



**Mount
Sinai**

Call #:	INT 0169
Title:	Interview with George E. Green, MD
Date:	June 13, 2017
Copyright:	Icahn School of Medicine at Mount Sinai

The Arthur H. Aufses, Jr. MD Archives

This document is a transcript of an oral history interview from the collections of The Arthur H. Aufses, Jr. MD Archives. This material is provided to users in order to facilitate research and lessen wear on the original documents. It is made available solely for the personal use of individual researchers. Copies may not be transferred to another individual or organization, deposited at another institution, or reduplicated without prior written permission of the Aufses Archives. Provision of these archival materials in no way transfers either copyright or property-right, nor does it constitute permission to publish in excess of "fair use" or to display materials.

For questions concerning this document, please contact the Aufses Archives:

The Arthur H. Aufses, Jr. MD Archives
Box 1102
One Gustave L. Levy Place New York, NY 10029-6574
(212) 241-7239
msarchives@mssm.edu

Interview with George E. Green, MD

June 13, 2017

INT 0169

NORMA BRAUN: Hi, I'm Dr. Norma Braun. I'm Chairman of the Archives Committee of the Medical Board of St. Luke's-Roosevelt, now Mount Sinai St. Luke's, Mount Sinai West. I'm here in the physician's lounge of Muhlenberg II to interview one of our illustrious surgeons, Dr. George Green. I'm going to be asking him a little bit about his history, and tell us a little about his experiences at St. Luke's. He was mostly, I think, at St. Luke's, where you did your surgery.

GEORGE GREEN: Okay.

NB: Yeah. Okay, so George tell us where you—start at the beginning. Where you were born and how you—?

GG: Oh, I was born in Brooklyn and went to grade school and high school there, and went to Yale College and Yale Medical School, and then went to Bellevue Hospital for internship. And a great pal at medical school had become the chief resident at Saint Vincent's Hospital, and he convinced me to go over there. So I was there, I guess for the first and second year of internship [*Dr. Green corrected this to residency*], and then in the third year went back to NYU. And Dr. MacFee [William F. MacFee, MD], who had recently retired as director at St. Luke's, because there was a mandate that at [age] 65, one could no longer be director, and he had become director at the New York Veteran's Hospital. And so then I worked under his marvelous guidance for two years.

NB: Yeah, Dr. MacFee, whose portrait is behind Dr. Green, was director of the surgery service. They called them directors then and not chairs in those days, in 1962.

GG: Well, anyway, during those days there was something called the Berry Plan, and one could not be drafted during a residency if one committed to two years in the service. So, I said, okay. I volunteered for the Army, so of course I was put in the Navy.

NB: [Laughs]

GG: But when I finished residency, I expected to go into the Navy for two years. The Naval Department said, "Well, we don't need you. Forget about it." That was quite a shock. So how was I going to piece together a career?

I'd always loved anatomy, and so I got a position teaching anatomy at NYU. And [laughs] after about six months, I got a telegram from the Naval Department. "We want you *now*." So I went to Dr. [Donal] Sheehan, who was the head of the anatomy department. I said, "Dr. Sheehan I think I've got to leave." He said, "What?" I said, "Yeah, because the Navy says I've got to go in." And he laughed. He said, "That's

ridiculous! I was Dean of the School during the Second World War, and none of my faculty got taken." He said, "I'll write you a letter."

So I took the letter down to Washington to show it to the head of the Bureau of Medicine and Surgery of the Navy. So, I did. He put it on the table, and he picked up orders and handed them to me to be at Camp Pendleton in California in six weeks! I rode back from Washington on a train called the Patriot. [Laughs]

NC: [Laughs]

GG: Anyway, so then I was at Camp Pendleton—now we're up to about 1962—and [I] was ready to take the oral part of the surgical board exam, and a friend and I went up to San Francisco to take the oral part of the board exam. We came out and were heading back to Pendleton when he said, "They asked me the stupidest questions." I said, "Like what?" He said, "What's the place of ~~coronary~~ [Dr. Green removed this word] surgery in coronary artery disease?" And we both laughed. We knew there was no such place.

NB: 1962.

GG: Sixty-two. In '64, my wife and I, we'd ended up—Sam was born at Camp Pendleton.

NB: The Sam works here at St. Luke's?

GG: Yeah.

NB: One of our most trusted, loyal, effective, and efficient radiology technicians. A marvelous young man!

GG: I will say something about Sam. When I worked here from 1970 to 1992, well, at the beginning, the portable x-rays were so bad.

NB: Almost useless.

GG: I really stopped looking at them. And then, suddenly, they were readable. Hello, Sam! I mean, it was wonderful. But, anyway, so we come back to New York and I had no idea what to do, how to make a living, because actually, I was taken in because of the Cuban Missile Crisis. And when that ended, they wanted to cut the budget so they said, "Go home." So we did, and what to do?

Dr. MacFee, one of his great interests was head and neck surgery, and because of that I'd become very keen on it, and took a job, worked as assistant to Dr. Max Som [Max L. Som, MD], who worked at Beth Israel, Mount Sinai, and Montefiore, but he based me at Beth Israel [Medical Center]. And at the time, he had a rash of patients with cancer of the cervical esophagus, a horrible thing, because it meant taking out the larynx,

taking out a huge chunk of pharynx, and then constructing skin flaps to reconstruct the swallowing tube. And it would take six months until this was completed.

And he said to me one day, he said, "This is insane! We ought to be able to do this quickly and efficiently." He said, "Up at Montefiore, someone is experimenting with free segments of intestine, just taken out, and using microsurgery, reconnecting the blood vessels in the neck. And that's what we ought to do." I said, "How do you do that?" He said, "You go up to Mount Sinai. Julius Jacobson [Julius H. Jacobson, MD] has a lab up there." Jacobson had just arrived from the University of Vermont, and was the first American to publish about using a surgical microscope to anastomose vessels as small as one millimeter.

The reason that coronary surgery had never been done was that there were many papers saying below two to three millimeters, it was impossible to connect blood vessels. So, Max Som arranged for me to see Jacobson, who let me use his laboratory for a full day. And I was really wowed; went back to Beth Israel, was practicing on the aortas of very young ~~mice~~ [GEG corrected to rats and added 'dividing them'], to sew them back together. After about six weeks, I could do it quite consistently, and then, thought it was time to practice esophageal replacements, and did that on dogs. And that was where my focus was. But Bill—I forget his last name, who was then head of surgery at Beth Israel [William I. Wolfe, MD]—said, "You've got to write up your data and submit it on blood vessel surgery to the American College—the American Heart Association."

So, in late September of '65, I went down to Miami. The paper was accepted; and [I] gave this paper on just anastomosing one millimeter arteries and veins, and then thought I'd listen to some lectures. Donald Effler [Donald B. Effler, MD] from the Cleveland Clinic was lecturing on what we used to call the Vineberg Procedure. Arthur Vineberg [Arthur M. Vineberg, MD] of Montreal would mobilize the internal thoracic, also call internal mammary, artery, and tunnel it into the heart muscle, and contended that this would establish collateral circulation to the coronary vessels. He was really not believed, but he was very persistent and kept presenting these papers.

In ~~1967~~ [GEG corrected to 1957], Mason Sones [F. Mason Sones, Jr., MD] at the Cleveland Clinic invented coronary arteriography. For the first time you could literally put a tube in a coronary artery and show a picture of it. And so, Vineberg approached Sones and said, "Listen. Nobody believes me. Why don't you study some of my post-op patients?" ~~Vineberg~~ [GEG corrected to Sones] said he would, and he was quite dubious about it, but he said he would. [Laughs] And patient who had good results. He studied three. The first patient, who had a brilliant result, had no coronary disease. The second patient had coronary disease but hadn't occluded—well, no, I'm sorry, that's wrong. Not occluded. The mammary artery that was patent, but made no communication with the coronary vessels. [GEG corrected this sentence to read: The second patient had coronary disease, but the mammary artery made no

communication with the coronary vessels.] The third one: the mammary artery was patent, and did communicate with coronary vessels beyond the point of obstruction.

Then Sones convinced Effler to start doing a series of these cases, and Sones would study them before and after. And this went on until the conclusion that if a patient had pre-existing collateral circulation beyond an obstruction, and you put the mammary artery there, collaterals would likely form. It would take about three months for the formation. And the flow, obviously, was through arteriolar vessels, which are smaller than a tenth of a millimeter. And I listened to this, and thought, good god! You could take that same artery and anastomose it to the anterior descending, and bang-o! You've got a result. I tried that on one of the dogs I'd operated at Beth Israel. The dog was very wasted and had a heartbeat of about—I don't know, awfully slow. And I was able to do it with putting occlusion clamps hither and yon. On a normal dog it was totally impossible; the heart was beating too fast.

So, I went back to NYU and I spoke with John Mulholland [John H. Mulholland, MD], who was then the Chairman of the Department of Surgery, and I'd interned there under him, and he said, "Well, nobody has done this." But I could use their laboratory, and if I could show him some data I could do the surgery. So I started working there.

NB: How were you funded? Remember?

GG: Yeah. Very well, and I was uniquely lucky. In those days the NIH gave individual grants, and so I had a \$25,000 grant. I may have been the last person to get an individual grant. Since then there've been team grants—and there was an enormous infrastructure.

NB: Right.

GG: So that funded it, and it went on for a couple of years. I forget how I was making a living, to tell the truth, but when I was ready to show the data to Mulholland and start operating in the operating room, he retired, and Frank Spencer [Frank C. Spencer, MD] became chairman and wanted to know what I was doing there. And I said "Well, I've done this research and I'm ready to do coronary surgery on patients." He said, "That's ridiculous! You don't have boards in thoracic surgery." Well, Mulholland never had a program. Though they did cardiac surgery at NYU, he did not have a training program. So it's back in '65, I guess. I may have had dates wrong before.

NB: That was mostly rheumatic heart disease, I recall, at that time.

GG: Yeah, yeah. People—Roy Clauss (Roy Clauss, MD) and—I forget his name, but Roy Clauss was the head of the cardiac program, and they did valve surgery. But Mulholland thought really, nobody knew enough at that point for him to validate a program of teaching people.

NB: Mm-hm.

GG: Anyway, so Spencer says [*GEG added, "he will start a cardiothoracic residency and"*] I can be his resident. I thought that's ridiculous! And I'd been traveling back and forth to Cleveland to study Sones' arteriograms, and I had shown him a two-year-old arteriogram of a dog with a patent internal mammary artery anastomosis to a LAD I had tied off.

NB: Mm.

GG: And he was wowed, and said to Effler, "Come look at this." And Effler called me and said, "Come out. We've got to talk together." [Laughs] He offered me a job as his Fellow. [Laughs]

NB: [Laughs]

GG: Well, I came back to New York and really didn't know which way to go. David Tice [David A. Tice, MD], who had been a senior to me at Bellevue when I was an intern, had done a huge favor, humiliated himself to do a huge favor for Frank Spencer, who appointed him as Head of Surgery at the Veteran's Hospital.

NB: Mm.

GG: So, David said to me, when I told him about my predicament, he said, "Don't go to Cleveland." He said, "Come to the VA." He said, "We'll put you on the staff. And Frank Spencer—he doesn't know what's going on here. You do the surgery here, and if it works, great; if it doesn't, get out of town."

NB: [Laughs]

GG: So the first patient was—how was I going to pick someone to operate on? I mean, I was scared, too.

NB: Of course!

GG: There was a young guy—he was in his late thirties—who had had a bad head injury in Korea, but his ambition was to be a physical training teacher and expert, but he'd get terrible angina when he tried. And he was willing to be the first patient, and because he'd had a head injury I wasn't sure he understood what I was telling him. I said, "Listen," I guess his brother was his closest relative, so his brother came to the hospital, and I explained to both of them this operation had never been done in anything but a dog. And I even showed him a film of it. And he said, "Go ahead."

NB: That's informed consent, in that time.

GG: Yeah. Oh, yeah. For a moment I forget his name. I remembered it for many, many years. I could look it up, but anyway, another of his head problems was epilepsy. Well, the surgery really went well, but about two weeks after—no, it wasn't even—about ten days after the surgery, he had a protracted epileptic fit and his sternal incision separated.

NB: [Gasps]

GG: And he got infected, and many weeks later died.

NB: Mm.

GG: At autopsy, the graft was open. But that was the first one, and I then did a couple more that went well. I mean no problem at all. They sailed right through. Mentioned it in a paper I gave at the—not the Society of Thoracic Surgeons—yeah, the Society of Thoracic Surgeons, not the AATS. Sterling Edwards, [MD], who was President of the AATS [*GEG corrected this to STS*] at that point, said he wanted to come and watch me operate. So he came up to New York and spent the day. I did one case for him, and he was spending the night at Spencer's place. So Spencer, who was in awe of Edwards; Edwards said, "Frank, you don't know what's going on in your own shop!" [*GEG edited this last sentence to read, Spencer was in awe of Edwards. Edwards said, "Frank, you don't know what's going on in your own shop!"*]

NB: [Laughs]

GG: So then Spencer said, "Well, you can now operate at the University Hospital." And I started working there, but I was only allowed—and I also had to be his assistant, and he would let me do one case a week on my own. And I was the only person in the whole northeast doing any coronary bypass surgery. And so, I had a back list of months. Then a phone call came from Coke McCord [Colin W. McCord, MD], who was head of cardiac surgery here.

NB: Mm-hm. I remember him very well.

GG: Yeah, well, he'd come here to do mitral valve surgery, which he did very well, but the pool of those patients—

NB: Was dwindling.

GG: —was about exhausted, and he had developed a great interest in public health.

NB: Mm-hm.

GG: He called and he said, "Listen, I'm at St. Luke's, and I'm the head of the cardiac surgical program, but I'm going to be leaving to go to Johns Hopkins to get a degree in Public

Health. We'd like to ask you to come up and take my position." So I said, well—so we visited, and I put in what application I needed and pretty soon, by June of 1970, was working here. At the time, I guess Coke was only doing maybe one case a week, so they set aside three days, three sessions a week, and then still the backlog was months.

NB: Oh, Coke used to go to Harlem [Hospital], too, and do surgery there.

GG: Yeah, and he brought John Hutchinson, [John E. Hutchinson, III, MD] down from Harlem

NB: Correct. Right.

GG: And then they allowed us five days a week, and I didn't want to be actually doing all the surgery. There was a lot of research on this that I wanted to complete, and so I helped John get familiar with it. He would work a couple of days a week and I would work usually three days a week. And then we—I don't remember how long it took, but we were allowed one operating room completely, and then two, and by 1982 St. Luke's was doing almost—was doing about 1800 cases a year, which was the biggest program in the state.

NB: In the world, I think.

GG: No, not in the world. The Cleveland Clinic was doing a heck of a lot more. They had many, many operating rooms. And Sones had developed coronary arteriography. But they were not doing LAD anastomoses, because Effler said, "Well, that's too dangerous. We'll do Vineberg's on the left and vein grafts on the right." And Sones was saying, "Idiot! You've got to start doing mammary anastomoses."

NB: Mm-hm.

GG: I said to Sones one day, I said, "I don't think you can really do it without, well, much magnification." And Effler insisted you didn't need any magnification to do coronary surgery. I said, "What's the matter with him?" [Laughs]

NB: He has X-ray vision. [Laughs]

GG: Well, yeah, that's what he said, but Sones said, "He's got a tremor and magnification magnifies his tremor, and he won't do it." He won't use it. So they got Fred Loop [Floyd D. Loop, MD] to come as a junior assistant, and pretty soon Effler was outraged, and said either Sones had to leave or he'd leave.

NB: Mm.

GG: So he left, and Effler—I mean Loop took over. And he visited here often to watch me work, and I convinced him to use a microscope. And then I never understood—I knew he'd had one installed, and never understood why it wasn't used. And I forget if it was Zeiss or the Swiss company that makes it—told me that the installation really wasn't good. He [*GEG added 'Loop'*] wanted it in the ceiling, not rolling on the floor, and the ceiling beams were not steady. So the microscope was not steady, and so, they didn't use it. But, a lot of people visited.

NB: When did you start working with Dr. [Airlie] Cameron? Because now we're looking at—

GG: Oh, in 1970. That was sensational! I was doing work on the flow-through of the artery, and why it worked better than a vein, and she said, I think, after my first case, if not before, she would like to do a follow-up on every patient. I said, "Really? Great. Sure."

NB: She was a cardiologist then, and she was very interested in this.

GG: Yeah. Yeah. And so, I did nothing—I had to do ~~anything~~ [*GEG corrected this to 'nothing'*] but do the surgery and she followed—without a computer in those days—the first 750 patients operated over twenty years, and published a paper, I guess, in the nineties, showing so clearly that the internal thoracic artery was so much better than a vein graft. Fifty per cent of vein grafts were closed at eight years, and the rest were showing bad changes. And that was not at all true of the internal thoracic artery.

I thought she would convince the whole surgical world, but it happened very, very slowly. It must have been in the nineties when Bruce [Bruce Lytle, MD]—a surgeon from the Cleveland Clinic—said at a meeting of the AATS, "If the internal thoracic artery is not used for anastomosis to the LAD, which is the most important artery, that is now ~~practice~~." [*GEG corrected this to malpractice.*]

NB: A big change.

GG: Yeah. But it took a long time.

NB: It takes a long time to change minds to new ideas, and I can see that because people are really protecting their turf.

GG: And I hate to say this, but cardiac surgeons have this macho self-image, and that's why magnification just—they didn't want it. They would use loupes. You could magnify things two and a half or three times, but not something of eight or twelve times. And that's a tragedy, because, still, the free mammary artery graft, attaching it to the aorta, it was only done by me and by Dan Swistle [Daniel G. Swistle, MD], my protégé, even though it was initiated by Fred Loop of the Cleveland Clinic. But Loop said, "It's a great thing but the anastomosis to the aorta closes, because it can't be done."

Well, it can be done, but you've got to do it with high magnification. The thickness of the mammary artery is so much less than that of the aorta that to match them up, you must use high magnification. So, I wrote a paper showing that—I think by the time I wrote it in the mid-nineties, a third of the patients I operated were having multiple internal thoracic artery grafts. They were all having internal thoracic artery grafts, but a third were free grafts.

NB: Well, now it's standard procedure.

GG: And not one of them that were re-studied was closed. And anyone who had recurrent angina got re-studied.

NB: Right.

GG: So, anyway.

NB: Well, now it's standard approach for patients worldwide.

GG: Yeah, but not using the free graft and not using high magnification, and I think that's so bad. And the few people who did use it, some surgeons out in Minnesota, - in Wisconsin. Unfortunately, they were terrific surgeons but never wrote a paper, and never—they were unknown to the world. I'd go out and visit them, and watch them do good work. No papers.

NB: That could be a problem because then no one knows that you're doing it. That's part of the problem, no question.

GG: Yeah. Yeah,

NB: So, I remember when I interviewed you because of a series of patients who had post-open heart surgery complications of diaphragm paralysis. I remember that.

GG: Uh-huh. Oh, yeah.

NB: And at that time there were four surgeons here doing coronary bypass surgery, and it turned out you were the only surgeon who had no patients with that complication.

GG: I know.

NB: And it was very hard to write the paper, naming the surgeons. So we didn't. We said, "Surgically speaking only one surgeon had no complications." But it was very clear when I spoke with you that the reason was you had developed the surgery; you had used the dissecting microscope, and as a consequence—in fact, you did all your own dissections.

GG: Yes.

NB: And as a consequence, you had the best results.

GG: Well, yeah. There were two problems with the phrenic nerve paralysis. One is that if you really mobilize the internal thoracic artery up high, you are very close to the phrenic nerve and can injure it. The other is that people used to use ice or cold packs inside the pericardium. Well, the phrenic nerve can be paralyzed by cold.

NB: It's just sitting right there, right.

GG: And so, it was one or both of those that would cause this.

NB: Right, right. So that made a big, big difference.

GG: Oh, yeah.

NB: So when did you decide to stop doing your professional stuff? Because I'd like to ask you more about your family, and how you integrated your family life with your work.

GG: Oh. Yeah.

NB: And what your wife did.

GG: She was a saint. I mean, I'd obviously come to work early to be in the operating room at eight.

NB: Mm-hm.

GG: And in those early days, cardiac surgeons pretty much called all the shots in the—we called it the open heart recovery room. I felt obviously obligated to get the best care I could for my patients, which meant instructing the nurses on the rather unusual care that someone who's been attached to a heart-lung machine needs. The regulation of potassium and fluid, it's quite—

NB: Delicate.

GG: Yeah. It can be chaotic and tragic, or it can be done well. So, I'd spend a lot of time there, and then I'd want to see the patient, make rounds afterwards, and I rarely got home before eight o'clock. And by then we had two kids, two sons, and the only time that we could be together pretty much was the weekend.

NB: Mm.

GG: It went on like that for many years.

NB: Strong men have to have strong women behind them.

GG: I think so.

NB: So, how did you get started on your hobbies?

GG: Well, I guess it was shortly after I started working here that Sheila [*Mrs. George Green*] said, "We have got to get away on weekends." I mean, she'd take the kids down to the park, but it was hot and messy, and so I said, "Okay, we'll find a place." And she as a young girl had a friend whose parents lived in Amenia, New York, in the northeast corner of Dutchess County, and would visit up there, and she loved that area. So we started looking for a place up there, and I said, "Listen, we've got to find a place that requires no maintenance because I doubt that I'll be able to get up there very much." And we found a place.

I guess that it may have been a while before we could afford to buy something, so at first we were looking for things that we couldn't afford. And we told the real estate agent that, and she said, "It doesn't matter. You don't have to buy it. Let's look." And so we'd look, and then we didn't see her for a long time. And then I called her and said, "Listen, Catherine, I think we've got enough money to buy something now." So she said she had ten places to show us. I told her the sort of thing I wanted, and the first one I said, "That's it. I don't want to see anything else."

It's on a high hill. It was just a log cabin that looked out toward the Hudson. You could see across the Hudson to the Catskills, 60 miles. And it was a huge hunk of land, 100 acres, but it was used for grazing on a steep hill by cows that weren't being milked. So there was no upkeep. And so we bought that. Then because I'd like to ask you more about your family—I quickly fell so in love with the place that I wanted more involvement with it, and that's when I decided to plant a vineyard.

NB: [Laughs]

GG: It was the only thing that could get me away from the hospital.

NB: Well, it totally changes your mindset when you're trying to run a vineyard, and you have to focus on what you're doing, because it sounds simple but it's quite complicated.

GG: Yeah.

NB: So you learned about that.

GG: Oh, yeah. And it was a good diversion, but only a weekend diversion until I stopped work in '94. Actually, '92. I worked at St. Luke's until '92, and then—

NB: Why did you change then?

GG: Well, Keith Reemtsma [Keith Reemtsma, MD]

NB: Oh, yes.

GG: —who was Directory of Surgery at Presbyterian, we'd become quite friendly, and he said he'd like me to work up there. I said, "I know you do coronary surgery up there. It's totally different from the way I do it." He said, "That's why I'd like you there. I want you to show it to the residents." So, Rose—what was his—? Anyway, Dr. [Eric A.] Rose was head of the cardiac program, though Reemtsma was the Chairman, and Reemtsma told Rose he wanted me there. So I went up to talk with Rose, and Keith stayed in the room for the beginning of the interview to be sure that the message was straight. Rose told me, "Oh, yeah, you'll be working with the chief resident, and blah, blah, blah," but he was only saying that because he knew Keith was about to retire.

NB: A-ha.

GG: And when Keith retired and Rose became head of the whole department, he didn't want the residents learning to use a microscope. I even said, "Look, I won't even come here until you put one in the ceiling and have video attached to it, and filming, so the residents can see what they're doing and what I'm doing." And they put all that stuff in. I started working there, but that was '92, and that—I started working in April. I'd made a lot of commitments to lecture and travel abroad, so during much of the summer I wasn't working there.

And then in the fall I was—the only people assisting me were physician's assistants. No residents. And then Rose tells me, well—I complained about it, and he said, "Well, because we didn't realize how busy we'd be and we don't have enough residents," he said. I said, "Well then, I'm leaving." "No, no, no," he said, "Don't leave. Wait until January when the new schedule comes out." And the new schedule came out and [laughs] one resident. What the hell was his name? He became infamous later. He's on TV and he sells all kinds of junk.

NB: Oz.

GG: Oh, yeah. Mehmet Oz [Mehmet C. Öz, MD], as a surgical resident, worked with me, and I showed him the value of the microscope, and I assisted him on one case, and he used it. And he was quite good, and he said afterwards, "You know, I never could have done that case without that kind of thing [*GEG noted he meant magnification*]."

NB: Mm-hm.

GG: It was a difficult case. It was the last time any resident was allowed to work with me. And I just kept feuding with Rose, and finally—I'd rather not.

NB: So, that was it.

GG: So that was '94.

NB: But you continued here? Or, no, you didn't come back.

GG: No. I did not. At that point I thought I'd given enough of my life to this. I'd written about 70 papers. I'd done videos, and presentations, and lectures, and travels.

NB: And you wrote a book.

GG: And wrote a book, and was still committed to further lectures, and I just didn't want to do it anymore.

NB: It was exhausting.

GG: And, besides, Dan was going full blast here at St. Luke's. So I came back one time, because a patient whom I had operated had developed a new occlusion elsewhere. And he was doing the re-operation, and I told the patient I would assist Dan, so, yeah.

NB: Dan is still doing it, and though he's left to go to NYU instead of staying here.

GG: Yeah. That was—that was so bad.

NB: It was a loss. Things change whether we like it or not.

GG: Yeah, yeah.

NB: So, of all the things you've done in your career, what part was the most exciting, most fun, most engaging?

GG: Oh. Well, I think the first post-operative angiogram of a dog that I had operated eighteen months previously. And Simon Stertzler [Simon H. Sterzer, MD], who had been a Fellow when I was working with Spencer—we took a dog from the experimental lab after midnight, when no one was around. He opened the lab. The dog was anesthetized. He used the clinical instruments to do a cardiac catheterization on that dog, and bravo! I mean, it was—it was just like a lightning strike.

NB: It was exciting.

GG: Yeah.

NB: It's like a discovery.

GG: Yeah. Yeah, it was fabulous.

NB: I think that's what intellectually keeps us going in medicine.

GG: Yeah!

NB: Because it's always stimulating, always something new to discover.

GG: Yeah.

NB: How do you keep an open mind? How do you teach that?

GG: I don't know, but you've got to allow time to think. I remember, I guess—

NB: Time to think is not allowed now days, you know. [Laughs]

GG: That's a disaster, then. Thinking why does—why should the mammary artery work better than a vein? I thought because a vein is deprived of its intrinsic circulation when you take it out of the leg, and the pedicle graft of the mammary artery carries it along with it. But when I thought of free grafts, before I did one, I thought, well, then shouldn't a mammary artery free graft fail? So I set aside time to get to the morgue and get samples of veins and of mammary arteries, and inject them with barium. And lo and behold, if you inject mammary artery lumen with barium and then preserve it and section it, you'll see barium in the vasa vasorum of the mammary artery. The vein, no, zippo. So, you've got the comparison, even if it's a free graft, of something with intrinsic nourishment versus something that's totally—

NB: Bereft.

GG: —ischemic for many, many days.

NB: That makes sense.

GG: Yeah.

NB: It makes sense. That's why thinking is so important to developing new ideas.

GG: Yeah.

NB: Asking the question, why? What makes it? Let's see if we can find out.

GG: And let me say one thing about Jacobson. He wrote that it wasn't the hand that was important in the anastomosis, it was the eye. If the eye can be the guide, the hand will do the work. It will! Unless you have a tremor. [Laughs] Excuse me, but...

NB: Well, that's why magnification extended the ability to eye, to see beyond just a—

GG: Yeah, sure. Anyway, so that was always a gratifying thing, what you could do with magnification.

NB: It's marvelous. It's marvelous. In terms of educating residents—

GG: Yeah.

NB: —you see them come and go, I'm sure. Dan is obviously the most outstanding because we remember him so well and he stayed around, but how did you look at that, as an extension of yourself, basically?

GG: Oh, yes. In 19..., I think it may have been '75 or so, because I would work with the general surgical residents here at St. Luke's.

NB: Mm-hm.

GG: But I couldn't let them do the cardiac surgery. But a talented resident, Salem Habal, [Salem M. Habal, MD]—I guess at that period residents were allowed to take off a few months to do research. And I said to Salem, "Listen, why don't you do what I did in rats? Sew together—[first] divide the aorta, [then] sew it back together, measure the lumen after the anastomosis has healed. And do it with loupes, two or three times magnification, and do it with a microscope."

NB: And compare?

GG: And I funded the project. He even gave a paper at the Society for Thoracic Surgery and showed a film on the superiority of the microscope to lesser magnification. But when he left St. Luke's and went to Presbyterian for their cardiac residency, he never used a microscope, because the surgeons there—

NB: Didn't want it.

GG: —didn't want a microscope used. So when he went into practice he never used a microscope either. But it was fun working with the residents, but that was another reason I went to Presbyterian, but that didn't work out.

NB: It didn't. Well, it's hard to change minds, no matter how you slice it.

GG: Yeah.

NB: Looking through, give us some sense of what the financial life was like early on, and compared to when you retired.

GG: Oh, I will! When Frank Spencer said, "You can work at University Hospital," the first patient that I operated there, Roy Clauss, who was the head of the cardiac program before Spencer arrived, was working as my assistant. He said he wanted to. I don't think he—he'd watched me in the laboratory. He'd never watched me operate on a patient. He was very good. He taught me how to use flow meters. We'd put them on

the arteries. Anyway, he had to go pick someone up at an airport and he said, "Well, I've got to leave now but you—blah."

I said, "Listen, I've got to ask you something." I said, "I've never—I've never sent a bill to anybody. How do you charge for this thing?" He said, "Well, the standard fee for open heart surgery is \$1,500, but no fee has been set for coronary bypass surgery. And it will be set, so I think you should make it higher." I said, "How much higher?" He said, "\$2,500." I said, "What?" He said, "Yeah. Do it." So I sent a bill to Blue Shield or Blue Cross, whatever, for \$2,500. I thought, my God, if I do ten operations I can live for a year.

NB: Those were the days.

GG: Yeah. I was quite shocked when three weeks later I get a check for \$2,500! Well, by 1970—that was '68—

NB: That was the physician's component of the fee?

GG: Yeah, the physician's component. I realized you couldn't just do one bypass in patients with multiple vessel disease. You had to do multiple bypasses. So when I came to St. Luke's, I was doing that. And then I hadn't been here very long when I get a call from the Medical Society, State Medical Society of New York or New York County, I forget which, and they wanted—they were forwarding a complaint from the insurance company. And I thought, okay, here it comes. I was being paid \$2,500 for a single bypass, and now was submitting bills for \$2,500 for a triple bypass. I said, "Well, what's the matter?" Well, they want it higher!

I was still at that time the only person doing any significant amount of coronary surgery, and I could never figure it out, unless—and I did think, well, good lord, these people want it so high! By then, *Life Magazine* had had a story about my work, and the referrals were overwhelming. They want the price so high that everybody will be scared that they'll need this, and they will have to buy insurance. And fees, then when other surgeons thought of doing it, the fees got higher. Later in the seventies an inspector from Medicare came here to St. Luke's and was asking about fees. I told ~~him~~ [GEG corrected this 'her'] the story, and I said, "Surgical fees are too high." Nothing happened. They kept going up. I mean, it's—

NB: They continued to go up.

GG: Yeah. Bizarre. And I was always upset by it, because—

NB: You mean you weren't in it for the money? [Laughs]

GG: [Laughs] I wanted to make a living but, no, actually, I was very troubled by the money, because it had become an industry and cardiologists felt—who were at that point only

making a living doing angiograms, felt, well, they couldn't get people to have an angiogram if they weren't going to have surgery. And I would see a significant number of patients who I thought did not need surgery, and I would tell, explain it to the patient and explain it to the cardiologist, and then to the general practitioner who sent the patient to the cardiologist and it became a very troubling issue. It was obvious that money was at it.

NB: The driving force.

GG: Yeah. And then, along came balloon angioplasty. At first, I thought that was pretty good. It would eliminate the need for some bypass surgery. But it started being used in patients who didn't need any surgery, who needed medical treatment. It was a bad scene.

NB: Right. Well, balloon angioplasty also does not have longevity of the internal mammary bypass. No question.

GG: Or of any bypass surgery. And you never get a long-term follow-up, because every time, they say, "Oh, we have a new balloon. We now have a stent. We have a new stent. You can't compare it to the old results." And back in the, I guess it was the eighties, when balloons were being used increasingly. There was a study presented at the American Association for Thoracic Surgery. At that time the ventriculogram was the standard of how well the ventricle could function, what the ejection fraction was. When someone had a balloon angioplasty and had a ventriculogram before, and the ventriculogram after, it was almost always less good after the balloon angioplasty than before. And perhaps, multiple angioplasties do account for some of the increase in heart failure. But anyway, I'm not an enthusiast of it now.

NB: Oh, I can understand that.

GG: And really, medical treatment and diet is so important.

NB: And exercise.

GG: And exercise.

NB: Dr. Green biked up here. In a what, 93-degree day?

GG: Yeah, but in the nineties—was it the nineties? Yeah, yeah, it was '92. There was a meeting down in Argentina. Lance Gould [K. Lance Gould, MD], a cardiologist from Houston, presented data on the Dean Ornish, [MD] diet for arresting or reversing coronary disease. Gould was one of the only people at the time who had what was called quantitative arteriography and a radioactive—

NB: Tracer. A tracer, radioactive tracer?

GG: Yeah. A short-acting tracer that could actually measure myocardial blood flow.

NB: Blood flow.

GG: And showed that in patients on the Ornish diet, which was very severe; it was only for patients who had coronary disease, severity meaning that fat should only account for ten per cent of the calories. No one had progression of coronary disease and 30 per cent had reversal. And, you know, it's enormously important. I went back to Presbyterian and started ordering ten per cent lipid diets, and my beeper was ringing continuously from the dietitians saying it can't be done.

NB: Hm.

GG: It can.

NB: Of course it can. It can. Do you follow that regimen yourself?

GG: Well, it's funny. Sheila had been in a terrible automobile accident and was in bed, and so I was going to do the cooking, and I figured, let me try it. Yeah. It's doable. It's like about three tablespoons of oil a day, and as Ornish said, I you use a variety of vegetables and lots of fish—I don't know if he has included fish—yeah, you can do it.

NB: He included fish. But all in all, his diet was also not voluminous. It was portion control.

GG: You don't have to go down to ten per cent unless you've got severe coronary disease.

NB: Right. And he did. He did have coronary disease.

GG: Oh, I didn't know that.

NB: That was how he got onto his diet.

GG: Uh-huh.

NB: Because he thought if he had his coronary disease at age 43, even if he had surgery and continued on this pattern of lifestyle, that he would either need re-operation or be dead.

GG: Uh-huh.

NB: So it was that time he decided to go on very stringent, and then he very carefully, meticulously looked. He had a coronary angiogram, and he had a coronary angiogram five years later to show reversibility.

GG: Uh-huh.

NB: That's when he became convinced and that was when he became—basically proselytizing his diet.

GG: Yeah.

NB: And it is more important than ever.

GG: Oh, yeah.

NB: We now know that diet is a large factor for actually maintaining good health overall. Overall, and in many respects, not only for vascular disease, but for mitotic disease, cancer

GG: Yeah.

NB: Hypertensive disease, diabetes, etcetera, etcetera, etcetera. It's a large number of diseases, and not related to infections, because infections used to be the primary killer of humans before the age of 50.

GG: Yeah.

NB: Now, people are surviving past that to get other things—to degenerate, if you will.

GG: Ouch.

NB: [Laughs] Right. We all will at some point.

GG: Yeah.

NB: Do you mind if I ask you how old you are now?

GG: No, 85.

NB: God bless. This is marvelous. Marvelous. Would you like to add anything else to our little—my little discussion? Our little discussion.

GG: Well, no, except memories of what a wonderful place St. Luke's was to work in.

NB: What did you think about the various mergers—'79, when we merged with Roosevelt [Hospital, now Mount Sinai West]?

GG: I was actually very upset by it, though in '79—there was nothing wrong with Roosevelt Hospital, because in '79 I was—again, there was such a backlog of work that one afternoon a week I'd do cardiac surgery at Roosevelt. And I liked working there, but they were just different institutions. And I will say that I think it was at about that time that a study was done of hospitals in terms of patient care, efficient patient care, and

that the size of the hospital that did the best was about 500 beds. And I think it takes a lot of intimacy to really do a good job. So I had nothing against Roosevelt, but I was not pleased by the merger.

NB: How about when we went with BI? Beth Israel [Medical Center]?

GG: Oh, Beth Israel?

NB: Forming Continuum. [Continuum Health Partners, Inc.]

GG: That upset me tremendously, because Beth Israel at that point was gobbling up hospitals, the Eye and Ear Hospital [New York Eye and Ear Infirmary], Doctor's Hospital, I forget what other hospital.

NB: Brooklyn. [Beth Israel Kings Highway Division; currently Mount Sinai Brooklyn.]

GG: It made no sense. It made no sense.

NB: It made no sense for patient care, but it may have made sense from a fiscal level. That was the reason, allegedly, for decisions to be made.

GG: Yeah. Yeah. Bargaining with insurance companies, but—

NB: Or government.

GG: —or government, but you know, voluntary hospitals were not set up for that, [unclear]. Well, funny thing. When I first came here in 1970, one of the first patients—patients after heart-lung bypass almost always need to be on a ventilator for a little while. And so, there weren't many ventilators here at that time.

NB: Mm-hm.

GG: And it meant buying more, and I went to Mr. Davidson [Charles W. Davidson, Executive Director, St. Luke's Hospital], who was then the—

NB: CEO.

GG: —yeah, the president. I said, "Mr. Davidson, I had been working at New York University, and I'm aware (it's pretty funny) of what they were being paid per patient per day then, which was \$157. And we are getting 90-something, and I think we ought to get paid more since we're now doing a lot of cardiac surgery." He laughed. He said, "Our endowment is such we don't need to." Wow!

NB: Those were the days. Well, the endowment started with, actually, [Rev. William A.] Muhlenberg, when he actually started with philanthropy from his parishioners in his church.

GG: Huh.

NB: They got the first St. Luke's built, second St. Luke's built.

GG: Yes.

NB: It wasn't until 1894 that he had to look beyond endowment to cover the costs. If you ever have a chance to look at the archival minutes of the Medical Board, it's all in there. It's fascinating to read, if you have spare time.

GG: Well, I do remember leaving St. Luke's one late one afternoon and there were, oh, maybe four or five, maybe half a dozen people staring up at the roof. And there were cameras, and they were looking very upset. They were Spanish media people who had come to photograph what had been the steeple of the original St. Luke's*, which is no longer there. I mean, by then finances were difficult and rather than repair it, it was taken down. [*The steeple was on the second Hospital at W. 113th Street, which was removed in 1966 due to deterioration]

NB: Right. Well, not repairing it risked it falling down, which might hurt someone.

GG: Yeah.

NB: As a consequence, it's still down, and it's the loss of the steeple that we would not qualify for landmark preservation of Muhlenberg.

GG: Oh, I didn't know that. Oh!

NB: Yes. The four saints*, too, were up there, and the statues were falling apart. [*The four Gospel writers, Saints Matthew, Mark, Luke and John]

GG: Yeah.

NB: Okay. Was there anything else you'd like to add to your story? It's a wonderful, story. It reflects a lot of changing times and how, as I said—

GG: Well, St. Luke's was the first hospital in New York City to do cardiac surgery. I think it was '55 when Hugh Fitzpatrick [Hugh F. Fitzpatrick, MD] did that.

NB: That's correct.

GG: And then there was a gap until McCord started doing the valve surgery, and I don't frankly remember what date that was.

NB: No. It was obviously after '55.

GG: Oh, yeah, yeah.

NB: In the sixties.

GG: Yeah, sixties.

NB: Because early in the sixties, I met him at Harlem [Hospital] when I was there.

GG: Mm-hm.

NB: And I did my internship and residency at Bellevue [Hospital] also.

GG: Ah!

NB: [Laughs] So that, you, and Dr. [Gerard M.] Turino, we have common history in that regard, maybe a little different time but, nevertheless.

GG: Yeah, a different time. I remember as an intern going to the old TB ward there.

NB: I spent my first day of internship on the TB ward of Bellevue Hospital, which was chest service.

GG: My first day of internship at Bellevue was in the emergency room.

NB: Oh, boy.

GG: And the first patient I saw was a young guy who came in and said, "I just shot myself in the head." He looked dizzy. I thought, you're kidding me. So I sent him for a skull X-ray and bang-o, there was a bullet in his petrous pyramid.

NB: Oh, boy!

GG: He'd shot himself in the ear and it had lodged in the bone. He was admitted, and much later had surgery and had the bullet taken out.

NB: He was a lucky man.

GG: Yeah.

NB: He had tough bones.

GG: A lucky deaf man [laughs], in one ear anyway.

NB: Right, right. Exactly, exactly. [Final question (edited out): would you turn to the camera and state your full name and your titles?]

GG: George Edward Green. I was a senior attending surgeon at St. Luke's Hospital.

[End of Interview]