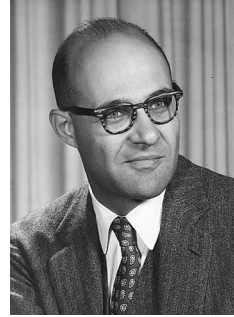


## LEON TRILLING

b. 1924, BS 1944 (mechanical engineering), MS 1946 (aeronautics), EAA 1947 (aeronautics and astronautics), PhD 1948 (aeronautics) California Institute of Technology; joined the MIT staff in 1951 as a research associate; appointed to the faculty in aeronautical engineering in 1954; professor of aeronautics and astronautics, 1962-1994; emeritus, 1994- ; head, Fluid Dynamics Research Laboratory, 1956-1975; also taught in Program in Science, Technology, and Society; active with MITES program (Minority Introduction to Engineering and Science); chair, Committee on Undergraduate Admissions and Financial Aid, 1970-1974; president and founding member, Metco, 1959-1963; member, Council for Educational Opportunity, 1966-1970.



I was born in 1924 in Poland in a small town called Bialystok. My father was a reasonably affluent textile manufacturer, and a man of great energy and wisdom. I had two brothers, half-brothers—same father, different mother—who are considerably older than I am. After my father's first wife died, he remarried, and as a matter of fact, I have a nephew who is slighter older than I am and another one who is six years younger. It was a fairly close-knit family.

In 1932, my father decided that to be on the west side of Germany for Polish Jews was likely to be a lot safer than to remain in Poland. Most of our family moved to France in 1932 and lived there, went to school there, in a more or less straightforward way until 1940. When France was overrun by the Germans, we had to leave in a hurry. We first stopped off in Portugal. That was more or less the standard route for refugees. Then we had to try to make our way further west. This turned out not to be easy. The Americans were not particularly free with visas and we were looking for likelier places to go. Interestingly, we ended up going to Cuba. The government was run at that time by the same Batista who ran it again about twenty or thirty years later. It was a fairly corrupt society. In fact, we got into Cuba by buying a visa essentially, but it was a safe place to wait our turn for entry into the United States.

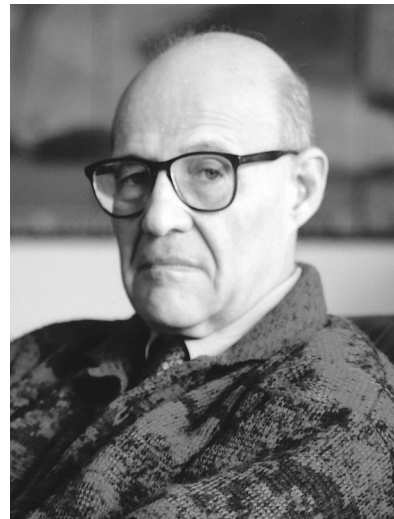
My nephew and I entered the United States as students in October 1940. My parents and my brother followed about a year later. I attended Illinois Tech for a year because, on the short notice that was available then, that was the only place that

would have me. I transferred to Caltech the following year, and did most of my higher education at Caltech. After I graduated from Caltech in 1944, I went to work for the U.S. Navy and worked for two or three years for Naval Ordnance Test Station, testing airborne rockets and the like. I then went back to graduate school and completed graduate school in '48. On the way, I got married in '46. Last February was our fiftieth anniversary.

At any rate, I got my doctoral degree in '48, stayed on for a post-doc at Caltech, spent a post-doc in Paris, and wrote lots of applications from Paris. MIT offered me a job, so I came in '51 and I have been here ever since. So that part is straightforward.

*Could you say a little bit more about how you chose your career?*

I think that also is interesting, at least to me in



Edited and excerpted from an oral history interview conducted by Clarence G. Williams with Leon Trilling in Cambridge, Massachusetts, 8 March 1996.

retrospect. I was quite interested in the humanities, specifically in history and political science. I discussed with my father the notion of making a career in this field—this was still in France. My father said, “Look, for Polish Jews like us, a career in political science or politics in France is not a good prospect. I urge you very much to read history, study history all you want. I encourage all that, but try to pick a career for yourself that you can carry in your head.”

This had a great deal to do with my selecting engineering as a career. I was interested in airplanes, I happened to be in aeronautics, but this notion that—particularly for a person who does not have solid roots any place—to carry one’s career in one’s head is something that I often remember with gratitude, I must say. As I said, my father was a very wise man.

My other interest sort of caught up with me once in a while. I served on the Brookline School Committee for ten years and I have remained interested in politics. I suppose to some degree, the interest that I have had in the difference between the promise and the accomplishments of the idea of equal opportunity is in part a reflection of this interest of mine. I must add here that when I came to the United States, I was received most openly and hospitably. It was clear to me that, so as far as I could tell, there were no barriers to my advancement. I always considered this equality of opportunity that I personally experienced as one of the wonderful aspects of American society. As I began to look around me, I realized that equality of opportunity was offered to white immigrants from Europe—even Jews. The same did not seem to be true for parts of the American community, African-Americans in particular, and I felt it was a terrible shame and a blot on the image I had of this country. I felt it was probably appropriate to attempt to do something about it.

This crystallized particularly in 1961 or 1962, at the time when Louise Day Hicks was running for School Committee or was on the School Committee, and Arthur Gartland was the only member of the Boston School Committee supporting Project Exodus and other activities to reduce the discrimination and the isolation of black school children in Boston. Arthur Gartland lost the election and was replaced by a man named John McDonough who had been supported by Louise, and she expected that he would support

her. Shortly thereafter, I attended a meeting of the fair housing groups in Boston.

I should say that shortly before that, some citizens of Brookline associated with the American Friends Service Committee, which invited students from abroad to spend a high-school year with an American family and promoted exchanges, asked me as a member of the school committee whether I thought it might make sense, this year particularly, to invite one of several high-school students from the South—black ones—to Brookline. At first I thought it made sense, and then when I thought a little bit more about it, it seemed to me that we had a problem of the same sort much closer at hand, and why not invite black students from Boston? This was kind of the first notion of the Metco program, which I’m glad to say went very well, and this was one of the things that I did that I’m reasonably pleased with in retrospect.

*That program has been very influential over a number of years.*

Yes, it has celebrated its thirtieth year.

*And you were active with Metco from 1967 to 1970.*

Yes, I was the first president. Mel King and Paul Parks and, of course, Ruth Batson were the proponents of this idea in the black community in Boston, and the Brookline School Committee and Lexington, Newton, Arlington, and Wellesley supported it from the beginning. Among the leading figures here, Laya Wiesner was quite influential.

*I didn’t know she was involved in that.*

Oh yes, she was also a founding member. She and Paul Parks were vice presidents when I was president. At any rate, the notion of the program was that something really needed to be done immediately. In a sense as a token of good faith, we realized that the numbers were not going ever to be so large as to make a systemic impact, but they could make an impact for a number of young people, which I think they probably did. We also hoped that this would stimulate the Boston schools to re-examine their policies—both their racial placement policies and, more broadly, their educational policies—as they saw that the kids who went to the suburbs did better at college admissions and so on than their own graduates.

Unfortunately, Metco did not have that effect. We are still struggling with that one. But so

it goes. I think we started with 225 kids, and now the number is on the order of 3,000 or so—between 3,000 and 3,500.

*That is a major program that has had a tremendous effect.*

Well, it did have an effect on suburban school systems. Being faced with these young people who were strange or with special problems—busing being not the smallest, but possibly not the largest of their problems—conscientious school people, school administrators, and teachers began to ask themselves how to make these kids feel more at home, what services needed to be provided to them. A larger number of black teachers were hired—not terribly much more, but some more—black guidance personnel were hired, tutoring facilities were established. We organized a program which would give responsibility for every child in the program to a parent—a pair of parents of a buddy child, so that there was someone that the child could turn to during the day if there was an emergency, if he or she got sick or injured in sports, if he or she wanted to stay beyond the time of the bus because of extracurricular activity involvement, and so on. We hoped that between the host parents and biological parents, there would form some bonds and that this would also bring the two communities closer together. This worked reasonably well at the beginning and I think, eventually, it became a routine that lost its focus. I don't know what situation that part of the program is in now.

*Could you talk a little bit about your impression of your early stay at MIT as a faculty member—particularly as it related to race relations, the early assessment of the black presence throughout the Institute?*

Well, to be fair, until the early 1960s—after a dozen years or so—I hardly gave it much thought. There were very few blacks on campus, and I wondered but not intensely enough to do very much about it. I think at that time the absence of women was a more obvious focus for me—in part, I suppose, because it was easier to think in those terms. It was only after the events that I have mentioned with the situation in Boston—I should be ashamed of this—that it struck me all of a sudden that something ought to be done about the absence of minorities at MIT, this notion that 85 percent of the students and 95 percent of the faculty were white males.

I must say that my department was extremely supportive once my colleagues, particularly my department head, Stark Draper, became aware that this was a serious matter for me, that I saw this as an important part of my responsibility as a faculty member. They made it possible for me to pursue this. They made time available. Occasionally, colleagues would teach my classes when I had to go to some meeting which was important, where my presence was considered important. Generally, both Stark Draper and my colleagues in the aero department were extremely supportive. Holt Ashley in particular gave very strong support, still one of my close friends. He went to Stanford after a while.

*As you went through college and in turn your graduate program, and as a young faculty member during those periods, do you recall any role models or mentors in your studies and in your career, particularly MIT role models?*

Well, Stark Draper. He probably was the most important influence on me, in a number of ways. Intellectually, he made me less of a theoretician. He had his feet firmly planted on the ground. He conveyed to me not by speeches but by example, by success of his own work in that style, that a simple model is often extremely useful to get a problem started off the ground and practical results in a finite period of time are important. He was also quite broad-minded about people, about encouraging people who disagreed with him, and he was very clear about promoting the role of MIT as one of the locations where national defense research was carried out, at the Instrumentation Lab in the form of an internship for future engineers in high-tech defense-oriented careers. He also accepted the notion that some people would not agree with this and supported the scientific and career endeavors of those who opposed these points of view. In this respect, he was extremely broad-minded and that was an object lesson.

*How did you meet him?*

He was my department head. I met him in the normal course of events as my department head. I suppose you know that J. J. is doing a thesis at Harvard on how young faculty become acculturated to their departments. Well, mine was watching Stark Draper, to a very large degree. There was nothing formal done, but he was such a strong person and such a fascinating example that one learned a lot just by being around him.

*What have you liked best and least about MIT's effort to increase the black presence on campus? That's a very important question—particularly to you, because you have seen it from different dimensions.*

The decision deliberately as a matter of Institute policy to increase the number of black undergraduates first, and then black graduate students and faculty, was quite crucial. The way in which it was done, I think, on the whole was wise and required a substantial amount of courage on the part of the administration. As I see it, there were three components to it. One was to redefine or stretch or modify admissions requirements and admit all minority students whose high school record indicated that the chances were that they could make it at MIT. This was a slightly less competitive and stringent requirement than the requirement put on the more traditional students.

That was one part. The notion of creating a support system was the second step. It was realized, I think over a period of two or three years, that it was neither fair nor reasonable to admit these young people, given the state of affairs at the time, and expect them to make it like everybody else, since they did not come with the same academic or psychological preparation that everybody else had. Therefore, projects such as Interphase and tutoring and eventually the establishment of the Office of Minority Education were a necessary complement to the admissions policy.

The third step, which I am ambiguous about in my own mind, has to do with the living arrangements for minority students—Chocolate City and that sort of thing. Frankly, I would have preferred to see more mixing, but I guess I realized that if the young people involved were reluctant to mix, felt uncomfortable mixing, there was no point in forcing the issue. So I am saddened by it in a way. I think it's too bad, but I guess I accept it. I hope that gradually it gets to change.

I should also add that I very much respect the administration for resisting the complaints—sometimes loud—of alumni and the like, particularly those alumni whose children were not admitted. I have seen some letters of that sort and the administration deserves a great deal of credit for having stuck to their policy in spite of these complaints—trying to explain the policy, but not budging from it. I think that was quite admirable.

I think the early first few groups of black students played a very important part. I remember

tensions between the black students who wanted very massive change. I remember these tensions and there was one incident in particular that I remember. It had to do with the Faculty Club and Bill Morrison, who was a former naval officer who ran the faculty club as he would the officer's mess of a ship. He got into a conflict with some of his staff, some of whom were female and black, I guess. The black students occupied the Faculty Club and Morrison resigned under pressure.

So there were all kinds of tensions like that. Al Hill and Jerry Wiesner and Paul Gray, particularly, were able to prevent these things from getting out of hand, and I think probably the students themselves. Actually, in the end, in a manner which did not push these confrontations to irreparable extremes, the Office of Minority Education, I guess, was one of the outcomes of these tensions. Things were hard to do, but in the end they got done, so that's good. The tensions between the students and the Institute—the faculty more than the administration, I suppose—were exacerbated by the fact that this was also the time when there was the civil rights struggle and the Vietnam War struggle, all of which kind of overlapped and fed on each other. It was a very interesting time. In a way, it was helpful because substantial numbers of idealistic and politically left-inclined students made common cause with the black students as a matter of principle, and this helped the transition. But it was a somewhat hectic time.

Now another point which has concerned me. It is, I believe, a fact that while black students graduate at almost the same rate as mainstream students—the difference is quite small, I believe, maybe 5 or 10 percentage points, something like 80 compared to 85 or 77 compared to 85, or something like that, I don't have the numbers—it is believed by the faculty that their average grade point is lower by either one point or at least half a point. The faculty finds it very difficult to get straight statistical information, reliable statistical information. That is a cause of misunderstanding and suspicion, in the long run probably not helpful, which I wish there were a way of getting around. I understand the sensitivities. I understand that one doesn't want to give ammunition to those who would say that these students are in some sense inferior, and the students particularly would feel strongly about that, I'm sure. On the other hand, the fact that it is so hard to get the

information reinforces the suspicions of some of the faculty, and that is not terribly helpful. So there is a difficult point here that I wanted to mention, and that has been over a number of years, of course.

*If I may come back and look at your actual department, over the years—particularly since the 1970s—what has been the presence of blacks on the faculty? Could you elaborate what accounts for the visibility or lack of visibility of black faculty members?*

Of course, we have two outstanding successes, namely Wes Harris and Dan Hastings. Otherwise, it has indeed been difficult. Jim Hubbard was appointed and didn't make tenure. I think Woody Whitlow had what it takes to be an MIT faculty member, but he chose to go to NASA after he got his doctoral degree. There is a man at the Lincoln Lab named Kornegay whom we approached.

*Wade Kornegay.*

We approached him, and he said he was happy at Lincoln. He was certainly making more money, I think, than we could pay him. I don't know how important that was, but he had his professional life settled there and he did not accept the appointment we were ready to offer him.

*Do you remember about what year that was?*

One of the problems as one ages is that it gets to be a kind of a gray fog, but I would imagine it was in the '70s, in the middle '70s sometime.

*You mention two or three black faculty members here in your department, over maybe two or three decades. That may sound like a small number, but when you look at the departments around the Institute, it's not so small.*

It's no worse than other departments.

*Exactly. I think it's better, with the exception of physics. There aren't many departments that could say they have had two, certainly at the present time if you look at the fourteen black faculty members.*

Two out of fourteen is more than our fraction of the total faculty, I'm sure. But when one deals with the law of small numbers here, I don't know how significant that really is.

*Well, maybe not. But the fact is that you are talking about two tenured faculty members over that period of time. That is significant in a sense because when you look throughout the Institute, you can name what departments have had black faculty members and also those*

*that have maintained the support for them to become tenured faculty members.*

These two, of course, are outstanding people, and they would have made tenure no matter where they came from and no matter what color skin they had. It was quite obvious from the beginning that Dan is scientifically fairly close to the genius class, outstanding. Wes is fully as able as most full professors in the department and has a moral stature which is quite special, quite outstanding. He is a man of extremely high principle and seriousness. I think those two would have made it no matter what. We were just lucky in stumbling upon them. I guess we identified Dan as a graduate student here, but Wes we recruited from the outside.

*I know there is something special about some of the activities and relationships that you have. Could you reflect on the nature of your relationship with these young, black professionals here? The reason why I want to keep you there for a little while is because I believe there is something special that you can convey that we may be able to gain from in terms of how you have been able to relate to, say, this young faculty member coming up—what it did for you, what it did for them—from your perspective.*

My involvement with Wes is somewhat special, and it's closer than with Dan. I first met Wes in 1968. Harold Wachman and I were running an international meeting here in rarefied gas dynamics and Wes was a graduate student at Princeton. He gave a paper—which was a very good paper—and this kind of stuck in my memory. We hit it off personally pretty much from the beginning. Then Wes went on, as you know, first to Virginia and then to Southern University. I thought he would be a very good candidate for MIT, so I persuaded the department to invite him as a visiting professor. He impressed the rest of the department and he stuck. His office was next to my office. We were both early risers, so we would both be there sometime between 8:00 and 8:15, and quite often—either in his office or in my office—we would chat about politics, about minorities at MIT, about careers, about scientific problems that we were both interested in, and it got to be a completely casual and mutually helpful relationship.

At the beginning at least, Wes would ask my advice about how this or that operates at MIT because he was new and I had been here for some time. That was a fairly natural thing. Gradually, of

course, he found his sea legs and we got to talking on a sharing basis. I remember his role as director of the Office of Minority Education, and I remember how he came to see me one day and said, "Look, I spend a great deal of time doing what is expected of a black faculty member. I don't want to be the best black aerodynamicist. I want to be an aerodynamicist of world class, regardless of black or white, so I'm going to resign from the Office of Minority Education and make it as a scholar." I told him that's wonderful, so he said, "All right, would you take over for me?" It's that kind of relationship.

You know, we would go to concerts and things together and shared information and concerns about our children who were roughly at the same age and going through comparable tribulations. Wes was one of the participants in our wedding anniversary celebration. We remained close friends. But I must say, Wes has impressed everybody in the department, and people who are not generally supportive of affirmative action are actively supporting Wes as a candidate for department head. So people recognize his substance.

Dan, I don't need to say very much about. He had the same office that Wes used to have, next door to me, and we also talked a fair amount. But I think Dan is so able and has so many different interests that he struck out on his own in a field which is not really my field scientifically. He made his career on his merit by himself. I supported him and gave him whatever advice he chose to ask me for. But it wasn't quite the same relationship I had with Wes. I think in both cases it was important that we thought of each other, and treated each other quite explicitly as colleague to colleague without any hint of attention in this respect of black or white.

Let me say something else that comes to mind. I have had a number of black advisees—undergraduates—and I supported a number of them who had the academic credentials to go to graduate school here and chose to go to graduate school elsewhere. I could never get them to say that they were uncomfortable here, but I got that sense. In particular, I remember a young man named Bankhead. He was about 4.0, something like that. He was not only my advisee, but he became my freshman associate advisor and did very well at it—arranged tours to the aquarium,

and one thing and another for our freshmen—and eventually got a double degree in aero and political science. He went West, I forget which western university. I got the feeling that something had turned him off. He was not completely at ease, and I think I observed this with one or two other advisees. You know, it's hard to pick up these things. It's hard to be very specific about it. It's just a feeling that I have.

*You've had a chance to actually counsel and advise students from all backgrounds, and you also have done the same things in terms of being a mentor for a number of young faculty members, from whatever backgrounds. Have you learned any general approaches to working successfully with or advising students—as well as these young faculty members, particularly these young faculty members? Have you seen any notable differences in working with young black faculty members?*

Well, my approach always has been to encourage them to do what they want to do and be as supportive as I could. I thought if they did something terrible I would say so, and the fact that I had encouraged them in those things up to that time would make them at least listen. But this notion that they should do their thing—and that I give a small hint, and no more than that, and let them be on their own—I think in the long run worked out well. After all, the young people who come here are pretty strong-minded and know what they want. One shouldn't tell them what research they ought to do. One ought to encourage them to do what they want to do, support them, and open doors for them if that is appropriate, which at MIT after admissions isn't usually crucial.

The same applies to graduate students. Let graduate students be on their own. Meet with them every other week maybe, not more often than that. I encourage them. In fact, it used to be the pattern that there was a large room in which our graduate students were together and they would learn more from each other than they would from the faculty by working together. Somehow, that usually worked well. I think my guideline is to be as approachable as possible, as open and available as possible, and to be supportive but not directive. If there is anything administrative that I can do, if there is information that I can give about opportunities at other places, of course I would do that. I think I have never treated minority students or foreign students in

any other way than I speak to the other students. I hope they get that sense. I know some have from interactions with them. But I think that would be the answer.

Now, why we have so few in science and engineering, I don't know how attractive it is to choose that career. You would have more sensitivity to this than I would, of course. But I think it would be a little bit "far out." To be a lawyer or social worker or community leader is a more direct way of helping one's community. I thought that might have something to do with it, and then the abysmal state of the teaching of math and science in urban high schools is obviously another.

*True. There are many reasons for you to have such a good sensitivity to this whole issue of the black experience—because of your own background, in a way. From all of your experience, what would you suggest could possibly be ways to improve and enhance the experiences of blacks at MIT, if you were looking down the road at the next ten to twenty-five years? What advice would you give the institution in terms of how the experience can be enhanced here for black students and black faculty?*

This place has changed a lot already since I came here, so the Institute must have done something right. And the demographics have helped. I think the crucial thing is more black faculty. How you get more black faculty is a very difficult problem. All of the department heads that you talk to—I suppose you have talked to more of them than I have—will tell you they would dearly love to have more black faculty members, but there is competition, and there is complication, and this, that, and the other. It is difficult. In the end, the old criteria prevail over the new criteria. This is certainly true in mathematics, which has such easily defined criteria, and it is least the case in some fields of engineering and urban planning where it is obvious that part of merit, part of the quality of a professional, is his own ability to deal with a broad clientele which includes minority people.

Therefore, to be a minority is, in some respects and up to a point, an advantage. I think urban studies, in particular, has seen this and has acted on the notion that it is desirable to have larger numbers of blacks, because the practice in the profession of urban planning serves the black community and one needs to understand one's plights. Mel King, Phil Clay, and so forth have gone a long way in that direction.

*But when you look at the faculty aspect and at the experiences you have with students, what have you learned that may help us duplicate things like that? I want to push that because although it may not seem like much, the fact is that it is not duplicated very much at all. Your relationship, for example, with a young faculty member like Wes is not a typical situation. I mean, it is rare. It shouldn't be.*

It shouldn't be. Being aware of able young people at an early age and trying to attract them, I suppose, is important. In this respect, the various lists and registers of minority, particularly junior, faculty members are very useful. To the degree that one can, I guess one ought to get to know them as individuals, go beyond the written form of record that one would put in the book and get to know them as people. To some degree, this is a responsibility of the members of the various departments—inviting some of the more promising people to give lectures. The opportunities offered by the Martin Luther King visiting professorships are very useful in this respect. If we can retain some of these folks, that would be very nice.

I think that on the whole STS has done not so badly either. Originally, they attracted Ken Manning. He was just getting his doctoral degree in the history of mathematics at Harvard, and he has made his way here. Now they have this young lady, Evelyn Hammonds, who seems to be an impressive scholar. I think the students that STS attracts are a very widely varied group. I think they are trying quite hard to do the right thing there with some success.

*What do you think has caused that?*

It's the conscious willingness to make an effort. Ken Keniston wanted to do it and Roe Smith wants to do it. If the senior members of the department want to do it, at least the attempt is made. They have a quite large number of women on their faculty, but that is a slightly different matter.

*It says a lot, though.*

Yes, they're willing to be open. A number of their women are really absolutely first-rate. You can talk about Sherry Turkle, Evelyn Fox Keller, or Lily Kay. They are very good.

*Now, was Walter Rosenblith connected with that group?* I guess not. I think he was encouraging from the sidelines, but he was already—what shall I say?—a figure in the background. He was not making the

decisions. He made his views known, but wasn't making the decisions. I think the key people probably were Roe Smith, Ken Keniston, and probably Loren Graham. They are a wonderful bunch of people.

*Absolutely. You see it in their scholarship as well.*

Yes, yes. So to come back to your original question, it is trying to get to know the potential candidates who are available and drawing them here for visits, making MIT seem attractive to them, and I guess building support for their appointments within the department. That's done by their coming and impressing the people favorably. Growing your own graduate students is the other way. That's a longer range proposition, and that hasn't worked terribly well on the whole.

*Why not?*

I don't know, other than to give the easy obvious answers like competition with jobs at an early stage, and opportunity to earn an income and repay one's debts, and that kind of thing. I don't really know. I was for a number of years a member of the departmental affirmative action committee, and as such I was involved in trying to recruit graduate students. It was hard going. There were more Hispanic graduate students than blacks, as a matter of fact, that we were able to attract. The blacks we attracted—and maybe there is a lesson in this—a number of them were African, from Nigeria, from Kenya. Some of them have done quite well. There are two or three who are doctoral candidates in the department now, and Ike Colbert was very generous in providing financial support for them. The Institute probably wants home-grown ones as well as African ones—not that we object to African ones, but we would like some home-grown ones.