it's really his style, would you stand by that still?

RM: Yes. Oh, definitely. Definitely . I think you can get good laboratory procedures out of a lot of people. He once said to me, and I don't remember even if I put this in the book—I may have, but he said "You know, I never really had a scientific education. I cheated my way through medical school," which I don't believe, but he said that. He said "I shot myself in the arm to get out of the Army." He said, "I got a Ph.D. from Cambridge, but I hardly ever saw Professor Hopkins. It really wasn't a real Ph.D. I didn't really have the right classes. I just wrote the dissertation and I can hardly add a column of figures." He said "And yet I made some of the greatest discoveries in medicine in the twentieth century. Why do you think that is?"

And he gives back a twinkle in his eye, you know. And that was a wonderful thing to hear because, you know, it was the intuition, to ask the right question, to hear the voice of nature, which is a romantic notion and very few scientists would ever dare say anything like that today, but I still think it's true that just like with a great artist, there has to be something at the subconscious level or the unconscious taking place that leads to asking the right question and being able to hear the answer—within all the background noise. And he had that gift. I'm sure other people have the gift too, but it's become probably a career killer to admit to it until you're old and nobody can hurt you. But I imagine it's still the case.

AK: Hence, the title of the film, "A Special Gift."

RM: Yes. And he could hear the voice of nature, very low, he said. It's like hunting. You go out and you wait for something to jump up, and this whole business of cutting the apple and seeing it turning brown and thinking "That's interesting. Why did that happen?" You know, things we took for granted. We take for granted, every day, what we're looking at, and to be able to look at that with a fresh eye. He would take the earliest experiments, and he'd rework his way through the entire history of the scientific question. He would take the earliest experiment that was done and he'd reproduce that experiment. And there might be a gap of a second or two between adding something and the reaction. Well, what causes that gap of time? And he would be able to identify something. So it's a

great sensitivity, an awareness, which I think is almost like—I don't want to say mystical state, but it's a state of hyperawareness that's similar to what artists have.

AK: Yes. Well, I can't imagine a life more suited to exemplifying this tension that you're describing between the caution necessary for successful scientific work and the creative insights that lie behind that work.

RM: Right.

AK: And you did a wonderful job of bringing it out in your biography, I must say.

RM: Thank you.

AK: That was a very, very entertaining book and thoroughly researched, well written. I enjoyed it—every bit.

RM: Thank you so much. It's in print in Hungary, by the way, now.

AK: In Hungarian? That's great.

RM: It just went through the first printing and they're doing a second printing.

AK: Wonderful.

RM: Yes.

AK: Well, thank you so much for your time this morning. It's been a very interesting interview.

RM: Thank you. My pleasure.

[End of Interview]

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