Chapter Five

Repositioning Membership: Entering the "State of the Art Virginia," 1977–1989

From 1977 to 1989 the Virginia Academy of Science continued the struggle to negotiate itself into a position of power within the ever-changing web of Virginia science. From the interaction between several members of its Council to the lobbying of the General Assembly for higher standards in science education or an increased awareness of an environmental problem, the VAS sought to maintain its level of apparent power within the Commonwealth. The effectiveness of the Academy in repositioning itself was limited by both the weakened social and political influence of its individual members and by the restricted freedom of these members to act on behalf of the group when necessary. Gradually, the VAS fought to redefine itself, considering various avenues it might take in order to remain a vital participant in the scientific, academic, and political scene of the Commonwealth of Virginia.

Setting the Stage: Virginia, 1977–1989

In keeping with the conservative nature of the state, social and consequential political changes — while mirroring the shifts taking place across the nation at large — were slow to take place during this period. Contributing to the climate of new opportunities emerging, however glacially, was the rise in population, as people continued to move to the so-called Sun Belt. The state grew in numbers of people from 5,346,818 in 1980 to, by the end of the decade, 6,187,358.[1] Women gained more power in Virginia. While Kathryn Stone had won election to the House of Delegates in 1953, it was not until 1979 that Eva Scott became the first woman to win an election to the Virginia Senate. When in 1984 Edythe Harrison of Norfolk became the Democratic Party nominee for

the United States Senate, her nomination to stand against the very popular Republican incumbent John Warner meant that she was being offered up by the Democrats as a sacrificial lamb, and, in fact, Senator Warner coasted to an easy victory over his unknown, liberal, female opponent.[2] In 1985, however, Mary Sue Terry of Patrick County won election as Attorney General of Virginia, and she won again in 1989 — seemingly a victory that would open what had come to be viewed as the traditional route to the Governor's mansion.[3]

Basing their power on the demographics of the urban areas, African Americans also gained a measure of political participation during this period. By the end of the decade, African Americans had won mayoral elections in many of Virginia's major cities, including, for example, Newport News, where Jessie Rattley was not only the first African-American mayor but also the first female mayor — a major accomplishment in a city that lacked an overall black majority. The first black member of a governor's cabinet and also the first woman cabinet officer in Virginia was Jean Harris, Secretary of Human Resources from 1978 to 1981. Thereafter, every governor's cabinet has included both African Americans and women.[4]

It was an indicator of the new political atmosphere dawning in the old south that Mills Godwin, the Democrat turned Republican and only man to serve two gubernatorial terms, was succeeded by another Republican: John N. Dalton. Virginia, home to Robert E. Lee, was once again leading her sister states of the Confederacy as she turned more Republican. The Republican resurgence in Virginia profited from the fact that many Democrats, increasingly unhappy with the national party's ever more liberal platforms and presidential nominees, began to vote for Republican candidates as the passage of time and the dying of the older generations blunted the memories of Reconstruction. In the November 1977, election, the Republican party won nine of the state's ten seats in the House of Representatives and one seat in the United States Senate, and gained seats in the General Assembly as well.[5]

Governor John Dalton was the last of the trio of Republican Governors in the 1970s. Born in Emporia, Virginia, in 1931, Dalton grew up in a thoroughly Republican family, with his father, "Ted" Dalton, known across Virginia as "Mr. Republican." The younger Dalton went to the College of William and Mary as an undergraduate and then to the University of Virginia School of Law. After serving in the Virginia House of Delegates and the Virginia Senate, in 1974 he was elected Lieutenant

Governor of Virginia, where he worked with Mills Godwin and became his logical successor. In November 1977, John Dalton became Governor of Virginia. Given his history and the new, highly conservative Republican influences, it is not surprising that, as governor, Dalton worked hard to build his party's base. By the end of four years, he had made the Virginia Republican Party synonymous with business-like, fiscally responsible management. Of his own term, he said, "I tried to slow down the growth of the government in those four years and to leave government. . . with the people having a higher percentage of their tax dollars."[6] However nurturing Governor Dalton was of his party, there was little he could do about the Lieutenant Governor, Democrat Charles S. "Chuck" Robb. Political novice though he was, Robb's personal charm, easy style, made-for-television personal appearance, and ties to both money and politics by virtue of his marriage to Lyndon Johnson's daughter Lynda had made it easy for Virginians to split the ticket.

Like Dalton before him, Robb used the position of Lieutenant Governor to solidify his political base. He easily received nomination, and in the gubernatorial campaign, he defeated Republican Marshall Coleman, taking 53.3% of the vote.[7] A centrist without perceptible leftist leanings, Robb had worked hard to bring Democrats together during his tenure as Lieutenant Governor. And he held some important agenda items in sympathy with popular Democrat positions. He was in support of better funding for education, was interested in transportation issues, in public safety, and in the environment — all positions which, although probably perfectly genuine, were also calculated to win the hearts and minds of the national Democratic party — and many in Virginia were confident that the well-connected Governor Robb had national aspirations. But two thorny issues began to show themselves in Robb's term: first, the unsolved, and over the short term probably unsolvable, problems in race relations; and second, abortion policy. In both, the attitudes of the younger voters were radically different from the older class.[8] A problem that Robb never adequately addressed was how to both satisfy the older, traditionally conservative Virginia voters and at the same time bring the younger people into his fold.

Riding Robb's coat-tails into the Governor's mansion was Gerald L. Baliles, who had occupied the Attorney General's office during Robb's term. Baliles would nearly equal Robb's "vote-getting" power in his 1984 race, and he carried with him both the first African American and

the first woman to win statewide office: L. Douglas Wilder of Richmond became the Lieutenant Governor and Mary Sue Terry, as mentioned above, the Attorney General. The race and gender cards were now face up on Virginians' tables, and, as Wilder would later prove, could be powerful in the hands of the right political player.

Gerald L. Baliles was an effective, smoothly operating Governor whose passionate interest was, and continued to be after he left office, education — although he was well-known for his attention to Virginia's lamentable system of roadways. Baliles also supported the introduction of women to positions of political power, placing numerous females on the private citizen boards that wield much power in the Old Dominion. Born in 1940 in Patrick County, Virginia, Baliles received his undergraduate degree from Wesleyan University and then graduated in 1967 from the University of Virginia School of Law. After Baliles' term, he continued his service to education, chairing the Committee for Educational Quality from 1992–1993, and he remained active in regional educational ventures in the 1990s. When his successor as Governor, Douglas Wilder, was forced by an unforeseen fiscal shortfall to cut funding sharply, Baliles was a vigorous defender of funding for Virginia's institutions of higher education.

Viewed from a larger perspective, the Commonwealth did not change dramatically between 1980 and 1990, despite the new political environment. Most of the notable demographic and economic trends had been underway for several decades. Nor, oddly enough, was the state radically changed with the 1989 groundbreaking election of the first African-American Governor, Douglas Wilder.[9] Of far more significance than Wilder's race were both the fiscal crisis that occurred during his tenure and his open bid for the Democratic nomination for the Presidency. Lawrence Douglas Wilder, born in Richmond in 1931, did his undergraduate work at Virginia Union University and then received his law degree from Howard University in 1959. From 1969 to 1985 he served the ninth district in the Virginia State Senate as the first African American in the Virginia State Senate since Reconstruction. He was Lieutenant Governor from 1985 to 1989, and in 1989 became Governor.[10]

These dynamic interactions made Virginia, in the late 1980s, a pacesetter for the nation. The Commonwealth entered the 1980s in the vanguard of the conservative Republican reform movement that would sweep the nation and usher in an era of striking economic expansion

and global democratization. Reaganism brought to national prominence a libertarian conservative philosophy rooted in Jefferson's Virginia, defended through the New Deal and Cold War by stalwarts like Harry F. Byrd, Sr.[11] But that swing to the right was blunted by the efforts of the trio of Democrats who took over the Governor's mansion following John Dalton. In laying a centrist course for their state's party, Robb, Baliles, and Wilder prefigured what would come in the United States when Reagan's Republican successor was rejected by the national electorate. Further, the efforts of Robb and Baliles, although not Wilder, in support of education would prefigure a national recognition that there were problems in that important area of the life of America — problems of which the Virginia Academy of Science was all too well aware, since the shortcomings in education made themselves particularly apparent in the fields of the sciences and mathematics. The energy generated by the response to Sputnik and then to the Cold War had largely given out, and there appeared to be nothing to take its place.

In considering this issue, Ertle Thompson, past president of the VAS, Treasurer of the National Association of Academies of Science and Professor of Science Education at the University of Virginia, wrote in 1983:

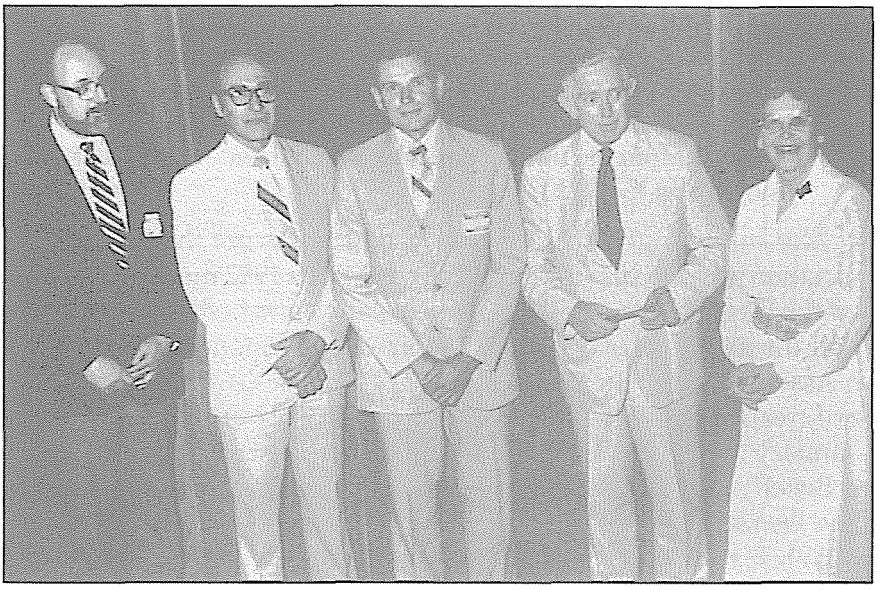
> The greatest challenge for science and mathematics education in the '80s is the establishment of realistic goals for developing a scientifically literate society, and the preparation and enhancement of the talent pool for research and development, and the technological support essential for human welfare in a world increasingly dependent on science and technology. Recent studies and survey's [*sic*] indicate declining knowledge and interest in science and mathematics among pre-college students; yet the federal government and, in many cases, state governments have abandoned the aggressive efforts of the pre-Sputnik era to improve the quality of science and mathematics education. Teacher preparation suffers in both quality and quantity. Science and mathematics education centers are being devastated by retrenchment politics... The challenge is to modify the policies and practices responsible for the present status, so that science, mathematics, and technological education for the '80s will be strengthened.[12]

In large part, Thompson's challenge became the center of the Academy's focus and drive, shaping their activities and policies throughout the 1980s.

Sections, Committees, and Related Events

Toward the end of the seventies and into the early eighties, the creation-evolution debate — especially in science textbook selection in elementary and secondary schools — reared its head once again. The re-emergence of this debate — following directly on the successful public lobbying of the largely white Christian right — was felt most immediately in the south, where the heritage of the so-called Bible Belt with its conservative stance on moral issues provided fertile soil. While many southern states wrestled with the educational consequences of this intellectual, theological, political, and ultimately legal confrontation, none were as blatant as the state of Arkansas, which in early March 1981, passed Act 590, mandating the teaching of creation science whenever evolution was also taught. Specifically, Governor Frank White signed into law the requirement that every class in science in the public school system of Arkansas offer a "balanced treatment" of the "two science model" concerning the origin of "the universe, earth, life, and man."

Fundamentalists in Arkansas were satisfied; however, "scholarly religion, established science, and liberal teachers," viewed the new law as overstepping the bounds of the First Amendment to the Constitution, which is applied to the states through the Fourteenth Amendment. Supported by the American Civil Liberties Union and represented by the New York law firm of Skadden, Arps, Slate, Maegher, and Flom, the resident Arkansas Bishops of the United Methodist Church, the Episcopal Church, the Roman Catholic Church, the African Methodist Episcopal Church, and the principal officials of the Presbyterian Church of the United States of America came together to bring a suit against the state of Arkansas on the basis of a violation of Constitutional rights. The American Jewish Congress, the American Jewish Committee, the Arkansas Educational Association, the National Association of Biology Teachers, and individual parents and teachers also took to court the Arkansas Board of Education, the Director of the Department of Education, and the State Textbooks and Instructional Materials Selection Committee of Arkansas. From December 7 to December 17, 1981, Judge William R. Overton of the United States District Court of Arkansas heard



Virginia Academy of Science officers, 1980 (from the left): R. Gerald Bass, treasurer (president in 1985-86); Blanton M. Bruner, executive secretary-treasurer; Donald G. Cochran, president-elect; Kenneth R. Lawless, president; Vera B. Remsburg, immediate past president.

argument before striking down the new law, declaring it in violation of the separation of church and state.[13]

Given the tenor of the time, it is not surprising that the Virginia Academy of Science expressed concern over the possibility that creationism versus evolutionism might once again become the object of public debate within Virginia. Even before the Arkansas Governor had signed Act 590 into law, members of the VAS were well aware of the brewing conflict. Many of the members decided to preempt the issue before any necessary reaction might be required. They thus seized the initiative in a debate that they were certain would reach the Commonwealth. For example, in an article printed in the Spring issue of the *Journal* titled "On the Teaching of Origins," Michael Bentley of the Roanoke Valley Science Museum wrote:

> Science is empirical and seeks naturalistic explanations for phenomena. Theories must be open to modification based on evidence. The theory of evolution, though it is

> incomplete, meets these criteria. The movement to require teaching of creationism in the public schools as an equally valid model is opposed on the grounds that it does not meet these criteria of science. Science teachers are advised to teach children the limits of science and the tentativeness of knowledge.[14]

Not surprisingly, the Virginia Academy was not the only scientific association interested in the debate. At its March 1982 meeting, the Council of the Virginia Academy of Science asked *Journal* editor Stewart Ware to call the attention of the membership to the statement of the American Association for the Advancement of Science (AAAS) on the teaching of creationist beliefs in public-school science courses.[15] Agreed upon in January 1982 — following a two-part symposium entitled "Science and Belief" — the AAAS statement is quite similar to Bentley's remarks in the *Journal*.[16]

While the outcome of the Arkansas mandate in the courts could have been expected to bring the issue to closure, it did not. Several years later, the state administration of Louisiana, in a case often likened to that of Arkansas, argued for equal time to be devoted to creationism as evolution in the classroom. Like Arkansas, Louisiana was brought to court, and when the case was finally heard before the United States Supreme Court in 1986, fifty-four Nobel Prize winners and sixteen state academies of science joined an *amicus curiae* brief on the side of plaintiff to have the Louisiana Equal Time for the Creationism Case struck down. When the Louisiana case was brought to the attention of the VAS both by Vera Remsburg — who from time to time aided the American Civil Liberties Union (ACLU) in its quest to drive creationist teachings from public school curricula — and Academy President J. James Murray, Jr., the Executive Committee recommended that the Virginia Academy of Science join the brief "if still possible" at the late date when the case came to its attention.[17] At Council in March 1987, President Murray reported that it had been too late for the VAS to "get in on the deal"; nevertheless, the plaintiff expressed appreciation for the support of the Virginia Academy, in spite of the fact it was not timely.[18]

American Association for the Advancement of Science

In other ways as well, the VAS continued its involvement with the American Association for the Advancement of Science throughout the

late seventies and eighties. Upon his return home from the AAAS meeting in 1977 where he was the Virginia Academy Delegate, E. L. Wisman was happy to report that of the forty-five state and city academies, the Virginia Academy of Science ranked fourth in total membership; only California, Ohio, and Wisconsin were ahead of the Old Dominion. Furthermore, Wisman had the honor to announce that the AAAS Distinguished Service Award — the criteria for which is service to both the Association and the member's state academy — was given to only two people in 1977, one of whom was VAS member Boyd Harshbarger, whose long relationship with the Virginia Academy had been marked by vigorous and creative leadership.

Harshbarger had served as President of the AAAS in 1977.[19] Eight years later, in 1985, the Virginia Academy of Science could boast that member Ertle Thompson was the President of the National Association of Academies of Science (formerly the Academy Conference of the AAAS) and Dallas Cocke was Director of the American Junior Academy of Science — both associations that stemmed from the AAAS and hence held their meetings in concert with the older organization.[20] Over the years, the VAS consistently sent Thompson as its AAAS representative. As AAAS Representative, Thompson reported in 1987 that the NAAS had elected Dean Decker to a three-year term as a Director of the American Junior Academy.[21] The involvement of Virginia Academy leaders with the national organization was a bonus for the State Academy, which gained external validation and the ability to network on behalf of its membership on the national scene. One would have expected, given both the opportunities and advantages forthcoming through Virginia Academy of Science membership, that Virginia scientists would have continued to support their Academy throughout this decade as they had in past years. But the numbers simply were not there. Membership began to slide downward, with some sections showing more weakness than others.

Membership Committee

Despite efforts initiated in the early seventies to stabilize and increase the overall membership numbers, membership continued to fall. As indicated in the chart, from 1970 to 1975, the overall membership dropped by approximately four percent — statistically speaking, not a remarkable change. However, the decline in the categories of regular

Table 5.1. Membership

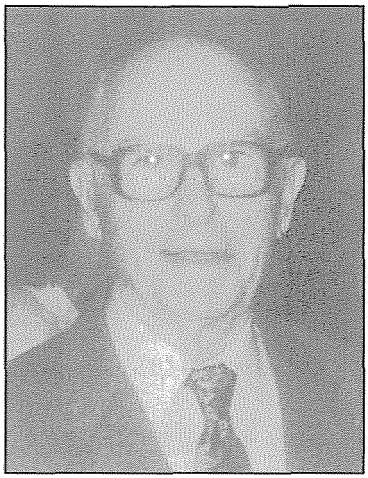
Year: Member	1970	1975	1980	1985	1990
Regular	1280	1233	1165	914	734
Contributing	137	110	95	63	58
Sustaining	46	46	58	30	28
Student	63	78	138	171	264
Life	13	13	19	24	29
Business	24	26	19	13	13
Overall	1563	1506	1494	1126	1126

and contributing membership prompted President Allan Powell in the Spring of 1977 to propose several initiatives to increase interest in the VAS.

First, in an attempt to introduce the general public to the current mission of the VAS, Powell announced to Council that the "Viewpoint" section of the Channel 6, Richmond newscast would offer two programs on the Virginia Academy of Science. The initial program was to focus on the history of the Junior and Senior Academies, while the second would explain the activities of the Virginia Academy's annual meeting.[22] The strategy of approaching the general public through the medium of television was sound, although it does seem that two programs offered over a single channel in one area would hardly produce more than a temporary ripple of interest among the public. A second directive designed to attract and retain members was the introduction of "poster sessions." A poster session provides scientists with the opportunity to present a display which depicts their research.[23] Poster sessions at large national meetings provide excellent opportunities for those in fast-breaking research areas to present findings to interested peers while avoiding the difficulties of preparation of formal papers, submission of completed abstracts in a camera-ready condition, and the like. Accordingly, the VAS believed that the informality of the poster session would be attractive, particularly to the younger scientists. Finally, the chair of the Membership Committee, Warwick R. West, Jr., reported that his committee had prepared and sent letters to the chairmen of all sections of the Virginia Academy of Science requesting that they attempt to build the membership of the Academy among people within their own disciplines.

This three-pronged approach resulted in initial success, as illustrated by the sixty-one new members signed-on over the next year.[24] And by the fifty-eighth annual meeting held at the University of Virginia in 1980, chairman of the Finance and Endowment Committee Rae Carpenter — in his last report for the committee after a decade of service — reported that membership numbers had reached their highest since 1975, with a resulting increase in dues income. Indeed, from 1975 to 1980, the overall membership numbers fell by slightly more than half of one percent — a negligible change at best. "The Academy remains a viable and vigorous voice of science in Virginia, especially to our young people. Keep up the good work!" encouraged Carpenter.[25] As was usual with Carpenter, a positive attitude was always closely associated with hard work and with the potential to deliver what the group with which he was associated had promised.

Unfortunately, the encouragingly high membership numbers of 1980 proved to be a temporary phenomenon, and over the next seven years, the membership suffered from a steady decline. From 1980 to 1985, for example, overall membership fell by nineteen percent. At a March 1987 meeting of Council, President Murray referred to the alarming report from Executive Secretary Blanton Bruner regarding the drop in membership from 1530 in 1979 to approximately 1121 in 1987. In fact, Bruner's report revealed a loss of 103 members over the past year alone. To try to stem the outgoing tide of scientists, Secretary Bruner suggested the Virginia Academy of Science should conduct a membership drive. In a curious moment of openness and discouragement, both Dean Decker and J. J. Murray stated that it seemed to be "easier to get support for a national meeting than for the VAS."[26] Both Decker and Murray were correct. It was obviously easier for academic scientists to get support for traveling to present papers at national meetings, and one does not have to look far to discover the reason for this unfortunate fact. By the end of the 1980s, every university and nearly every baccalaureate-granting college in the Commonwealth had introduced publication as a part of its promotion and tenure requirements. National associations, with their greater prestige, connections with peer-reviewed journals, and opportunities offered to scientists to network with their colleagues from other states had a much greater built-in power of attraction than that of a state-based academy that was open to all comers. The question for the Virginia Academy of Science was what could be done to complement the national associations and to best serve



Blanton Mercer Bruner served the Academy as the first Executive Secretary. For his many years of meticulous, thoughtful care of academy business, he was awarded the Distinguished Service Award by the VJAS in 1976, was selected as a Fellow in 1978, and was honored, in 1992, with the Ivey F. Lewis Distingished Service Award. An alumnus of the College of William and Mary, Mr. Bruner established his career as a chemist and later as an executive with the American Tobacco Company.

those scientists and educators in the Commonwealth who would be likely to support the organization.

In its attempt to approach this problem creatively, the Executive Committee discussed a variety of solutions designed to counter the downward spiral: one faculty member per campus or industry site might be responsible for membership recruitment; more industry personnel in the VAS should be involved; administrators of the academic institutions should be encouraged to attend the annual meetings; more "special" symposia should be organized; and the VAS should acquire lists of scientists in Virginia and send each individual on the list a personal invitation to join the VAS. Such suggestions were more appropriate for decades past than for the eighties, in which personal invitations and individual relationships bore increasingly less weight. In the face of this realization, Arthur Burke — always looking to increase the visibility of the Virginia Academy of Science within the state governmental and institutional structure — suggested two alternatives. First, that the Virginia Academy of Science update the "Science Advisory Catalogue" and make it available to the governor and his staff to "help increase visibility in the Commonwealth." And, second, that the Virginia Acad-

emy approach the Center for the Study of Science and Society (CSSS) at Virginia Polytechnic Institute and State University and propose the two organizations join forces in carrying out a "science manpower analysis in Virginia to update and expand the directory." Bill Banks seconded the motion, and Council passed it unanimously.

In view of the creativity of this two-part motion and its unanimous support, it is surprising that nothing was done to implement it. In terms of the Science Advisory catalogue, had it been tried, it might have run aground on the national political aspirations of both Governors Robb and Wilder — the former having brought in his own science advisory group and the latter so occupied with both national matters and the economic downturn. Consequently, neither would have had the interest required to consider the nature of the service that could easily be provided for the Commonwealth by its own scientists. In considering the second part of the motion, there does not exist any archival record of any meeting between the VAS and the Center, nor do longtime members of the Center recall any overtures by the Virginia Academy. Yet this particular idea might easily have borne the kind of fruit that the Virginia Academy of Science desired. To this day, there is only an anecdotal basis for analyzing the number of scientists at work within the borders of Virginia. Perhaps there was some concealed negativity toward the Center, since before the close of the meeting at which the two-part motion had passed, Ertle Thompson reminded Council that "we have been and are still a conservative group who have generally been reactive and not a pro-active group when addressing or participating in science and society issues."[27]

It is interesting to speculate on exactly what Ertle Thompson meant when he made this comment. Despite these remarks, it does not seem likely, given Thompson's participation on the Science Advisory Committee during the Kepone crisis, that he saw his Academy as a purely reactive group. Further, in pursuing the science museum project, the James River Basin project, or even in the ill-fated Great Dismal Swamp venture, the VAS could hardly be regarded as a passive organization. Certainly its involvement with public education through the VJAS was active. At the time this meeting took place, the themes of science and society were in vogue, although perhaps this very popularity carried with it a taint of reformism that may not have attracted conservatively-minded scientists. It therefore seems likely that there was some fear on the part of the group of a close working relationship with the Virginia

Tech Center. Whatever the reasons, it was perhaps a missed opportunity.

In 1989, membership numbers had declined by seven percent from 1985, and President Michael Bass pointed once again to the need to increase membership — by this time, a continuous refrain — and he suggested three paths of action for the Virginia Academy. First, every person on Council should contact the deans and the presidents of their respective universities and colleges about the VAS. Second, industrial participation at every level needed to be resurrected — a specific duty of the Ad Hoc Business Relations Committee. And third, the Site Selection Committee should make its plans four or five years in advance, giving the host institution plenty of opportunity to advertise.[28] Not one of these suggestions was entirely new. Academy member Carvel Blair offered an interesting suggestion to increase membership: that new members from various state government organizations such as the Marine Resources Commission, the State Water Control Board, Game and Inland Fisheries, *et cetera*, needed to be recruited. This suggestion met with approval. Yet, like the suggestion concerning the Center, it appears not to have been implemented. Certainly no one on the Marine Resources Commission from that period remembers any overture.[29]

Sections

As the VAS membership numbers fell, so did section attendance — with Botany, Geology, and Psychology maintaining the highest level of stability. Waning participation in the Astronomy, Mathematics and Physics Section, however, did not deter mounting enthusiasm for a new Computer Science Section. In November 1987, Virginia Academy member Carvel Blair reported that several people in the Department of Computer Science at Old Dominion University were interested in establishing a Computer Science Section of the Academy.[30] According to Blair, in-state camaraderie and the chance to interact with colleagues from other disciplines in a professional setting were the primary factors motivating those lobbying for the proposed section. Blair also pointed out that the Virginia Junior Academy of Science already had a separate Computer Science Section on the annual program.

Two years later, at a May meeting of Council, Michael Banks inquired about the status of the new Section on Computer Science. After Blair remarked that both Old Dominion University and Virginia Com-

monwealth University had indicated potential support of a Computer Science Section, Banks countered by pointing out that Council should not encourage this section — the intimation being that many undergraduate programs of computer sciences are closely associated with departments of mathematics and perhaps a new Computer Science Section would pull even more people from the Astronomy, Mathematics and Physics Section.[31] While Banks obviously had given thoughtful attention to his argument, not everyone agreed with him, and in November 1989, at Council meeting, President Michael Bass reported that once again he had received a request for establishing a Computer Science Section of the Virginia Academy:

> I have contacted the American Computer Machinery Group, Association of Computer Machinery, and have been in contact with the Capital Region Representative. I have talked to people in computer science at some institutions and they seem to be positive about this. So hopefully [sic], at the annual meeting at George Mason we will have an organized Computer Science Section presenting papers.[32]

It is significant to reflect on this discussion in light of the explosion in the computing and information sciences — an explosion that certainly was foreseen within the universities and colleges themselves by 1989. One wonders why the Virginia Academy's leaders failed to energetically support the proposed section. Was it a lack of vision within the leadership itself? Or, perhaps the desire to support the shrinking Astronomy, Mathematics and Physics Section was uppermost in Council's thinking. By 1989, large numbers of bright and creative students were flocking to the computing sciences, businesses were converting to computers, and fortunes were being made across the country — although particularly on the West Coast — by non-academic scientists who had the good fortune to be a part of a new sort of gold rush, or, more accurately, silicon rush. Wherever the difficulty lay, the Virginia Academy of Science was fortunate that not all of its activities were suffering decline. One Committee that continued its work with vigor was the Flora Committee.

Flora Committee

As it had over the past few decades, the Flora Committee continued to expand its membership and its diligent "pursuit" of the flora in

the Commonwealth. In 1977, Avril Harvill oversaw the final publication of the long-anticipated *Atlas of Virginia Flora*. Those involved in its publication formally thanked the VAS, proclaiming: "Over a period of many years, the Virginia Academy of Science has given both financial and moral support to work on the Old Dominion Flora, and we gratefully acknowledge our indebtedness for this invaluable and long-sustained interest."[33] With scarcely a pause following the publication of the *Atlas*, the committee leaped into another project, and, together with the Botany Section led by member Gwynn Ramsey, began working on a brochure to introduce young students to avocations in botany.[34]

In the midst of all of this activity, the members of the Flora Committee were saddened by the news of the death of Arthur Massey, Emeritus Professor of Biology at Virginia Polytechnic and State University in October 1981. A native of Virginia, Massey had ventured out of state for his college education before settling at Virginia Polytechnic as an Associate Professor of Biology. Not only was Massey a vital force in getting the Flora Committee "off the ground and running," but he also served as its chair for almost forty years.[35] In many ways, Massey was typical of the early figures who undertook tasks on behalf of the Virginia Academy of Science that required sustained personal effort and commitment over the years. Now that these men and women were coming to the end of their careers and lives, it was important to the VAS to look to the younger members for replacements.

Fellows

With the energetic and far-sighted Vera Remsburg as a Fellow, it is not surprising that the members of the Fellows' Committee decided to use monies from the Fellows' Fund to positively affect the course of the Virginia Academy. In a letter to Council in March of 1987, Remsburg laid out the wishes of the Fellows. First, the Trust Committee should administer the Fellows' Fund in a manner similar to the other endowment funds. Monies spent from this Fund should be from the income and not from the principal, with a goal of "supporting activities of the Virginia Academy not normally covered in the annual budget." Remsburg listed four examples of where such funds might be used:

1. Publication of special research papers
2. Financial support for Fellows' meetings

Botanist Martha Roane (left) of Virginia Tech, who was selected a Fellow in 1991; and southwestern Virginia science educator Vera Remsburg of Abingdon, advocate of the Virginia Museum of Science, outside a building at Randolph-Macon Woman's College in Lynchburg. Remsburg was selected a Fellow in 1975 and served as VAS president 1979–1980.

3. Special projects by sections (not continuous long-range ones)
4. Supplements for special guest speakers by the Senior Academy

Specifically, "the use of interest from the Trust should reach those special areas within the Virginia Academy of Science's activities for a more gracious reflection of the Virginia Academy of Science." By November, Council agreed that a committee of three Fellows, with a rotation scheme of one leaving and one newly elected each year, would administer the Fund. Any proposed projects for this fund would be submitted to the Executive-Secretary who would forward them on to the chair of the Fund for consideration by all the Fellows. In opening

their Fund with the hope of establishing a system whereby financial "incentives" might energize especially the younger members of the Academy, the Fellows demonstrated service and dedication to their profession and to their organization. As important — crucial — as the work of the Fellows was to the Virginia Academy, however, it was not sufficient to stem what was beginning to be an alarming outflow of the general membership.

Virginia Journal of Science

Beginning in 1977 with volume 28 and continuing for three years, Kuldip Chopra, of the Department of Physics and Geophysical Science at Old Dominion University, held the position of editor of the *Virginia Journal of Science* with Auxvill Jackson appointed as business manager by President Allan Powell.[36] Energetic and willing to take risks, Chopra had already demonstrated his commitment to hard work as a member of the three-person Science Advisory Panel that advised Governor Godwin on the Kepone crisis. In attempting to stabilize the *Journal*, one of Chopra's first actions was to ask for an Editorial Board. President Powell agreed as did Council, and the following members of the VAS were appointed to a *Virginia Journal of Science* Board: David West, immediate past-editor of the *Journal* and professor at Virginia Polytechnic Institute and State University; Walter Ostad, Space Systems Division at NASA-Langley Research Center; Charles O'Neal, Department of Biophysics at the Medical College of Virginia and an ex-editor of the *Journal*; Russell Rowlett, Jr., Editor of the *Chemical Abstracts* Service, from Ohio State University; Paul Siegel, University Distinguished Professor at VPI&SU, ex-editor of the *Journal* and past-president of the VAS; and Joanne Simpson, William Corcoran Professor of Environmental Science, University of Virginia and associate editor of *Geophysics and Space Physics*. All of these new appointees had experience with publications.[37] Immediate discussion of the Board centered around the lack of advertising revenue generated by the *Journal*, although the Board took no immediate steps to correct the deficiency.[38]

Chopra's tenure as editor can best be summed up as a flurry of almost frantic activity in an attempt to change the *Journal* from an orientation in which articles focusing on regional science, often related to biology, dominated the periodical. In his May 1977 report to Council —

only a few months into the job — Chopra argued for the need to attract "scientifically strong articles representing the diversity of VAS" and promised to come up with a strategy for gathering such publications.[39] Six months later, Chopra issued another "Progress Report" to Council, outlining four goals:

> 1. Bring the *Journal* back on schedule.
> 2. Diversify the disciplinary coverage in the *Journal*.
> 3. Increase the volume and quality of the *Journal*.
> 4. Enhance the recognition and standing of the *Journal*.[40]

Chopra detailed the ways in which he sought to accomplish these four goals. For example, relative to the third item, "Increase the volume and quality of the *Journal*," not only had he argued for and succeeded in establishing the Editorial Board, but he also sent out twenty-seven papers to ninety-four reviewers, and he solicited papers from persons with respected institutional affiliations and positions.[41] In commenting on the difficulties and frustrations faced by the editor, Chopra explained his perception:

> Everyone wishes to see action, but, desires no direct involvement. For a few years, at least in the immediate past, the *Journal* has been a one-man operation with the editor working in a vacuum. Perhaps, that is what got us in our present jam. . . The editor has the overall responsibility for the *Journal*.[42]

Council offered both full support for the four items listed by Chopra as necessary for the *Journal*'s furtherance and demonstrated their commitment to reinvigorating the *Journal* by asking the Ad Hoc Committee to investigate the production of the publication. As a result of this charge, in February, 1978, the Long Range Planning Committee made the following eight recommendations:

> 1. To continue supporting the *Journal* while it gets back on schedule.
> 2. To approve and endorse the sale of advertisement in the *Journal* as a source of revenue and establish the position of Advertising Manager, to be appointed by the President, to handle the sale of advertisements.
> 3. That the Publications Committee and the Journal Committee address lowering costs of the *Journal*.

4. That Council authorize over the next three years up to $15000 from the reserve in the General Fund to, if needed, cover the deficits due to cost of the *Journal*.

5. That Council support the Membership Committee in a major effort to increase membership in the VAS and thereby provide a broader base for support of the *Journal* and other Academy programs.

6. That the goal be 1700 members by 1980 (increase of 300 members) and 2000 by 1985. That membership dues be increased effective in 1980.

7. That the Fund Raising Committee be instructed to pursue possible sources for *Journal* research [*sic*].

8. That the Publication Committee prepare a questionnaire for mailing with the Call for Papers for the Annual Meeting and for the *Journal*.[43]

By the 1978 Annual Meeting of the Virginia Academy of Science, Chopra announced that the *Journal* was finally as "much back on schedule as it possibly can be." Chopra also reported a fair degree of success in diversifying content and institutional coverage in the *Journal*. He was able to show that the latest volume contained articles and features from thirteen institutions covering a broad range of disciplines. Before stepping down from his taxing role in favor of Stewart Ware, Chopra pointed out the primary difficulty with being an editor: "Everyone expects to see action, but desires no direct involvement."[44]

Chopra's as "much back on schedule as it possibly can be," however, was not good enough for Council and for the new Editorial Board. Efforts by the next editor, Stewart Ware of the College of William and Mary, were more successful. Interested not in fighting the regional character of the *Journal*, Ware focused rather on implementing the initiatives proposed by the Long Range Planning Committee. With the help of Frank Kizer as business manager and former President Ulrich and then-President Remsburg, in 1981 at the annual meeting, Ware was able to report that the *Journal* was back on schedule and being printed at half of its previous cost.[45] Several production changes were responsible for the latter good news, including the use of photo reproduction of camera-ready copy in printing the *Journal*, effectively eliminating the cost of most typesetting.[46] In 1984, after five years of service, Ware resigned. During his tenure, the *Journal* went from "a large, thick, glossy,

typeset publication to a small, thin, matte, photo-reproduced one." Not one to take compliments easily, Ware pointed out that the change in the *Journal* format is "hardly something an editor can chalk up as a positive accomplishment." However, "at least now we can have the continuation of a quarterly *Journal*."[47] One senses behind this modesty an awareness that the *Journal* had lost some of the trappings of a prestige publication, but at the same time, Ware was pragmatic. Clearly, his cost-saving changes had steered the *Journal* away from a slow demise.

Following Stewart Ware, Jim Martin stepped in as editor of the *Journal*, a position he held until 1996. By 1988, Martin had instituted a radical change: submission of articles on a computer disc. Not only did this new method of submission guarantee a more professional, "typeset" appearance to the *Journal*, but it also cut the printing steps in half, making it much easier to keep the *Journal* on schedule. Of concern to Martin at the close of the decade was the lack of papers submitted outside the community of biology. In consideration of this problem, President Bass reported that he had talked with Maurice Lynch of the Virginia Institute of Marine Science (VIMS) and the VAS Publications Committee, and Lynch had promised to encourage scientists in his institution to submit more papers regarding marine ecology and population genetics — even then, still in the realm of the biological sciences. President Bass suggested that perhaps similar action might be taken by other Academy members who might have connections to other institutions.

Thus, as this period came to its close, the *Journal* remained afloat. The advent of the computer age — thanks to the aggressive policies of the latest editor, Jim Martin — facilitated publishing in a reasonably timely and cost-effective manner. At the same time, however, the majority of the articles continued to come from the biological sciences; even the move in the direction of VIMS had actually been nothing more than a slightly enlarged disciplinary focus, for most of the activities of the faculty at that institution had their roots in the biological realm. It is thought-provoking that the *Journal*, in an increasingly competitive atmosphere where both promotion and tenure were concerned and where publication was vital to nearly every academic's chances of success, could not attract a host of authors from, say, mathematics, physics, computer science, chemistry, or other non-biological fields.

Science Education

Under the leadership of co-chairs Virginia Ellet and Arthur Burke, the major function of the Science Education Committee gradually shifted to assisting Academy member and Supervisor of Science, Franklin D. Kizer, in planning and supporting the State Science Teacher's Workshop held each fall.[48] Along with Burke and Ellett, Elizabeth Waring of the Math and Science Center in Richmond; Frank Akers of Salem High School; Marvin Scott of the Department of Natural Sciences, Longwood College; Ertle Thompson at the University of Virginia's New School of Education; and Pat Berkley of Lee-Davis High School offered their services to Kizer during the late seventies. Indeed, such meetings were opportune times to distribute information — such as the Visiting Scientists Program — directly to the teachers. During October of 1979, the committee, in cooperation with the College of William and Mary's Departments of Geology and Education, co-sponsored an intensive graduate course on science and education at the 17th Annual Virginia State Teacher's Conference held at Virginia Beach. Twenty-five teachers participated in the special course, and nineteen participants successfully completed all requirements for the graduate credit offering.[49] That same year, the Committee on Science Education formulated a response to Wayland Jones of the State Department of Education offering recommendations for material to be considered in the matter of certification regulations for science and mathematics teachers.[50] While student performance in the public school systems in the areas of mathematics and science continued to decline, at the very least, the Virginia Academy of Science was doing its best to assist the state in trying to address this very difficult issue.

Improving science education often crossed state borders, and in May of 1988 at the Executive Committee Meeting, Dean Decker brought up a proposed cooperative venture between North Carolina, South Carolina, and Virginia teachers to develop a method of evaluating the teaching of biology from kindergarten through the first year of college. Each state needed a sponsoring organization for a grant to fund the venture, and North Carolina had persuaded its state academy to provide such monies. Decker asked that the VAS co-sponsor this grant for the tri-state Biology Curriculum Committee.[51] Later that same afternoon at a Council meeting, it was moved that the Virginia Academy of Science co-sponsor with the academies of North Carolina and South Carolina a grant to hold a tri-state conference on evaluation of biology teach-

ing, K-through the first year of college.[52] It is clear that, like Virginia academics, the professoriate from the Carolinas was very interested in helping the states' teachers of science education. This action not only bespeaks the importance of science education to the VAS but it also represents another of those, in Ertle Thompson's words, "pro-active" steps that the Academy did make over the years. The Visiting Scientists Program represents another such step.

Visiting Scientists Program

In the Spring of 1977, Gerald Taylor, physics professor at Madison College, was appointed head of the Visiting Scientists Program.[53] Cognizant of the need for early summer action in order to have the Visiting Scientists Program in the hands of the teachers at the beginning of the school year, Taylor had already received permission of the State Department of Education to conduct the Visiting Scientists Program in the public schools of Virginia, and an appropriate memo had been mailed from Richmond to all Division Superintendents informing them that the Visiting Scientists Program would be conducted again in 1977–78. In addition, Taylor had written a letter to each college or university president inviting his or her support of the program and giving the presidents the program's recommendations for speakers and topics to be included in the 1977 Speakers' List.[54]

By November 1977, Taylor reported to Council that 612 speakers would be presenting 976 topics of the Visiting Scientists Program.[55] The following year, he secured commitments from presidents of colleges and universities in Virginia to pay transportation expenses of faculty members who would be invited to give lectures under the Visiting Scientists Program. As with the previous year, positive responses from academics in higher education to the Visiting Scientists Program came from thirty-five institutions, resulting in a Speakers' List containing more than 600 scientists with approximately 1000 lecture topics. The Speakers' List was mailed to 366 public and private schools and 130 science departments in community colleges in August. In an attempt to encourage membership, each mailing also included the Virginia Academy brochure and a membership application form.[56] Certainly such a list is impressive. Unfortunately, data recording the number of times schools used a "Visiting Scientist" is not available, making it difficult to assess the actual benefits of the program.

In 1981, Harold Bell, of the Chemistry Department at Virginia Tech, succeeded Taylor. In his first brochure to the teachers, Bell explained the mission of the program:

> The purpose of the Visiting Scientists Program is to provide assistance in the teaching of biology, chemistry, earth sciences, mathematics, social science, and physics through lecture-demonstrations, illustrated talks, and work with science clubs.

According to Bell, the largest problem that arose during the 1980s was getting not the teachers, but the scientists, to respond positively. Despite reminders that the president of each university or college had agreed to use college/university funds to cover the costs of visits to the schools — reimbursement being limited to schools within one hundred miles of the institutions with no overnight lodgings provided — the difficulty in finding scientists willing to take time to make the visits and presentations remained a major problem.[57] It seems likely that the academic scientists did not view the effort required to make these presentations to high-school students worthwhile. Once again, it is possible that the crux of the matter lay in institutional definitions of what constituted service for the purposes of promotion, tenure, and, now, merit pay. Administrations of institutions of higher learning appear to have been strangely detached from the very real needs of the education community as a whole, and the reward system built into each institution was increasingly tied to performance measures that did not allow credit for service outside the university or that was unrelated to research.[58] In refreshing contrast to the Visiting Scientists Program remained the Virginia Junior Academy of Science, where the enthusiasm of the young students and the dedication and hard work of the older Virginia Academy members came together.

Virginia Junior Academy of Science

In 1977, John Hess, Chairman of the VJAS, reported to Council at the annual meeting that 380 students had registered for the meeting in comparison with 350 the previous year. During the academic year, 105 schools were affiliated with the Academy. In addition, noted Hess, 322 papers were submitted, of which 173 were selected for presentation. Finally, Hess pointed out that a VJAS member had presented at the

Table 5.2. Activities by the VJAS Membership

Year	Papers Submitted	Papers Selected	Attendance
1976	305	195	350
1977	322	173	380
1981	373	212	400
1982	497	335	450
1983	612	349	658
1984	819	454	1298
1985	1018	535	1395
1986	1218	613	1030
1987	1376	668	1519
1988	1416	620	1219
1989	1356	602	1139

AAAS annual meeting. Such enthusiastic participation continued, as illustrated by Table 5.2, depicting the number of papers submitted for oral presentation at the VJAS annual meeting, the number of papers selected by the reading judges for presentation at the meeting, and the overall number of attendees.[59]

From John Hess's report in 1977 to the beginning of Dean Decker's twelve-year tenure in 1981, the number of papers submitted increased by sixteen percent. In 1985, the annual meeting of the Junior Academy, held at William and Mary, drew approximately 1395 students, teachers, and sponsors — a 249 percent increase over the 1981 attendance. The 535 student papers read favored the life sciences, ranging from agriculture to zoology.

The "News and Notes" section of the Summer 1985 issue of the *Journal* focused on the phenomenal performance of the Virginia Junior Academy of Science. In reviewing the accomplishments of the VJAS, the author pointed out that the Junior Academy "serves science in capacities other than its annual meeting paper competition."[60] For example, the VJAS administered the Westinghouse Science Talent Search for Virginia. The importance of this Talent Search "cannot be underestimated, as it is a national competition among high school seniors in science. The top winners attend a national meeting in Washington D.C. where cash awards and scholarships are distributed." In addition, the

VJAS provided personnel to select the state winners to attend the West Virginia Science Youth Camp — an all-expense-paid three-week science camp conducted by the State of West Virginia. Finally, the Virginia Junior Academy of Science Committee members conducted workshops for teachers and students to help new Science Clubs become involved in VJAS activities.[61]

Given the rapid growth of the VJAS, it is not surprising that in March 1986, Director Dean Decker reported to Council that publication of the *Proceedings* of the annual VJAS meeting had "been quite a job," to put it mildly. For this reason, the Junior Committee planned to ask for $7000 over three years from the Gwathmey Memorial Trust to help meet the increasing costs of this publication.[62] In early November 1986, Council announced that the officers of the Gwathmey-Jeffress Trust had approved the pending grant, and that Dean Decker had received a check for seven thousand dollars.[63] Commitment from the Academy members was, as had been the case in the past, joined by support from Academy funds, both clear indications that the Junior Academy remained "close to the hearts" of the leaders of the Senior Academy. The VJAS was also an area where the younger, regular Academy members remained involved.

One such person was Dallas Cocke. A devoted leader of the Virginia Academy of Science, but especially to the Junior Academy, Cocke taught biology to eighth-grade students at the Collegiate Schools in Richmond. On Pearl Harbor Day 1986, the Academy was saddened by Cocke's untimely death. Only 46 years old when she died, Dallas Cocke (1940–1986) had been the recipient of the Distinguished Service Award in 1985. In 1987, Cocke posthumously received the Distinguished Service Award from the NAAS for promoting science among the youth of the nation. Her heritage was in safe hands with the VAS, however, which continued to fully support the VJAS.

For some time, the Executive Committee had considered creating a seat for the Junior Academy of Science Director and, in 1987, it finally voted to establish the position. In his first report to Council as a member of the Executive Committee, Decker expressed concern on behalf of the VJAS Committee relative to the continued growth — both in the number of attendees and in the number of papers presented — of the organization. "This growth," he simply stated, "is posing some growing pains." Furthermore, because of the evaluation process in place, fewer than ten percent of the papers written by students ever make it to

the VJAS annual meeting. One can only wonder, commented Decker, what the numbers would be without such a screening process in place. Finally, Decker expressed concern with managing the work load that was beginning to overwhelm the Junior Academy of Science Committee volunteers without "dampening down" the forward progress of the young people whose "very enthusiasm had caused these problems to arise in the first place." Decker listed five possible solutions: regional meetings; use of only those universities that could meet all of the needs of the VJAS and VAS; taking the annual meeting to non-university facilities; extending the number of days of the meeting; and reducing the number of student participants. In closing, Decker summed up the general feeling of the VJAS Committee:

> Science is coming to the forefront in education. Teachers and students are responding to the opportunities offered by the VJAS. There is no reason to expect anything except more growth and possibly at a greater rate than in the past. Because the VJAS participants are the future scientists, it is important for the VAS to prepare and meet the coming tide.[64]

In addition to considering Decker's report, Council also expressed concern with another growing pain: keeping up with the ever-increasing costs of the Junior Academy. The group decided to present a proposal for a biennial state budget item in science education to support the VJAS program. Accordingly, in September, President William L. Banks, Jr. and C.R. Taylor, chair of the Fund Raising Committee, submitted a request for $39,769 biennially to fund student research grants, printing costs for the proceedings and handbook, and secretarial help. Wrote Banks:

> Since Virginia has made many larger recent investments in the future of technology development in the state and state support of this modest request would help stabilize the VJAS program, we hope the Department of Education will join with our private organization in co-sponsoring this most essential and worthwhile venture and request state support in the Governor's budget to help underwrite part of our efforts.[65]

Two months later, Academy member C. R. Taylor reported that the General Assembly had turned down the proposal. Regrettably, President

Banks informed Council that it was too late for any lobbying efforts to resurrect the proposal in time for the next legislative session.[66]

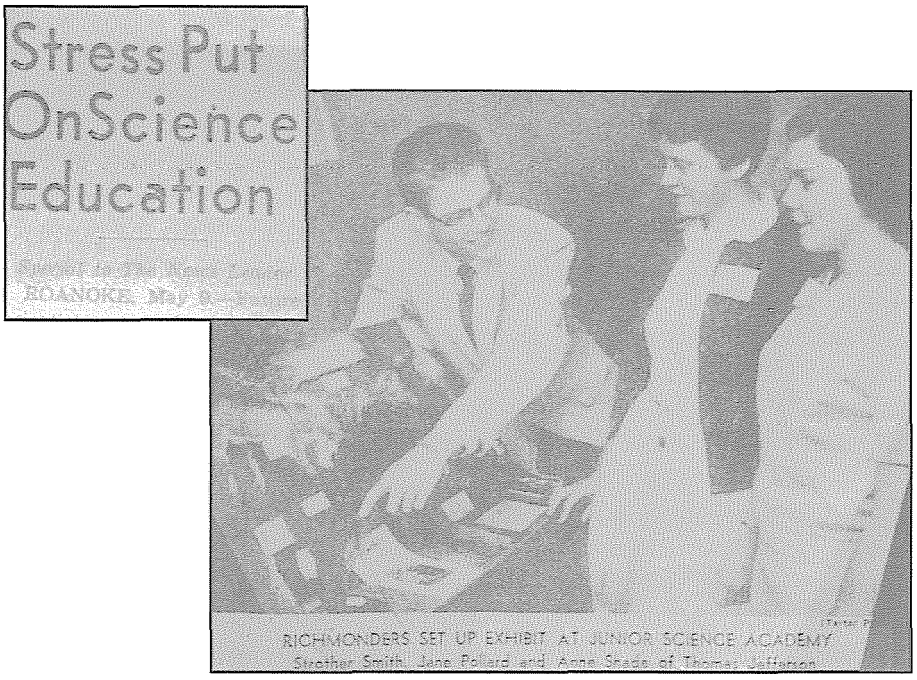
Concern over the cost of running the Junior Academy and the need for a full examination of the organization and administration of the VJAS with respect to its relationship to the Senior Academy and the increased responsibilities of the VJAS director, influenced President Bank's suggestion to Council in November that the VAS form an Ad Hoc Committee to analyze the future of the VJAS. By that time, the situation had some urgency, for Decker had just indicated that he would like to consider retirement from the VJAS directorship. From Decker's perspective, the amount of work involved in directing the Junior Academy probably meant that Council should consider a paid, full-time position similar to the Executive Secretary-Treasurer job held by Blanton Bruner.[67] James O'Brien moved that an Ad Hoc Future Planning Committee of the VJAS be appointed by the President to discuss the future of the VJAS.

In March 1988, Ertle Thompson, chair of the Ad Hoc Future Planning Committee, met with his new committee, consisting of Mary Frances Hobbs, Alan Branigan, Dean Decker, Jim Murray, and Hugo Seibel. The group focused on four questions:

> 1. Should the number of VJAS presentations be limited at future meetings?
>
> 2. Should there be regional competitions leading up to the annual meeting to identify best work for presentation?
>
> 3. Should the leadership of the VJAS remain on a voluntary basis and/or should funding be sought to support the Director's efforts? A staff? etc.
>
> 4. Should a joint policy board of the VAS Council and the VJAS Committee be established on a permanent rather than an ad hoc basis?[68]

Concerning the question of paid versus voluntary leadership for the VJAS, the committee noted that a change in the directorship would probably entail either decentralization or payment of the director. With all the data in hand, the group recommended the following:

> 1. That the present structure of the VJAS remain the same for the future.
>
> 2. That the number of sections be limited to 35 or 30 if requested by the host institution.



In this newspaper report, exhibits at an annual meeting were shown to be an important means of communicating science to students and their teachers. Public awareness of the impact of the Virginia Academy of Science through news media depended, in part, on objective scientific reporting by interested members of the press. For example, for his sustained efforts on behalf of the Academy and of science education, Mr. Beverly Orndorff, reporter for the Richmond Times Dispatch, *was selected to be an Honorary Life Member. Also, in 1997, he received the Ivey F. Lewis Distinguished Service Award.*

3. That the Finance and Endowment Committee consider the feasibility of supporting a paid Directorship for the VJAS, as well as alternative arrangements for housing and staffing the business of the Academy.

4. That Council and the VJAS retain their present respective roles in the formation of policy for the VJAS.[69]

Three weeks later, Thompson and his group met again to discuss the question of a paid versus a volunteer director. Dean Decker presented the alternatives. First, Decker suggested a volunteer director, in

which case the activities of the VJAS would be curtailed and the process decentralized, with selection delegated to regional organizations. Second, he introduced the concept of a semi-professional director — a person who would function as the Executive-Secretary currently functioned. And third, Decker detailed the position of a professional director, to whom the VAS would pay a salary for full-time work. The latter position could combine running the Junior Academy with the position of Executive Secretary. The cost of this position might run between forty-two and fifty thousand dollars, breaking down into a twenty to twenty-five thousand dollar salary, five thousand dollars in benefits, a part-time secretary costing approximately ten thousand dollars, and seven thousand dollars designated to office costs and operations.[70] The committee submitted these three options to Council.

After evaluating the four recommendations and three options, at the Council meeting in November 1988, members submitted alternative plans. With the news that Decker had agreed to stay through 1991, time was not so important in finalizing a plan as it had at first appeared. First, regional meetings throughout the state at community colleges using local volunteers could be used as part of the evaluation process. While regionalization would certainly encourage more involvement from state institutions — and the community college system — there would be fewer students at the annual meetings, perhaps detracting from the true sense of scholarly competition. Second, the overwhelming feeling was that a paid director — combined executive secretary and chair of the Junior Academy — would solve all problems, although the Academy's ability to secure sufficient funds to support the position was, in some minds, in doubt. In response, the Committee on Fund Raising, consisting of Dean Decker, Patricia Fishback, Don Cottingham and Michael Bass, reported that they had only raised nine hundred dollars since the Spring. Furthermore, they had determined that an endowment of approximately one million dollars would be necessary to pay a director. The group agreed to look into the high-level fund raising effort that would have to occur before the paid directorship could be brought into existence.[71]

Regionalization, however, and not high-level fund raising, remained first on the agenda. In November 1989, President Michael Bass reported that in July at the VJAS's annual planning meeting at Graves Mountain Lodge, he had asked Dean Decker to appoint a sub-committee of the Junior Academy Standing Committee to study regional-

ization.[72] Decker gave the sub-committee's report at the November meeting of Council, beginning by stating: "We approved two things: first, that we reaffirm the objective of the VJAS which is to encourage science among the secondary school students, and the second thing that we did was essentially to approve the idea of regionalization."[73] Decker promised that the next meeting of sub-committee would make a determination:

> as to probably what is the best way to break up the state....The idea that has the strong support right now is congressional districts, because it does it by population. Realizing that school districts do not always follow the boundaries of congressional districts, we would not break up a school district. Our plan is to have a workable solution by the time the Junior Academy meets in January, get that approved by the Junior Academy Committee and bring it to the Council in March. We want to tie in the Community Colleges and four year colleges in with this regionalization.[74]

It is both ironic and an indication of the trend of this period that at the same time the Senior Academy was trying to deal with a drastic and potentially vitiating decline in its membership, the VJAS was going through such enormous growth. The contrast could not be more marked. As this professional society was apparently losing significance for scientists, both those within academe as well as industry and business, young people were thronging to the annual meetings in such large numbers as to threaten to make the meetings unmanageable, leading the VAS to consider a paid directorship.

In some ways, it is puzzling why the VAS, at this stage, did not move at full speed towards regionalization. Regionalization would have had several advantages: it would have spread across the state the burden of managing the young presenters, pulling the high-school teachers into a greater degree of involvement in their region; it would have allowed the fullest possible participation for those students who had performed work for which they wished recognition; and it would have put off the need to spend money the VAS did not have on a paid director for the VJAS. The difficulty of funding the director's slot might have seemed a stretch during this period, but in the years just ahead, with the combination of the state-wide recession and the ascension of fund-

cutting Republicans to both the Governor's mansion and the Legislature, extra money for the VJAS would simply not be available.

On balance, though, the performance of the Virginia Junior Academy of Science meant that the "selling of science," handled through the school teachers of science, was a success. At the same time, of course, the Commonwealth, along with its sister states, was trying to deal with a decline in the quality of science and math education in the schools. One wonders exactly what this juxtaposition of high interest and mediocre performance in the school systems as a whole might have meant — indeed, what it might continue to mean. Were the youngsters who wanted to present papers resulting from their research an elite whose accomplishments were the equal of past generations? Were the scores of the total school population showing a snapshot with such a large focus as to overlook the talented VJAS-bound students? Or was the intellectual rigor of the papers and the quality of the research of the students dropping over the years, regardless of their interest in the world of science? These are questions where there are no yardsticks available with which to measure the answers.

Science Museum of Virginia

The Virginia Academy of Science continued its steadfast support of the Science Museum of Virginia, and the Museum continued to rely on the Academy as an expert consultant, both through the counsel of Board of Trustee members Rae Carpenter and E. L. Wisman and through the volunteer efforts of individual VAS members. For example, in early 1977, Museum Director Paul Knappenberger contacted Academy President Allan Powell, asking him whether or not the VAS might be receptive to reviewing the prospectus for the proposed crystallographic exhibit. Powell immediately appointed an Advisory Committee consisting of Kenneth Lawless, Billy Sloope, Sam Gillispie, Russell Rowlett, Henry Leidheiser, and John Mitchell to report directly to the director.[75] Several months later, A.B. Niemeyer, chair of the Ad Hoc Committee on the Science Museum of Virginia, wrote to Carpenter that he had spoken with the Science Museum staff concerning the idea of a Speakers' Bureau — similar to the Visiting Scientists Program — to deliver programs under the auspices of the Science Museum. Neimeyer enthusiastically explained that several members of the Board of Trustees were particularly interested in "bringing the name of the Science Museum of Vir-

ginia to the local citizens and considered this to be a method of achieving this goal."[76] At a later meeting of the Board of Trustees, a memo was sent to Niemeyer asking him to "hold onto this idea until there is an auditorium or meeting room that can accommodate the audience."[77] Clearly, the Board of the Museum was well-aware that the VAS might be able to offer resources to them, at the very least in the form of expertise, and perhaps of equal importance, in support for Museum programs and exhibits. At the same time, it seems likely that the Virginia Academy, in addition to having a strong sense of proprietorship where the Museum was concerned, was also conscious that the Academy could advance what it regarded as its own mission, and, in the process, bring luster to its own name, through working with the Museum. These were reasonable positions for both groups to assume, and in the early years, both parties would take steps to try to assure that their relationship remained close.

In February of 1979, Paul Knappenberger, Director of the Science Museum, wrote to Virginia Academy member and Museum Board of Trustee Rae Carpenter, in a sense laying out his view of the future role of the Virginia Academy in the life of the Museum.

> I feel it is very important that the Science Museum and the Virginia Academy of Science keep an open communications link that will benefit both of us. In this regard, there might well be a committee of the Academy whose task is to serve as a direct working liaison with the Science Museum. Such a committee might provide advice to the Museum on various programs and exhibits that are being developed. They might provide information to the Academy Council and members on development and needs at the Science Museum, and in general, serve to facilitate a working relationship between the two groups.[78]

Carpenter forwarded the letter on to incoming Virginia Academy President Vera Remsburg, writing in the margin:

> I pass this along for your information as you consider Ad Hoc committees for the coming year. The Museum is moving into a new stage where it needs the Academy less as a "legislative influence" group — although we still need to keep legislators aware of the VAS interest in funding for the Museum. It now seems the stage is being set for the

> Academy to interact in a scientific way with the Museum to provide exhibits, speakers, advice, etc.[79]

In 1980, legislation enlarged the Board of Trustees of the Science Museum of Virginia from nine to fifteen members and specified that at least one member of the trustees was to be a member of the VAS. Remsburg's commitment to the Science Museum resulted several years later in her 1986 appointment by the Governor to the Museum's Board of Trustees for a five-year term.[80] Despite her support and that of other Academy members to the Museum, it is useful to consider the extent to which the relationship between the Science Museum and the Virginia Academy of Science followed the vision relayed by Knappenberger and further commented on by Carpenter for, despite the best intentions of these people, the Science Museum has not taken advantage of the scientific expertise that would be available to it free of charge by members of the Academy. Discussions with Science Museum staff members often reveal the surprising fact that some of the Museum staff are not fully cognizant of the vital role played by the VAS in the founding of the Museum.[81] One might conclude that the VAS did not market itself as it should have, but the Virginia Academy may be pardoned for not comprehending that a parent group should have to market itself to its offspring. Another way to look at this interesting case of non-recognition is to say that the Virginia Academy of Science depended upon traditional ways of interaction. Both the functioning of the historical, "extended family" network and habits of enrolling, or enlisting, support depended on a mutuality that no longer existed. This situation, as the next chapter will offer, only worsened with the passage of the few years between the late 1980s and the mid 1990s. During this period the Science Museum was among the interests of VAS where the organization found itself no longer fully included.

It is worthy to note, however, that members of the VAS — including Perry Holt, Michael Kosztarab, Donald Linzey, Joseph Mitchell, and Martha Roane — were instrumental in promoting the establishment of the state-supported Virginia Museum of Natural History (VMNH) in Martinsville, now with branches at Virginia Tech and the University of Virginia. Except for Holt, who had retired, the other four served as active members on the Scientific Advisory Committee of the VMNH.

Science Advisory Committee

Well-versed in the politics of science advisory systems throughout the nation, in May 1977, Ertle Thompson, chair of the Ad Hoc Committee for Science Advisory Panel, submitted a detailed report to Council in which he analyzed the position of the VAS relative to other state academies and associations of science and their relationships to their respective state governments. As Thompson explained:

> During the past several years committees from a number of states have struggled increasingly with the problems of establishing a Science Advisory System in the Governor's Office of their respective States. Presently, complete agreement among the committees exists on two major points: first, there is a need for such Advisory Systems and, second, there is inadequate funding for Science Advisory Offices in State government.[82]

Moreover, Thompson pointed out, environmental problems of the recent past had provided numerous opportunities for state and local governments and the federal government "to establish effective, reciprocal relationships for the application of scientific and technical advice in seeking solutions to national, state, and local problems." Over the past year, Thompson said, his Ad Hoc Committee had been involved at the request of the Governor's office with issues surrounding toxic substances legislation, water quality standards, and water resource management. In addition, the requests for input from the National Governor's Council on Science and Technology had risen. It was vital to recognize, Thompson went on, that the potential for impact upon the new advisory system in the federal government had been enhanced significantly; thus, the Virginia Academy of Science could play a primary role in helping to solve both general and specific problems facing the people of the Commonwealth and of America through an Advisory System established to fulfill the following objectives:

> 1. To provide scientific and technical advice to the Executive and Legislative branches of State government, other state agencies, and local governments.
>
> 2. To act as a liaison among scientists and other key individuals from State and local governments, industry, colleges, and universities, and the lay citizenry to perform effectively an advisory role regarding social, political,

economic, educational, and scientific and technical problems in Virginia.

3. To identify broad future problems in all fields to which scientific-technical knowledge should be applied in seeking solutions.

4. To define problem areas of immediate concern for short-range solutions.

5. To improve scientific-technical education at all levels.

6. To define more clearly scientific research goals for the Commonwealth of Virginia.

7. To clarify the responsibilities for research activities and the application of scientific and technical knowledge among State and Local governments, educational institutions and industries in Virginia.[83]

Arthur Burke moved that the Ad Hoc Committee's seven-point conception of a State Advisory System be considered in principle for the time being. In other words, the Ad Hoc Committee currently in place would remain status quo. There should be no State Advisory Committee put in place at the time.

In November 1977, the Virginia Academy of Science learned that the Commonwealth had received a solicited grant of $25,000 — titled the State Science, Engineering, and Technology Study (SSET) — from the National Science Foundation, the purpose of which was to organize an effective science advisory system in the state. Accordingly, the Governor named scientist Donald Shull — a Virginia scientist, although not a member of the Virginia Academy of Science — as the Science and Technology Legislative Coordinator, giving him full-reign to fulfill the terms of the grant, including decisions regarding the structure and the participants in the new science advisory system.[84] For the time being, Shull stated only that the advisory system would consist of the expertise of many scientific and technical groups. To aid Shull in the administration of the grant, the Governor asked Charles Christopherson of the Department of Intergovernmental Affairs to lend guidance.

During the Council meeting five days later, Virginia Academy officers sought to define precisely where their organization stood relative to a permanent, state-run, science advisory system prior to any requests of assistance from Shull and the state. Representing the views of many, Ed Turner was quick to note that Council already had voted in principle approval of the concept of a permanent science advisory system.

Additionally, Turner pointed out that many problems encompassed by this charge — that of a permanent, state-run system — were broader than the purview of the VAS. Finally, Turner expressed reservation over the use of the name of the Virginia Academy of Science. He thought that the name should be invoked only with full understanding of who was being represented in any given issue. In response to Turner, Arthur Burke reminded the group that the role of the VAS was to serve as a conduit to identify qualified personnel and not as a Committee or group of persons purporting to represent or present the views of the Virginia Academy. Thompson reaffirmed that a number of scientific and technical groups would be participating in the advisory and review process, and not merely the Virginia Academy of Science.[85] This discussion embodies some disagreement over the proper role of the VAS and an attitude of real caution that stands in marked contrast to the bold response that had in the past characterized the VAS's response to scientific and technological advisory opportunities. One wonders exactly what lay behind the nervousness about forming an advisory group. Were there strains inside Council, perhaps within the VAS itself, relative to, say, environmental issues? Or was there perhaps some personal agenda or concern? Or, perhaps, had the VAS become so diffuse in its mission that it no longer presumed to speak for the state's scientific community? At any rate, the VAS was, in appearance at least, backing away from taking an active role with its own state government.

In February 1978, Charles Christopherson wrote to Ertle Thompson, stating:

> As you are aware, the Department of Intergovernmental Affairs is actively involved in the State Science, Engineering, and Technology Study under a grant from the National Science Foundation. We appreciate your assistance on the program and look forward to your continued involvement. Since the success of the SSET program depends upon the advice and guidance of the scientific community, we would like to request that the Ad Hoc Committee of the Virginia Academy of Science serve as an advisory body to the program. The participation of the Ad Hoc Committee should provide much needed guidance on matters which only the scientific community can appropriately address.[86]

Primarily, Christopherson requested two services: first, assistance in analyzing previous efforts in Virginia and other states toward integrating science, engineering, and technology into the decision-making process of the Governor of Virginia, his staff and cabinet; and, second, help in examining the science, engineering, and technological resources available for decision making of the Governor, his Staff and Cabinet, including resources found in stage agencies, private institutions, private enterprise, the federal government, interstate organizations, and any other sources.[87]

Despite the initial overture of Christopherson, it was not until the beginning of June 1978, that Science Coordinator Donald Shull telephoned Rae Carpenter about a visit to discuss the nuances of the NSF grant. Two weeks later, he sent a letter to Carpenter, reviewing their conversation and laying out the topics to be discussed during their upcoming meeting. Ironically, given the Virginia Academy's expertise and professed willingness to help in the SSET project, Shull's priority was discussing the possibility of state government/university linkages, not Academy/state cooperative ventures. Specifically, wrote Shull, the SSET Project seeks to:

> ...foster ways to integrate sound technical advice/information into the State governmental process. From my point of view, this means to introduce the advice/information into the legislative process whereas there is a corresponding project underway in Virginia's executive branch to make incorporation into the legislative process. . . . One of the necessary inputs into any information network is the identification of resources and provision for flow through any institutional interfaces. The task of providing scientific and technical information into governmental processes, of course, must look to the most qualified and well-defined resources — the universities within the government's political jurisdiction. My primary objectives for this visit are to establish a point of contact within the research community and to obtain suggestions for establishing a linkage mechanism....These topics do reveal at least the fundamental data that I seek for the initial planing efforts to develop ways to tap the expertise available from Virginia Military Institute.[88]

Given the interdisciplinary, inter-institutional nature of the Virginia Academy of Science, one wonders why Shull did not look to the Virginia Academy first as the primary "most qualified and well-defined resource." Was Shull, as a government scientist, simply underinformed concerning the asset that the Academy represented? Whatever the reason, the VAS did continue to struggle with its own ambiguity over the role of a science advisory group operating under its name.

By October 1978, the Ad Hoc Committee to Plan Science Advisory System reached a decision as to the nature of its constitution. As Ertle Thompson announced to his "Fellow Academy Members":

> In compliance with the charge of the Academy Council and the Academy Conference May 1977, the Ad Hoc Committee to Plan a Science Advisory System is to plan a standing Science Advisory Committee to provide, upon request, scientific advice to the Executive, Legislative, and other Governmental bodies and Agencies of the Commonwealth of Virginia. The Science Advisory Committee is to serve as liaison for the collection and transfer of such solicited scientific and technical information and/or advice. The effort is currently enhanced by the involvement of the Ad Hoc Committee with the State Science, Engineering, and Technology Study of the Department of Intergovernmental Affairs with the support from the National Science Foundation. . .The Council of the VAS has further charged the Ad Hoc Committee to prepare a file of brief statements of the professional expertise of members of the Academy who are willing to serve in an advisory role to fulfill the objectives of a Science Advisory Committee.

Thompson closed the letter by inviting responses from the membership to the Committee by the middle of November.[89] And at the November Council meeting, the group — despite the earlier internal conflicts — approved the establishment of the Science Advisory Committee as a standing committee. It was a committee that the Commonwealth should have been able to make good use of over the coming years.

For more than two years, the standing committee provided Shull with names of scientific experts as the government scientist attempted

to put a science advisory system in place. By the early 1980s, Shull's efforts had resulted in the establishment of a Science and Technology Advisor and a Science and Technology Advisory Committee, both to report directly to the Governor. Unfortunately, once the Science Advisory System was in place, the Commonwealth of Virginia no longer sought the services of the Virginia Academy of Science. By 1986, past-president Gerald Bass stated that he had sent a letter to the Governor, once again offering the services of the VAS and that the Governor had failed to respond to his overture.[90] Consequently, in March 1987, Arthur Burke moved that the President appoint an Ad Hoc Science, Technology, and Legislative Issues Committee. This Committee, with a slightly different focus that was, Burke felt, perhaps more "in tune" with the times, would study avenues of developing better relations with the government in non-party partisan politics in addressing science and society issues. The motion was seconded and passed unanimously. But the overtures of the VAS were to no avail and, in fact, it seemed as though the organization were merely repeating earlier actions. In reflecting upon this particular failure of the Virginia Academy of Science, it seems as if the time had come in which the Academy's influence within Richmond had so weakened that the governor's office simply remained oblivious to the organization.

Reflections: 1977–1989

This period was not one characterized by a major effort in the direction of a project or a study, in contrast to previous decades. Both the successes of the VAS and the problem areas were such that there was probably little available energy left in the leadership to dream of new enterprises and to begin the long, often arduous task of bringing such dreams to fruition. In addition, the older generation of the Virginia Academy of Science — those members who epitomized boosterism and civic-mindedness — was slowly becoming less active, and their replacements did not seem to have either the time or commitment to initiating new activities on behalf of their organization.

Endnotes

[1] Emily J. Salmon and Edward D. C. Cambell, Jr., eds., *The Hornbook of Virginia History* (Richmond: The Library of Virginia, 1994), p. 91.

[2] Frank B. Atkinson, *The Dynamic Dominion: Realignment and the Rise of Virginia's Republican Party Since 1945* (Fairfax, Virginia: George Mason University Press, 1992), p. 408.

[3] Historically, a high percentage of Virginia's attorneys general are elected to the office of governor.

[4] Salmon and Cambell, *The Hornbook of Virginia History*, p. 91.

[5] For an in-depth look at this election and others contributing to the resurrection of the Republican party in Virginia, see Atkinson, *The Dynamic Dominion*.

[6] Salmon and Cambell, *The Hornbook of Virginia History*, p. 91.

[7] For an interesting if rather partisan view of the born-again Virginia Republican party, see Atkinson, *The Dynamic Dominion*.

[8] For an in-depth look at Robb, see Steven Daniel Johnson, "Charles Robb and the Reserved Governorship," (Ph.D. dissertation, University of Virginia, 1990).

[9] Margaret Edds, *Claiming the Dream: The Victorious Campaign of Douglas Wilder of Virginia* (Chapel Hill: Algonquin Books, 1990).

[10] Ibid.

[11] Atkinson, *The Dynamic Dominion*, p. 418.

[12] Ertle Thompson, "Federalism and Its Impact on NSF Grants and the Training of Teachers," *Virginia Journal of Science* 4 (1983), p. 273.

[13] Theologian Langdon Gilkey gives a first-hand account of the Arkansas trial in *Creationism on Trial: Evolution and God at Little Rock* (Minneapolis, Minnesota: Winston Press, 1985).

[14] Michael L. Bentley, "On the Teaching of Origins," *Virginia Journal of Science* 32 (1981), p. 2.

[15] Ertle Thompson, "Report of Academy Representative to AAAS Meeting," Washington, D.C., January 2-8, 1982. Vera Remsburg was very involved with the evolution-creationism debate. In a letter to Rae Carpenter on October 16, 1981, she writes: "Evolution material continues to take a lot of my time. Have just received a copy of a creation unit which was developed in Pulaski County in Arkansas in response to the new Arkansas creation law. The unit was developed by three individuals after a committee of 12-15 science teachers failed to come up with a unit. Technical advisors were all either from UALR or UCA. The entire committee had to rely upon the 'creation science' publications in many instances. I am to review the creation unit and will send comments to Laurie Ferber, ACLU attorney who is preparing the education part of the ACLU suit against the creation law in Arkansas. The case will begin December 7."

[16] *Virginia Journal of Science*, 2 (1982), p. 2.

[17] "Minutes of Council," November 9, 1986; "Report of the President," November 9, 1986. Virginia Tech, Special Collections.

[18] "Report of the President," March 7, 1987. Virginia Tech, Special Collections.

[19] E. L. Wisman to VAS Council, March 2, 1977. Virginia Tech, Special Collections.

[20] "News and Notes," in *Virginia Journal of Science* 2 (1985). Dallas Cocke was assisted by Dean Decker of the University of Richmond. He was the NAAS/AJAS banquet speaker.

[21] "Minutes of Council," May 26, 1987. Virginia Tech, Special Collections.

[22] "Minutes of Council," March 12, 1977. Virginia Tech, Special Collections.
[23] Dale Ulrich to Section Officers of the Virginia Academy of Science, December 2, 1977. Virginia Tech, Special Collections.
[24] "Minutes of Council," May 11, 1977. Virginia Tech, Special Collections.
[25] "Minutes of Council," May 13-16, 1980. Virginia Tech, Special Collections.
[26] "Minutes of Council," March 7, 1987. Virginia Tech, Special Collections.
[27] Ibid.
[28] "Minutes of Council," May 26, 1989. Virginia Tech, Special Collections.
[29] Jane Carter Webb to Charlotte Webb, Interview, October 27, 1996, Newport News, Virginia. J.C. Webb sat on the Marine Resources Commission from 1988–1996.
[30] "Minutes of Council," November 7, 1987. Virginia Tech, Special Collections.
[31] "Minutes of Council," May 26, 1987.
[32] "Minutes of Council," November 12, 1989. Virginia Tech, Special Collections.
[33] "Minutes of Executive Committee," November 6, 1977. Virginia Tech, Special Collections.
[34] "Minutes of Council," May 13, 1980. Virginia Tech, Special Collections.
[35] *Virginia Journal of Science* 4 (1981), p. 174. Virginia Tech, Special Collections.
[36] "Minutes of Council," May 11, 1977. Virginia Tech, Special Collections.
[37] "President's Report," May 11, 1977. Virginia Tech, Special Collections.
[38] "Minutes of Council," March 12, 1977. Virginia Tech, Special Collections.
[39] "Minutes of Council," November 6, 1977. Virginia Tech, Special Collections.
[40] "Report of the Editor," November 5, 1977. Virginia Tech, Special Collections.
[41] "Report of the Editor," November 6, 1977. Comparable data from previous years are not available. Virginia Tech, Special Collections.
[42] "Report of the Editor," March 4, 1978. Virginia Tech, Special Collections.
[43] "Report of Ad Hoc Committee to Study Long Range Planning for *Virginia Journal of Science*," February 4, 1978. Virginia Tech, Special Collections.
[44] "Report of the Editor," March 4, 1978. Virginia Tech, Special Collections.
[45] "Minutes of Council," May 13-16, 1980. Virginia Tech, Special Collections.
[46] "Minutes of Council," May 12-15, 1981. Virginia Tech, Special Collections.
[47] Editorial by Stewart Ware. No date. Virginia Tech, Special Collections.
[48] "Minutes of the Academy Conference," May 12, 1977. Virginia Tech, Special Collections. For their very dedicated service, Virginia Ellett and Arthur Burke shared the Distinguished Service Award in 1986.
[49] "Minutes of Council," November 12, 1989. Virginia Tech, Special Collections.
[50] "Minutes of Council," May 13-16, 1980.
[51] The amount of the proposed grant is not in archival material, and oral interviews with the primary players have not been able to ascertain the exact amount.
[52] "Minutes of Council," May 25, 1988. Virginia Tech, Special Collections.
[53] "Minutes of Council," May 11, 1977. Virginia Tech, Special Collections.
[54] Ibid.
[55] "Minutes of Council," November 6, 1977. Virginia Tech, Special Collections.
[56] "Minutes of Council," May 13-16, 1980. Also in Harold Bell, "Report to Council," November 11, 1979. Virginia Tech, Special Collections.
[57] Harold Bell to Participants in the 1987-1988 VAS Visiting Scientists Program, September 21, 1987. Virginia Tech, Special Collections.

[58] George Webb to Charlotte Webb, Interview, October 26, 1996, Newport News, Virginia.

[59] For those years not listed — 1978, 1979, and 1980 — the data are not available.

[60] "News and Notes" in *Virginia Journal of Science* 3 (1985).

[61] Ibid.

[62] The Thomas F. Jeffress and Kate Miller Jeffress Memorial Trust was established under the will of Robert M. Jeffress, a business executive and philanthropist of Richmond, Virginia. During his life, Robert Jeffress made large contributions to science, namely due to interest inculcated in him by his brother-in-law Allan Talbott Gwathmey, thirty-first president of the Virginia Academy of Science and professor of chemistry at the University of Virginia. Most notably, Mr. Jeffress was the principal benefactor of the Virginia Institute for Scientific Research, which his brother-in-law fought so hard to start. In her will, Elizabeth Gwathmey Jeffress established the Richard Gwathmey and Caroline T. Gwathmey Memorial Trust in memory of her parents. The grants from the two trusts are administered by First & Merchants National Bank and are awarded on the advice of an allocation committee specified by the Jeffress' wills. The Committee is composed of five Virginia residents, one of whom is from the Virginia Academy of Science. Grants are awarded for governmental, charitable, scientific, literary, and educational purposes.

[63] "Minutes of Council," November 9, 1986. Special Collections, Virginia Tech.

[64] Dean Decker, "Virginia Junior Academy of Science Report to Council," March 7, 1987. Special Collections, Virginia Tech.

[65] William L. Banks to Donald J. Finley, September 15, 1987. Special Collections, Virginia Tech.

[66] "Minutes of Council," November 8, 1987. Special Collections, Virginia Tech.

[67] At this juncture, it should be noted that Bruner pointed out that if a full-time position of Director were approved, the budget and physical location of the person might lead to a problem, since although the University of Richmond is giving the VAS free space, it is not adequate to house another person and his/her records. "Minutes of Council," November 8, 1987.

[68] "Report to Council from Ad Hoc Committee on VJAS Future Planning," March 12, 1988. Special Collections, Virginia Tech.

[69] Ibid.

[70] "Ad Hoc Committee on VJAS Future Planning," April 20, 1988. Special Collections, Virginia Tech.

[71] "Minutes of Executive Committee," November 6, 1988. Special Collections, Virginia Tech.

[72] "Minutes of Council," November 12, 1989. Special Collections, Virginia Tech.

[73] Ibid.

[74] Ibid.

[75] "Minutes of Council," May 11, 1977. Special Collections, Virginia Tech.

[76] A.B. Niemeyer to D. Rae Carpenter, June 23, 1977. Special Collections, Virginia Tech.

[77] Board of Trustees to A.B. Niemeyer. Special Collections, Virginia Tech.

[78] Paul H. Knappenberger, Jr. to D. Rae Carpenter, February 15, 1979. Special Collections, Virginia Tech.

[79] D. Rae Carpenter to Vera Remsburg on letter from Paul H. Knappenberger, Jr. to D. Rae Carpenter, February 15, 1979. Special Collections, Virginia Tech.

[80] "Minutes of Council," November 9, 1986. Special Collections, Virginia Tech. In 1989, Arthur Burke made a motion seconded by Roy Taylor that the member of the Virginia Academy of Science who is proposed by the Virginia Academy of Science and who is appointed by the Governor to be a Trustee of the Science Museum of Virginia be a member of Council. The motion passed. "Minutes of Council," November 12, 1989. Special Collections, Virginia Tech.

[81] Information gathered from several visits to the Science Musuem through work as a consultant in the summer of 1995.

[82] "Report to Council," May 1977. Special Collections, Virginia Tech.

[83] "Report of the A d Hoc Committee to Plan Science Advisory System," May 12, 1977. Special Collections, Virginia Tech. At this point, Hunter D. Hamlett; Howard Massey, Jr.; James Midyette, Jr.; Maurice B. Rowe; Avery Catlin; Lewis W. Webb, Jr.; and Arthur W. Burke, Jr. sat on the Ad Hoc Committee to Plan Science Advisory Sysyem.

[84] "Minutes of Council," November 6, 1977. Special Collections, Virginia Tech.

[85] Ibid.

[86] Charles A. Christopherson to Ertle Thompson, February 22, 1978. Special Collections, Virginia Tech.

[87] Ibid.

[88] Don L. Shull, Ph.D. to D. Rae Carpenter, June 12, 1978. Special Collections, Virginia Tech.

[89] Ertle Thompson to Fellow Academy Members, October 26, 1978. Special Collections, Virginia Tech.

[90] "Minutes of Council," November 9, 1986. Special Collections, Virginia Tech.