

Chapter Two

Linking Allies and Resources: Maintaining Cohesion during World War II, 1940–1952

From 1940 to 1952 the Virginia Academy of Science weathered the difficult challenge of maintaining internal cohesion and scientific integrity during a war effort and in a subsequent post-war booming economy. During this period, “science” grew in importance, as the general public increasingly viewed the field and its practical applications as capable of providing solutions to many human needs and problems. Not surprisingly, this growth in stature was accompanied by changes that took place within a single network of scientists and science educators in Virginia, as this network operated within the VAS, and as the Academy operated within the larger network of scientists in power within the state and within the nation as a whole. Faced with these shifting networks, the Virginia Academy of Science was forced to restructure its framework through building new allies and creating strong links with diverse resources.

Setting the Stage: Virginia, 1940–1952

By virtue of her location — with deep water ports on the water close to the Atlantic and near the nation’s capital — Virginia predictably became heavily involved in the World War II efforts. Already entering the 1940s on a decided economic upturn, the Commonwealth’s war-time involvement drastically affected its economic and social conditions. In the course of several years, Virginia was transformed from a predominantly rural, slow-growth state to one with a booming economy based on manufacturing and defense. The enormous expansion of the federal administration led to human spillover into Virginia, turning

Alexandria, Fairfax County, and Arlington into bedroom communities of the District of Columbia, and this, combined with the rapid growth of Pentagon operations, effectively established Northern Virginia as an important economic and political power.¹

In Tidewater, the basis for a war-time industry was already in place, left over from World War I. The deep-water docks of Norfolk, Portsmouth, and Newport News became the primary base for antisubmarine operations. By 1945, the Newport News Shipyard had built 400 ships for the war effort. Also by 1945, nearly 1.7 million people had passed through the Hampton Roads Port of Embarkation. In Southwest Virginia, war-related industry boomed as well. For example, the munitions plant in Radford located on the New River employed as many as twenty thousand workers. Boosted by the war, the population of the state increased from 2,677, 773 in 1940 to 3,318,680 in 1950.²

World War II with its clarion call for national unity in the fight against Nazism gave energy to the struggle for civil rights for African Americans. In the early 1940s, the courts ruled that local school boards had to offer equal pay to black and white teachers. Once the war was over, returning black veterans wanted what they had come to regard as their rights, and campaigns registering black voters sprang up in several areas. Progress was slow, but certain. In 1948, a black attorney, Oliver W. Hill, won election to the Richmond City Council. And in 1952, a federal district court in the case of *Davis versus the County School Board of Prince Edward County* ruled that a local black high-school had received unequal resources in comparison to its white counterpart. Despite this decision, the lower courts continued to uphold the policy of segregation, setting the stage for *Brown versus the Board of Education* two years later.³

In 1942 Byrd-candidate Colgate W. Darden, Jr. succeeded Governor James Price. A native of Southampton County and resident of Norfolk, Darden remains one of Virginia's most respected and popular governors. Shaped by World War I and the "politics of accommodation," Darden's dignified, yet energetic, manner and thoughtful perspective coupled with his talent for moving freely between liberal and conservative camps were well-suited for a leadership role in the early forties. While much of Darden's time was spent managing Virginia's heavy involvement in World War II — including a complete reorganization of Virginia's civil defense system — he also regarded domestic questions as having equal importance. Historians universally regard his two most

important achievements as extensive penal reform and improvement of the state's public education system. Never known as a racist, Darden refused to enforce the Jim Crow laws. At the same time, however, he avoided the issue of racial reform. Following his term in office, Darden assumed the presidency of the University of Virginia, where for twelve years, he remained a major player in Virginia's educational life.⁴

Governor William Tuck of Halifax County, Lieutenant Governor under Colgate Darden, took office in 1946. Boisterous, loud and outspoken, Tuck's bluster stood in sharp contrast to his fellow Democrat Governor Darden's genteel demeanor. In what historian Eric Goldman calls the "crucial decade," Tuck's term was marked by the appearance on the Virginia scene of social, economic, and political problems either postponed by or attributed to World War II.⁵ Although he was not a fan of unionized labor, Tuck did create the Public Utilities Labor Relations Act to accommodate the emerging labor-management disputes. He also established an agency to control water pollution — the first such move in a state that would become marked by its passive attitude towards sky-rocketing problems with pollution. In contrast to Darden's moderate stand, Governor Tuck was adamantly opposed to racial reform. In fact, when the Brown decision was handed down rendering unconstitutional the South's system of segregated schools, Tuck denounced the Supreme Court as "nine reprehensible individuals masquerading in judicial ermine."⁶

The obstreperous Tuck was followed into the Governor's Mansion by a dignified attorney from an old and distinguished southern family. A personal friend of Harry F. Byrd, John Battle served four terms as a state senator before being elected governor in 1950. A born compromiser, Battle clung to the fiscal conservatism of the Byrd organization. Although he did support the appropriation of large sums of money to the public school system, his actions were motivated by the conviction that in "shoring-up" the separate but equal system of public education, Virginia might be able to preserve her segregated school system.⁷ Tied to the conservatism and fundamentally racist position of the Byrd organization, neither Battle nor his predecessor Tuck was able to carry Virginia into the new era that the immense changes in the Commonwealth's economic and social structure demanded.

The new era that Battle and Tuck failed to deal with adequately was well recognized, if not always dealt with efficiently, within the Virginia Academy of Science. Nothing had indicated more clearly the im-

portance of scientific discoveries and their translation into technology than the many developments of World War II, from radar to the atomic bomb.⁸ In the case of the latter, Virginia's scientists were no different from the rest of the scientific community in understanding its moral implications. In his retirement address, Academy President Robert Smart said in 1945 that the "war of science, is not always a success for science. It can no longer be accepted that the results of scientific investigation will lead to continuous progressive improvements in conditions of life."⁹ Men and women in the scientific community had believed that their work was either value neutral or would make a positive contribution to human life. In large part, that belief went into the ashes of Hiroshima and Nagasaki. Yet the promises of science for great change could not be denied, and the VAS saw its responsibility as well as the opportunities the new era heralded. In the opinions of many persons, Virginia clearly needed to move forward, a movement that her political leaders — bound as they were by the twin cords of racism and conservatism — could not lead.

E.C.L. Miller spoke of this challenge to move Virginia forward when he addressed the Virginia Academy of Science at its twenty-fifth annual meeting in 1947. "The world is entering a new era, an era of science," Miller proclaimed. "Most of our people in Virginia know little or nothing about it, but are still living in the age-old tradition of their fathers. Is it not peculiarly our duty as a state academy of science to assume some responsibility for the enlightenment of the people of our state?"¹⁰ Miller and his colleagues were acutely aware of the necessity to tie together, in a peace-time setting, scientific research and industrial activity and, by so doing, to keep the economic machine moving forward as well as to continue funding for scientific endeavor. They conceived of the "enlightenment of the people" as a task that they alone were able to undertake. And while altruistic intentions were certainly behind much of this paternalistic attitude, no doubt the knowledge that public legitimation might lead to increased resources for scientists also contributed to the Academy's interest in courting the people of Virginia. Indeed, what now commonly is called the public understanding of science thus became a focus for the postwar VAS as the Academy attempted to shape the perspectives of Virginians and to introduce them to the new ways of the times.

The Second World War, as we will see, left an enormous legacy in Virginia: an invigorated, well-funded, and ambitious science commu-

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nity; a solid economic base that remained closely tied to the defense industry; and a citizenry in which African Americans demanded equality and veterans demanded — and thanks to the G. I. bill could pay for — higher education. A continuous influx of people not native to Virginia brought their own habits of thought, ways of living, and attitudes toward race and money with them. All of these factors were to change the face of higher education, the attitudes of the people, the very face of Virginia politics. The VAS worked hard at taking an active role as an agent of change — at educating the populace whom it served and among whom the scientists lived.

Sections, Committees, and Related Events

On December 7, 1941 — six months into George Jeffers' term as President of the Virginia Academy of Science — the Japanese bombed Pearl Harbor. One day later the United States Congress formally declared a state of war, dramatically shifting the careers of many Virginia scientists. Unlike the First World War, when scientists left their academic or (in a few cases) industrial posts to serve their country overseas, World War II was fought inside the walls of state and federal laboratories as well. Nearly every member of the Virginia Academy of Science registered in the National Roster of Science and Specialized Personnel. Academy members served in all capacities: for example, biologist E.L. "Chick" Wisman of Virginia Tech returned decorated from the Battle of the Bulge, while Foley Smith of the Virginia Alcoholic and Beverage Control Board and biologist Lynn Abbott of University of Richmond were stationed in the Pacific.¹¹ Others, such as physicists Jesse Beams and William Ham of the University of Virginia traveled to Los Alamos, the latter developing the timing device used in the trial runs of the atomic bomb.¹² Scientists remaining in Virginia continued to support the Virginia Academy of Science, with the result that while the direction in which the VAS took its mission or the length of time to complete a project might have been different in peace-time, the Virginia Academy managed to maintain a high level of productivity throughout the war.

Although the Academy had scheduled its annual meeting of 1942 for Norfolk, because of the city's mandated conscription — a policy that included the postponement of "extracurricular events," the venue was changed in January to the Hotel Roanoke. One new Section, Bacte-



George W. Jeffers was president of the Academy from 1940–1941 and an Honorary Life Member; he received the Ivey F. Lewis Distinguished Service Award in 1968.

riology, and a new affiliation, the Blue Ridge Section of the American Chemical Society, appeared on the program. The year-old Forestry Section, comprised primarily of state and federal foresters, held its second and last Section meeting.¹³ Membership, which had reached an all-time high of 912 in 1941, began its steady war-time decline, despite the VAS's policy of keeping all enlisted members on the roll. By 1945, membership numbers had sunk to 629, and it was not until 1948 when Foley Smith, Chairman of the Membership Committee, mounted a membership drive that the numbers topped the pre-war figures.¹⁴

There was not a complete annual meeting of the VAS in 1943. The decision to hold the 1944 meeting stemmed from two reasons: "first, to consider what we as scientists could do further toward winning the war, and second to give some consideration toward post-war planning."¹⁵ As Leslie Sandholzer of the Public Health Department of Norfolk argued: "It is the duty of the Academy to make the community aware of its scientific needs in the war effort and to promote a program of scientific endeavor in line with this."¹⁶ To satisfy these two goals, Council asked Marcellus Stow of Washington and Lee to lead the new Committee on War-time Activities.¹⁷ However, the committee sat idle, not answering Sandholzer's call for the Virginia Academy of Science to raise the level of community awareness of the "scientific needs of the

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war effort." War-time duty prevented the Engineering Section from holding a single session during the war, and it would be seven years before the engineers regrouped. In 1949, Professor Boyd Harshbarger of Virginia Tech proposed a new Section of Statistics, following which Council informally invited the statisticians to the 1944 annual meeting. Two years later, the Statistics Section was an official entity of the Virginia Academy of Science.¹⁸

It was four years before Council again considered admitting another section, by that time in the post-war era. In 1948, Sidney Negus, president of the Virginia Academy of Science, called together ten high-school science teachers and ten Academy members to discuss organizing a Section of Science Teachers. Following the establishment of the Virginia Junior Academy of Science (VJAS) in 1941, Negus felt that such a section, held during the VJAS meeting, would provide high-school teachers with the opportunity to discuss the latest in science education and pedagogy and offer a new sense of professional camaraderie. The group unanimously voted to hold a trial session the following May, and sent out informational letters to more than one thousand high-school teachers in public, private, and parochial schools. At the trial meeting, the teachers agreed upon six goals for the new Section: present current data in various fields of science; demonstrate new presentation techniques; assist with the VJAS; promote awareness of the Speakers Bureau; encourage National Science Search and Virginia Talent Search; and strengthen student appreciation for research. In 1950, the Science Teachers Section held its first official meeting.¹⁹

Virginia Journal of Science Committee

As with the sections, committees responded differently to the challenges of war-time impact on manpower and resources. By 1939, Professor Ruskin Freer and Colonel Robert Carroll, editor and manager of *Claytonia*, reported to Council that the official publication of the Flora Committee was suffering from "insufficient interest and financial support."²⁰ In fact, financial stringencies compelled Carroll to request additional monies from the Flora Committee in order to complete the calendar year.²¹ Several months later, Carroll again brought up the request before the general membership at the annual meeting in Danville. In response to Carroll, Ivey Lewis remarked that rather than merely allocating more funds to *Claytonia*, perhaps it would be more prudent to

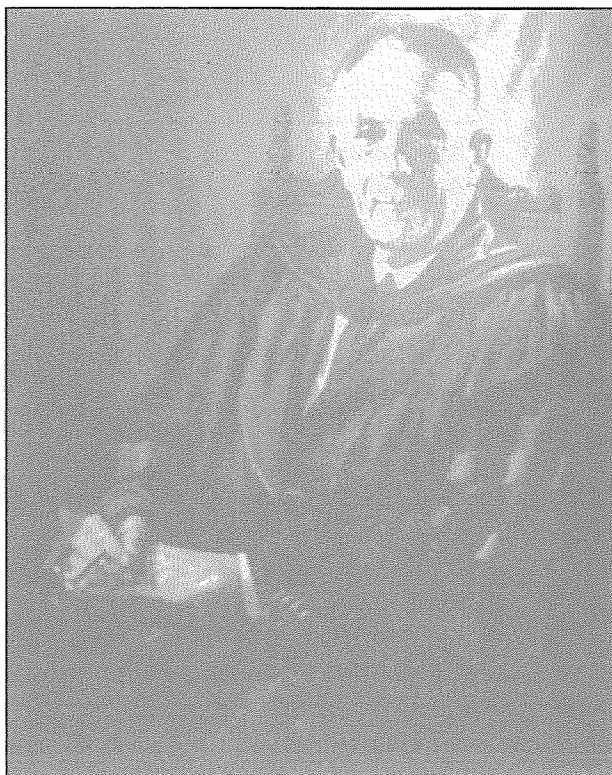
consider expanding the specialized, bimonthly publication to a multidisciplinary Academy periodical. After all, stated Lewis, one of the constitutionally mandated functions of the Virginia Academy of Science is: "to provide for prompt publication of papers or abstracts."²² Overwhelmingly, the membership agreed. Acting quickly, Council appointed a new Publication Committee "with the power to act" to draw up the necessary plans for establishing a permanent Academy journal. Chaired by Ivey Lewis, the Publication Committee consisted of twenty-five representatives of the various sections and special committees.

Over the next twelve months, the Publication Committee met only once; however, well over one hundred letters in the archives attest to the members' enthusiasm and commitment to an Academy journal. As the first order of business, the group decided to call the periodical the *Virginia Journal of Science* (VJS). The committee then requested Freer and Carroll to continue as editor-in-chief and business manager. For the upcoming year (1940–41), Lewis and the others recommended a temporary Editorial Board, comprised of Preston Edwards, Astronomy, Mathematics, and Physics Section; Paul Burth, Biology Section; William Guy, Chemistry Section; John Rorer, Education Section; D.H. Pletta, Engineering Section; E.C.H. Lammers, Geology Section; and E.C.L. Miller, representing the general VAS.²³

While the Publication Committee was well-aware of the problems of financially overburdening Academy members, money the VAS could spare from its general fund simply would not cover the estimated costs of an annual publication; hence, the subscription price of the *Journal* was proposed as one dollar for Academy members and two dollars for non-members. However, two issues of the *Journal*, the *Program* of the annual meeting and the subsequent *Proceedings*, would be sent to non-subscribing members free of charge. Finally, the committee decided that while the new *Journal* would be inclusive of different sciences, to facilitate an immediate issue, the Editorial Board would use the botanical manuscripts intended for publication in *Claytonia*.²⁴

By January 1940, the first issue of Volume I, the *Virginia Journal of Science* was rolling off the press. In explaining the objectives of the new *Journal* to the VAS membership, E.C.L. Miller reflected the Publication Committee's sentiments, stating:

The Virginia Academy of Science has no interest other than the advancement of science in Virginia. It has long felt the need of a periodical to help accomplish these ends.



Portrait of Sidney Negus of the Medical College of Virginia, who was president of the Academy from 1948 to 1949 and received a Meritorious Service Award in 1963.

It is hoped that this *Virginia Journal of Science* may become the local organ of the various scientific groups in the State, and thus serve as an integrating influence on science in Virginia. It will also represent Virginia science wherever it goes, and if we all cooperate, it can be made a worthy representative of which we may all be proud. I bespeak your help.²⁵

Clearly, a shared conception of the *Journal* was that it would provide yet another tie among the people in the scientific community within the Commonwealth. In that sense, the transformation of the *Claytonia* might be viewed as a fortuitous event.

By and large, the membership expressed pleasure with Volume I of the *Journal*. Editor-in-chief Ruskin Freer pointed out that the goal of inclusivity had been met as far as possible. Each paper that was sent in received equal consideration by the Editorial Board. To illustrate the wide participation, Freer developed a table (Table 2.1) to show the num-

Table 2.1. Papers submitted to the *Journal*

	Number of	
	Papers	Pages
Agriculture	1	5
Astronomy	1	8.5
Botany	9	42
Chemistry	14	47
Education	2	16
Geology	4	25
Physics	1	8
Zoology	4	30 ²⁶

ber of papers submitted by each section and number of printed pages representing the sections in Volume I.

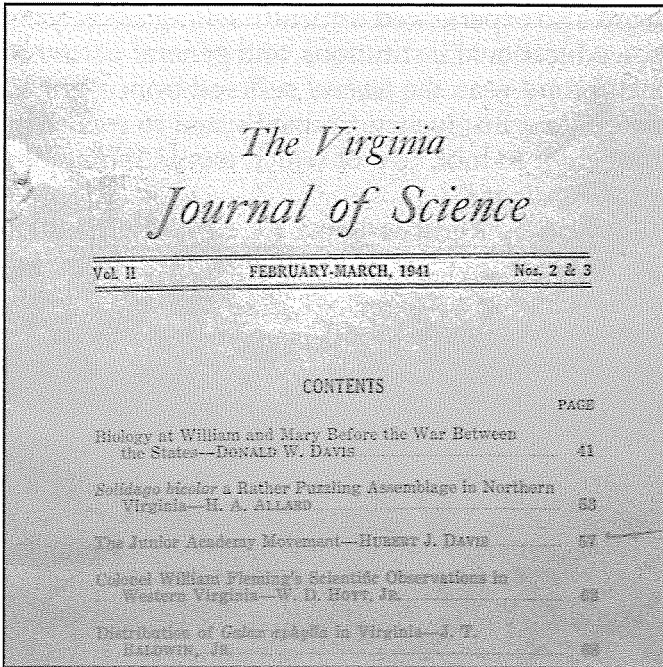
Given the longstanding influence of *Claytonia* and the large number of chemists participating in the Virginia Academy of Science, it is not surprising that these two sections enjoyed the greatest number of published pages. Thirty-five total papers were contributed throughout the first year of the *Journal* — a high enough number to indicate the importance of a new publication outlet to Virginia scientists.

As with any untested endeavor, though, people did raise objections, two of which Freer addressed by means of an editorial published in the *Journal* itself. First, Freer allowed that many members had suggested that the printed papers should have more popular appeal, pointing out that it often is characteristic of scientists that “they dearly love to write the results of their researches in highly technical form” but are not tolerant when others do the same thing. Posing the question to the readership, he asks with a hint of sarcasm:

Is the chief function of our *Journal* to provide an outlet for technical publications on research in Virginia? Or should a paper by a chemist be so phrased that it provides thrilling reading for a worker in the field of education . . . Should we all prepare our papers in a form which will be read and enjoyed by high-school students interested in science?²⁷

Freer’s question, no doubt, reflects a tension within the VAS that exists to this day: that is, who should be the primary audience of the Virginia Academy of Science? Furthermore, at what level should the

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An early edition of The Virginia Journal of Science, the first issue of which rolled off the press in January of 1940.

VAS see its role in fostering first-rate scientific activity? The need to balance these concerns — professional versus popular — also indicates the tension that an observer notes between the impact of the VAS on the Virginia public, and the impact on the VAS of the citizens of the state, their concerns, and their attitudes.

A second problem for the membership centered around subscription fees. Recognizing that the *Journal* already was under financial duress, several scientists suggested that Academy dues be raised from two to three dollars. Under this strategy, all members would receive the *Journal*, regardless of subscription. With this added revenue, along with the annual five hundred dollars allotted by Council, the *Journal* would have a greater chance of reaching sound financial footing. Such proposals did little more than generate debate. While publication remained consistent throughout the following year, only 235 of 912 members subscribed to the *Journal*, seventy-five more than the previous year, but not nearly the eight hundred and upwards needed to create a self-supporting publication.²⁸ Adding to the *Journal's* financial woes, the

Editorial Board also experienced difficulty selling advertisement space to businesses, educational institutions, and general patrons. By the beginning of its second year, the *Journal* suffered from a growing deficit. To halt the mounting insolvency, Council voted to reduce the number of issues from eight to four, two of which would remain the *Academy Program* and *Proceedings*.²⁹

President Wortley Rudd assigned the newly-formed Long Range Planning Committee the task of analyzing the *Virginia Journal of Science* and perhaps developing a strategy whereby perpetual debt would not be the publication's hallmark. Wondering where the *Journal* stood relative to other state academy of science journals, the committee sent out a questionnaire to twenty-five academies, receiving responses from eighteen.³⁰ Ten of the eighteen academies polled published their own journal. All journals received partial support from membership's annual dues, and almost half drew revenue from the sale of advertisement space. By and large, the *Journal* was not unique in its inability to turn a profit or at least avoid debt. In fact, "one secretary reported that occasionally he asked friends for one hundred dollar donations for journal purposes."³¹ Following this report to Council at the annual meeting, the committee recommended that if the *Journal* were to continue, the VAS should at least request funds from the Commonwealth to cover part of the publication costs.³²

One year later, the deficit continued. With World War II in full force, raising money for a publication either by increasing membership dues or petitioning for help from the state was neither feasible nor, in the opinion of most people, ethical. Membership was on the decline as Virginia scientists devoted necessary time to the war effort, many through active duty. At the annual meeting in May 1943, Ivey Lewis proposed the following motion: ". . . that the *Virginia Journal of Science* be authorized to print, in addition to the *Proceedings* of 1942, two more numbers, one of which will be the Chemical Symposium, and that thereafter the *Journal* be suspended for the duration of the emergency. . . ." ³³

In his account of the *Virginia Journal of Science*, Virginia Tech statistics professor Boyd Harshbarger maintained that the war only served "to give an excuse for stopping something that was not financially solvent." According to Harshbarger, two forces were at work to warrant suspension of the publication. First, as mandated by the Academy Constitution, a publication outlet should be available to members of the VAS. Why, then, was not the *Journal* perceived as an "official function of

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the Academy?" If that had been the case, then a certain percentage of the budget — probably from membership dues — would have been allotted to the *Journal* from the very beginning. Such a percentage certainly would have exceeded the \$500.00 annual grant. Second, Harshbarger pragmatically pointed to the financial folly of publishing eight issues the first year.³⁴

Three years later, Lewis reintroduced the subject of the *Journal* in a written speech delivered before Council on April 15, 1946. Encouraging its resurrection, he made a strong statement:

State Academies of Science have as a major function the fostering and development of scientific work among the citizens. Methods of attaining the desired results vary. Sometimes, a museum is maintained, or a research laboratory such as that at Reelfoot Lake [Tennessee Academy of Science-supported research venue] is supported, or a research fund is set up and allocated where needed, or more general projects of a constructive nature are furthered. These are all good objectives, but in my opinion, and I believe in the practice of most state academies, a more effective way to encourage scientific research and interest in Science is by publication of a journal.³⁵

Lewis continued by outlining the ways in which publication on all levels — local, state, and national — is of primary importance to the furtherance of research and the maintenance of high professional standards. Finally, he posed the question: "Can the Virginia Academy of Science do the best possible job of creating research interest and neglect the one thing found most effective and necessary in stimulating research?" For, he continued, an academy publication encourages research, accords recognition to deserving work, and brings to a variety of audiences the accomplishments of Virginia scientists. Following Lewis's inspirational speech, professor Garnett Ryland of the University of Richmond proposed and Harshbarger seconded a resolution stating that the "publication of the *Virginia Journal of Science* be resumed — that a committee of three be appointed by the incoming president to make plans for this and to report at the 1947 meeting." Enthusiastically, the resolution was accepted.

The following year, the Virginia Journal of Science Committee, chaired by Ladley Husted, presented only preliminary findings.³⁶ As

reported by Lewis to Council, the leadership needed to meet two conditions before publication: first, adequate financial support and, second, agreement as to the "nature of the material to be published."³⁷ Two years later, in 1949, the Journal Committee offered an extensive report that covered historical and professional reasons for publishing a new series of the *Journal* and laid out in detail the financial needs of the publication. In addition, the committee outlined the policies of the *Journal* regarding types of manuscripts accepted and the organizational strategy and role of the Editorial Board.³⁸

Anxious to avoid the mistakes of the past, the Journal Committee advised quarterly publication of the *Journal*, to include the *Program* and *Proceedings* as two of the issues. Those issues not devoted to regular Academy business would be divided into three sections: a feature article of multidisciplinary interest, scientific articles reporting original research results, and general news from the scientific world. A percentage of membership dues would be transferred from the general funds to the *Journal* coffers. Thus, each member in good standing would receive a subscription to the quarterly publication. In addition, an annual sum of at least one thousand dollars over and above funds garnered from membership dues would be appropriated to the managing editor. Furthermore, the committee recommended that Council seek support for the publication from state institutions. This avenue should have held promise for the future. For example, when contacted by Ladley Husted about the *Journal*, Colgate Darden, Jr., by then the president of the University of Virginia, said that it is the obligation of the state institutions of higher education to encourage an academy publication in any manner necessary.³⁹

On May 7, 1949, Ivey Lewis recommended that Council accept the report of the Virginia Journal of Science Committee. Following his suggestion, Council immediately authorized Lewis's proposal that a new series of the *Journal* begin by January 1, 1950. One month later, Council appointed an Editorial Board, to consist of a representative from each section of the VAS with staggered terms, so that only one new member would enter the board each year to serve for a period of five years. Responding to Boyd Harshbarger's overall enthusiasm and tenacity, Council appointed him editor-in-chief, while relative newcomer Horton Hobbs, Jr., professor of biology at the University of Virginia, was named technical editor. Harshbarger further took the prescient step of hiring an advertising manager, Clinton Baver, of Larus Brothers Advertising

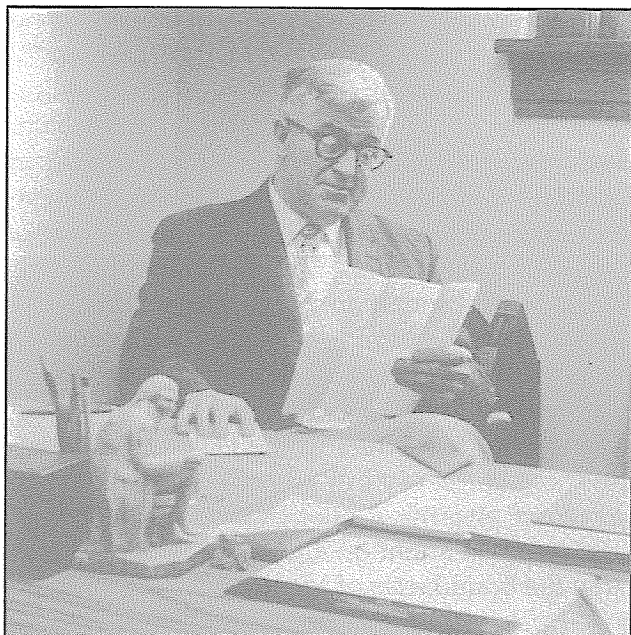
Company in Virginia. Under this able leadership, the first and second years of the new *Virginia Journal of Science* were marked by success.⁴⁰

The efforts of the VAS in support of an on-going scientific publication, coupled with the comments of the significant players in this matter, show clearly the awareness of Virginia scientists of the centrality of publication to the intellectual life of the scientific community. Interestingly, there is no hint at this time of any reflection of that frantic side of academic life which came to be known as the "publish or perish" rule; rather, these people were interested simply in supporting their fellows, in publicizing useful and interesting research, and in further creating a sense of scientific community inside Virginia — in other words, solidifying their professional status inside the Commonwealth. It is provoking to consider what might have happened to the *Journal* and to the VAS itself if, rather than these laudatory but parochial goals, the Virginia Academy had aimed for creating a publication with a level of quality that would attract national attention and bring prestige to the authors/scientists outside the boundaries of Virginia.

Long Range Planning Committee

In 1943, George Jeffers, professor of botany at Teacher's College in Farmville, now known as Longwood College, published an article in the national journal *Scientific Monthly* titled "A State Science Academy Charts Its Course." In this article, Jeffers informed *Scientific Monthly* readers of the unique "socio-scientific" program designed and implemented by the Virginia Academy of Science to ensure future attainment of specific objectives. For the VAS, these goals were simple: to promote and publicize research and to place the Academy on "intimate terms with the state's industry and commerce, especially with the greatest business within the state, namely, the state government itself."⁴¹ VAS Council believed that the process by which their organization might reach such objectives was equally as important as the end result. Jeffers pointed out in the same article: "Such objectives can not [sic] hope of full attainment so long as academies work chiefly upon the basis of one-year plans."⁴² And, in fact, in May of 1940, Council had authorized President-elect Wortley Rudd to appoint a committee having as its primary goal the creation of a plan that would map out future actions of the Virginia Academy of Science.

Along with Sidney Negus and E.C.L. Miller, Rudd sent out a letter to members of the Virginia Academy, members of the National Asso-



George W. Jeffers, who wrote an early history of the VAS, at work in his office at what is now Longwood College in Farmville, Virginia.

ciation of Science Writers, secretaries of all state academies of science, and a select group of scientists throughout the country, requesting detailed responses to two questions. First, what, in the judgment of each, should be the primary goals of the Virginia Academy of Science as it entered the 1950s? Second, respondents were asked to outline as clearly as possible and in order of importance at least three contributions that the VAS might or even should make to science itself or to the Commonwealth within the next five years. For example, one such issue might be "Should the Virginia Academy of Science attempt to develop a program that would have as its objective the development of a monetarily self-sustaining Commonwealth by proper use of knowledge and resources for the purpose of raising the standards of living and creating a maximum of social and economic opportunity?" Or should less grand but equally as important projects be addressed, such as the problem of conservation or the "problems of stream pollution?"⁴³ Or, as Miller succinctly put it: "What is the Academy doing to justify its continued existence?"⁴⁴

The result was encouraging: 152 responses containing 457 suggestions. Rudd, Miller, and Negus divided the responses into thirteen categories ranked according to importance. It came as little surprise that

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research topped the chart, with seventy-one percent citing it as lacking in support. Forty-six percent mentioned the need for greater publicity of the Academy's work and forty-four percent considered teaching and science education to be of primary concern. In order of rank, the remaining ten topics of concern to members were: problems concerning the state; science clubs and junior academies; guidance programs; academy meetings; providing science materials to the public; water pollution; national defense; problems concerning industry; and retention of Virginia's trained scientists. Clearly, the respondents echoed the sentiments of Council in recognizing the potential positive influence the VAS could have on a variety of scientific and social issues within the Commonwealth.

As Chair of the new Long Range Planning Committee, President Rudd convened the first meeting on October 25, 1940, in the library of the State Board of Education in Richmond.⁴⁵ In order to emphasize to the group of twenty their "elite" character, Rudd described the process by which they were selected. First, Rudd requested about "twenty of our most experienced and devoted Academy members" to nominate five or six people — members and non-members of the VAS — who would meet the "requirements for effective work on such a group." From this group of one hundred or so, Council offered appointments to twenty — all of whom accepted. Cognizant of the need to constantly link the Academy with the public, Rudd worked diligently to set up an informal board of consultants to the Long Range Planning Committee.⁴⁶ Ranging from several professors to a curator at the Smithsonian Institution to presidents and chairs of various banks and businesses, the diverse group of consultants — including two women — widened the scope of the Virginia Academy of Science substantially. After naming Lloyd C. Bird as chair and Sidney Negus as secretary, the Long Range Committee, aided by an official executive committee appointed by Bird and consisting of Rudd and Miller, considered the thirteen items of concern voiced by the poll's respondents. Specifically, general discussion centered around one overarching question: "How could such a wide diversification of ideas [thirteen concerns] be unified into one major objective — an objective that would appeal to the entire academy membership and at the same time capture the imagination of the state?"⁴⁷

Of overwhelming interest to the committee was the response of Justus Cline of Stuarts Draft:

A monograph on the James River would perhaps appeal to the imagination of Virginians as much as anything the Academy could do. The James is strictly a Virginia River — it drains important parts of all the physiographic provinces of the state. . . The majority of important cities and institutions of higher learning in Virginia are located on it and its tributaries. . . No stream in the country has more historical romance. What civilization has done to this wonderful river, which should be the pride of Virginia and the nation, would certainly be a fine thing for the Academy to find out and tell about . . .⁴⁸

Because the James had been the principal artery of travel for so many decades, each region of the state enjoyed a particular relationship with “Old Man River.” The Allegheny Mountains, Shenandoah Valley, Blue Ridge, Piedmont, and the Coastal Plains: all are linked by the James River as it journeys from the westernmost boundary of the Commonwealth to the mouth of the Chesapeake Bay. The James River serves as the primary drainage basin for forty-two of the one hundred counties in Virginia, and most of the other fifty-eight are closely connected to the forty-two.⁴⁹

Cline’s point was clear. Not only could a project focusing on the James River engage any number of the various sections of the VAS, but, more important, it might provide a means by which the Academy’s work could extend visibly into a wide range of public sector areas — of which state agencies, non-profit organizations, and educational institutions of all levels were just a few examples. Indeed, as one Virginia Academy member asserted: “In this great river we have our unifying idea around which can be correlated scientific, sociological, and historical research.”⁵⁰

In addition to Cline’s suggestion to focus on the James River, the Long Range Committee recommended that Council establish six new committees — Research, Junior Activities, Education and Publicity, Museum, and Finance — to work in conjunction with already established parent committees.⁵¹

One month later, the Long Range Committee convened to discuss details of a James River Project and to map out the informal goals of such an undertaking. Leading the discussion, I.D. Wilson of Virginia Polytechnic Institute delivered a presentation in which he illustrated through Venn diagrams the ways in which public and private state agen-

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cies might cooperate with the VAS in such a project. While Wilson's graphic diagrams are not in the archival record, "Minutes" of the Committee do indicate the diagrams' enormous influence on the subsequent approval of the project.

Recognizing the numerous points of entry into such a grand topic, the group adopted a two-pronged approach. First, using techniques unique to their discipline, each section of the VAS would survey and compile data on what was known about existing conditions of the Basin. For example, information about present land use, the status of mineral resources, and the status of agricultural development would be collected along with data concerning industrial usage, availability of educational resources, and public health problems. Such an analysis would take approximately two years, so that by the end of 1943, the second stage might begin. Using the data derived from step one, the Committee planned to offer specific suggestions aimed toward the "scientific improvement of existing conditions." For example, the "Academy would not attempt to put trout in all the mountain streams of the State, but by scientific study would attempt to determine conditions under which trout would thrive in the streams. . . . It should study the James River Basin as a Human Habitat and should indicate, wherever possible, practical means for improving this Human Habitat."⁵²

In the same breath, the Long Range Planning Committee asserted that ". . . the work on the James River Project [should] be kept on the highest plane of careful scientific research; it should not become involved with the vagaries of politics or in crusades against 'vested interests.'"⁵³ Given the goals of the Academy in initiating this endeavor, such a statement is ironic. For while the intentions of the Virginia Academy of Science certainly were on the highest plane, they were also directly political in the sense that it was the Academy's intent to show itself in the best possible light to the Commonwealth as a whole in order to influence both the management of the James River's resources and Virginia's support of the VAS. Of course, what they meant by not becoming involved with "politics" and "vested interests" was simply that they wished to try to maintain a high level of objectivity in analysis and writing.

At the 1941 annual meeting held at the Medical College of Virginia, retiring President Rudd officially appointed the Special Committee on the James River Project as a subcommittee of the Long Range Planning Committee. Chaired by Marcellus Stow of Washington and

Lee, the full group included Robert Carroll, Justus Cline, Ivey Lewis, Foley Smith of Richmond, and I.D. Wilson of Virginia Polytechnic Institute. This committee, with the addition of A.B. Massey of Virginia Polytechnic and Charles O'Neill of the University of Virginia in 1947, remained together until the completion of the project in 1950. As the new chair, Stow, said proudly: "Only a project of such wide range could elicit the active interest of a body such as the Virginia Academy of Science,"⁵⁴ before issuing the following, more humble statement, to the Virginia Academy:

We wish to present a brief history of the development of those sciences in Virginia, to discuss the contributions that each has made toward the improvement of the region as a Human Habitat, to present and to indicate problems that await initial study or more detailed scrutiny in order to improve the region scientifically, industrially, and sociologically. If we may borrow a phrase of the biologists, we may wish to make a study of Human-Ecology and to ascertain methods of improving it.⁵⁵

James River Project

Over the next year, the new James River Committee methodically outlined the first stage of the project, beginning with naming the future monograph *The James River Basin — Past, Present, and Future*. Sidney Negus, with his talent for organizing, prepared a detailed outline of the planned study, parts of which he published in his monthly column in *The Commonwealth*. Guessing the length of the analysis would be at least eight hundred pages, Negus divided the text into five parts. Within each section, articles from a wide variety of experts in diverse fields would reveal the complexity of the James River Basin. In partitioning the monograph, Negus was clever. Part I, "Conservation, Recreation, and Education" focused on issues of immediate interest to the public, while Part V, "Industry and Transportation," treated aspects important to business. Parts II, III, and IV — "Biological Sciences," "Earth Sciences," and "Mathematical and Applied Sciences" — were technical in nature, appealing to those with more scientific training. Furthermore, in seeking volunteers to contribute articles, Negus and the committee enrolled members of

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state agencies, non-profit institutions, and businessmen for Parts I and V and scientists of the VAS for Parts II, III, and IV.

Three goals would be accomplished by this approach to the James River project. First, the resulting publication would find a greater audience because it would have a more apparent popular appeal. Second, the project would attract the interest of two powerful groups within Virginia — the state agencies and businesses — not simply because they would be involved in the production aspect but also because the project's conclusions would have the potential to affect their activities. Third, the Virginia Academy of Science network would expand and strengthen, as more people would be drawn in to render services to the VAS, and they, in turn, might use the special skills and talents of members of the Virginia Academy.

Notwithstanding the excellent planning and indications of support, at the following annual meeting in Roanoke, the committee appeared in a slump, despite a five-thousand-dollar appropriation from the General Assembly in February of 1942 to "provide for the publication of a volume relating to the James River area of the state."⁵⁶ The manuscripts were slow to come in, pushing stage one of the project well-past its original 1943 deadline, but of more obvious and enormous importance, the United States had entered World War II. In January, Chairman Stow was called to Washington as Deputy Director of the Mining Division of the War Production Board, making it difficult for him to continue leading the James River project with the same vigor. In his report to the Academy membership of that year, Stow wrote: "When original plans for the monograph were laid, Pearl Harbor was a little known harbor in the Pacific Ocean. When it flared into flames, the lives of all of us were changed so I am afraid the publication of the monograph will be delayed."⁵⁷

In February of 1944, the General Assembly of Virginia voted to continue its appropriation of five thousand dollars for the monograph publication for the next two years. Despite the continued funding, with Stow in Washington and the intellectual and emotional energies of so many of the Virginia scientists directed towards the war effort, it would be several years before additional chapters to the monograph were completed. In May of 1946, the James River Committee met to discuss the future of the project. War was over, and it was time for normal activities to resume. With ten thousand dollars in financial aid from the state,

the group decided to “pick up loose ends” and go ahead with the completion of the monograph.⁵⁸

Slightly less than a year later, forty leaders within the Commonwealth representing a variety of professions — medicine, law, and social services, for example — joined the James River Committee in Richmond to develop a viable strategy for completion of the monograph. After reassessing the outline prepared by Negus six years earlier, the group decided to go ahead with the same structure, agreeing that the prose should be nontechnical but not over-popularized. Further consensus was reached over the new date of completion: May 1, 1948. At the close of the meeting, Stow inquired: “Does this group feel, from what has been discussed this afternoon, that a monograph of this type can be compiled and presented in a style which will be satisfactory to scientists and at the same time instructive to laymen?”⁵⁹ A resounding yes answered his question.

Discouragement at the lack of completed chapters by May 1, 1948, did not mar the excitement generated by the additional ten thousand dollars allotted by the General Assembly to the State Conservation Commission for publication of the monograph. Nor did it affect the spirits of Stow the following year in Richmond, when he issued the following statement on behalf of the James River Committee: “It is a pleasure to report that the monograph on the James River is approaching publication status.”⁶⁰ Confidently, Stow promised that by the next annual meeting, he would hold a copy of the monograph before the membership.

Two days before what had become the annual progress report of the James River Committee to the Academy membership, it did not appear as if Stow would be able to keep his promise. The last few chapters had not come in until very late, and members of the committee did not see how the publisher, Albrecht and Company of Baltimore, would be able to have the monograph printed in time for the May 12th annual meeting at Roanoke College. Unknown to the group, however, Stow had persuaded the publishers to work straight through the night, sending his student from Washington and Lee, Richard MacDonald, to drive to the bindery in Baltimore, pick up a few copies of the monograph, and rush them to Roanoke. Stow’s presentation was set for ten in the evening; at quarter of ten, MacDonald came rushing in with two copies. Thus, at the close of his report, Stow was able to present Justus Cline and Wortley Rudd, the two members to whom the monograph is dedicated, with copies of *The James River Basin: Past, Present, and Future*.⁶¹

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In the first year, only 226 copies of the book were sold — and the six dollar price was not exorbitant for the length of book. Until 1995, boxes of the book lay stacked in an attic in a Washington and Lee academic building. Efforts to link the community of the Commonwealth with the VAS through the publication of the book were not successful. Advertising for the book was poor; perhaps the length of time it took the committee to reach publication dampened enthusiasm, or perhaps the length of the book was simply too daunting. The committee's problems in publishing were due not only to the war, but also to its difficulty in persuading those who had agreed to write pieces to actually submit them without payment of any kind and without promise of national recognition. It is interesting, however, to note that the book, with its detailed portrayal of the past state of the environment and predictions for the future, is slowly becoming of more interest to scientists, especially ecologists. For not only was *The James River Basin* correct in its predictions, but it was also accurate in describing the conditions of the landscape, with the result that scientists now have a level point of comparison. While the publication did finally mobilize the talents and resources of many scientists, business people, and other professionals, it did not succeed as Jeffers had hoped when he said: "We believe such a monograph, written by authorities, will do much toward developing and improving the status of science, industry, and social conditions in the James River region and hence in Virginia."⁶²

Research Committee

While all members of the VAS felt the strain of World War II, only the Research Committee entertained lengthy discussions about possible effects the war might have on the role of and practice of science both within the Commonwealth and the nation as a whole. Even before the United States entered the war, Miller asked Frank Geldard, chair of the Research Committee whether or not:

it struck you as remarkable that nothing was said Saturday night [Research Committee meeting held at J. Shelton Horsley's house in Richmond] about the future of science in rebuilding a better world after this slaughter stops? The spirit and methods of science should be a tremendously important factor in this work. . . . Unless the new world is based on and conditioned by science, it will be built on sand.⁶³

This attitude reflects the dominant thinking of the times: that technology and science would provide solutions to fundamental problems of human interaction. Indeed, Miller's commitment to and belief that the quality of life in Virginia would be elevated through scientific means extended not only to the Research Committee, but also to the VAS as a whole. And it was this conviction that characterized the committee's actions over the following decade.

When he replaced J. Shelton Horsley in 1939 as chair of the Research Committee, Frank Geldard's first act was to initiate an analysis of the research grants over the past year. The resulting data indicated that while the endowment fund had afforded many opportunities to struggling scientists, it also had provided many scientists who had secure financial roots with funding. Not satisfied with contributing to those scientists with "other resources to fall back on," Geldard spearheaded a movement to come up with new guidelines for obtaining VAS research grants. Midway into his term as chair, Geldard received his commission in the armed forces, leaving the Virginia Academy of Science in 1942. Frank Vibrandt stepped into Geldard's chair and finished his term.⁶⁴ In early October of 1943, the Research Committee issued new guidelines by which grants would be awarded. The guidelines opened with the definition of science to which grant applicants should adhere. Written by Miller, the tightly construed conception held that "the ideal science is that in which by setting up certain conditions one asks a definite question of nature, and the skill with which these questions are asked determines the progress made in that particular science."⁶⁵ In explaining the purpose of the grants, the Research Committee stated:

The object of these grants is to stimulate a more active interest in research in Virginia and to promote those objects which would otherwise not be undertaken through the existing research facilities in the state . . . the grants will be used to foster new ideas and methods of experiment, to aid young and inexperienced investigators, and to encourage teachers working under conditions of limited facilities.⁶⁶

These grants, then, were aimed at stimulating and encouraging the development of science among those to whom the "doors of research" might otherwise have been closed. To avoid awarding the grants to scientists of the same educational or institutional background, the committee separated applications into four inclusive groups: the Uni-

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versity Group, comprised of those institutions offering graduate studies⁶⁷; the College Group, consisting of the four-year college programs⁶⁸; the Junior College Group, made up of two-year college programs⁶⁹; and the Miscellaneous Group, composed of high schools, preparatory schools, industrial organizations, and private individuals. Not willing to eliminate anyone from participating, the Research Committee made it clear it would consider proposals from fields other than those listed as sections in the VAS, so long as the work under consideration was scientific in nature.

The intent of the committee was that the Virginia Academy of Science would offer four types of grants. The first type, General Research Grants — of value not exceeding one hundred and fifty dollars — would go toward “keeping alive an interest in research in colleges and junior colleges” where research programs and facilities generally were restricted due to financial stringencies. These grants also would fund “unusual and advanced investigations” in the University Group where research laboratories were provided. In justifying the latter policy, the Research Committee argued:

It has been said in favor of judging requests for aid on the basis of their scientific merit alone, regardless of the institution from which they are made, that “You must take a research man where you find him.” The significance of this statement is appreciated, but the Committee also believes that “You can make a research man” by the proper encouragement and guidance of a young man of intelligence and character. It is believed that this is especially true in the South where tolerable research facilities have generally been lacking in the past. The Virginia Academy of Science hopes to offer this encouragement and guidance.⁷⁰

On the basis of this statement, one can argue that while the National Academy of Sciences and other national scientific organizations epitomized what historian Daniel Kevles calls “best-science elitism” and “political elitism” — in other words, support of the best — during wartime, the Virginia Academy of Science was calling for democratization.⁷¹

Second, two grants of one hundred and fifty dollars were allotted for student research assistants to aid in projects under the guidance of a faculty member belonging to the College Group. Established with a recognition of the heavy teaching schedules of faculty at these Virginia

colleges, the grants would enable professors to carry on "small but helpful piece[s] of investigation."⁷² For consideration for this kind of grant, the committee required that applications be submitted jointly by the faculty member and student. Third, two Educational Grants of fifty dollars, one to a professor and the other to an undergraduate or graduate student, were established to help defray either the expense of attending a scientific meeting or the cost of a research trip. Members of the College and Junior College Groups were encouraged to apply for these grants, while members of the University Group, with their state-supported research programs and concentrations of well-known scientists, were not eligible. Finally, the committee designated a Special Research Fellowship of five hundred to one thousand dollars for the "purpose of either creating some new field or establishing in Virginia some important line already developed elsewhere but hitherto unsupported in the state." With few exceptions, the applicant was required to hold either a doctorate or a medical degree. In addition, the recipient of the Fellowship needed to have received a degree from a Virginia institution or to have resided in the state for at least fifteen years. In explaining the Special Research Fellowship, the Research Committee especially invited scientists working in the fields of biophysics and biochemistry, theoretical physics, geophysics, and the "utilization of solar radiation for power purposes" to apply, for such fields involved the "cross-fertilization of knowledge" and offered "special opportunities."⁷³

Despite the new accessibility of the awards for all tiers of Virginia scientists, the Research Committee reported at the annual meeting in 1943 that for two years in succession, it had not disbursed all of the funds available for lack of applications for aid. While the Research Committee "chalked" this underuse up to the limited size of the grants, a more likely explanation might be the increasing toll of the war effort on scientists in combination with the continued emphasis on teaching rather than research by administrators within Virginia's universities and colleges. Secretary-Treasurer Miller expressed considerable concern over the growing available income of the endowment fund, remarking: "[O]ur Research Committee, good as it is, has seemed to be like a beggar sitting beside the road and accepting items dropped in a cup."⁷⁴ In considering solutions to this problem, Miller contacted the Long Range Committee on behalf of the Research Committee, inviting them "to make a study of the research needs and research facilities in Virginia."⁷⁵

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During that same meeting, in his inaugural speech President Catesby Jones outlined his major objectives for the following year, including the aforementioned request by the Research Committee. He had been impressed, he said, by the latest report of the Alabama Research Institute, whose purpose it was to "promote scientific investigations for the development of the mineral, forest, and crop resources of Alabama and the South" as well as to "make a survey of the research work being done in the State."⁷⁶ President Jones concluded by suggesting that perhaps the Virginia Academy of Science should consider forming a similar institute.

On October 9, 1943, Miller sent members of the Research Committee a list of applications for aid to be considered in preparation for the upcoming meeting on October 16 and the new proposed guidelines for research grants. Attached to these items was a letter in which he asked the group to consider two issues. First, what should be done with the available funds. Should the money be used to fund one large project or, perhaps, a full-time research fellowship? For, as Miller wrote, "it is becoming more and more obvious that new ideas will be necessary — we have some \$1,870.00 available for distribution and four applications for grants that total \$426.00."⁷⁷ Second, Miller wondered, what was the general reaction to President Jones's mention of an institute?

At the meeting on October 16, the group approved the new guidelines without hesitation before turning to Miller's concern over available funds. After intense discussion, Council reached consensus, agreeing to hold the extra funds for use after the war when additional monies could benefit those returning from the armed forces.⁷⁸ However, it was when Allan T. Gwathmey, professor of chemistry at the University of Virginia, spoke on the establishment of a Virginia Scientific Institute that the scientists grew enthusiastic. Stated Gwathmey:

[D]uring the past few years, Virginia has been making all too few contributions to the intellectual and social development of the world. We need a Research Institute in Virginia which would have two divisions: basic science and applied science; and once viable would become independent of the Academy. At the present time, regardless of the immediate difficulties we may be having as a result of the war, the world is passing from an age of scarcity to one of relative abundance. The significant factor which is making this change possible is the application of scientific

knowledge to our system of production. Only when Virginia is making significant contributions to the world of science can she play her proper role in promoting the political and social changes which are now taking place.⁷⁹

Gwathmey continued in the same vein, declaring that Senator Lloyd C. Bird of Chesterfield, a loyal member of the Virginia Academy of Science, already had pledged his support to the idea and challenging the Research Committee to consider the proposal. Finally, Gwathmey hoped, the Academy would not only initially sponsor the institute, but also would spearhead the capital campaign to raise two million dollars.⁸⁰

Not surprisingly, Gwathmey's proposal received mixed reviews, with members rather evenly divided into two camps. For example, on the one hand, scientists such as Marcellus Stow and E.C.L. Miller did not see the pressing need for such an institute, given the existing efforts of the VAS and the Southern Association for Science and Industry to promote scientific endeavors in the academic and industrial realms.⁸¹ On the other hand, Virginia Academy members W. Catesby Jones and Foley Smith were persuaded of the need for a Virginia research center, independent of educational institutions, in which scientists could work without the distractions of teaching or other duties. Gwathmey won over most of the membership when he delivered, in 1945, a "Brief Resume of Proposals for Establishment of a Virginia Research Institute." Reiterating the separation of the proposed institute into a Division of Basic Science and a Division of Applied Science, Gwathmey likened the first, with its "emphasis on fundamentals" to the Royal Institution, while the second he likened to the Mellon Institute, with its focus on solving practical industrial problems.⁸²

While the Virginia Academy did not lead the official capital campaign for the Institute, the Academy's Research Committee did donate a portion of the available endowment funds for the Institute to use in hiring its first scientist. Even though the state had not formally incorporated the Institute, by late 1946, the VAS and other supporters acted as if it had. For example, on July 1, 1947, John Strickland, professor in the biology department of the University of Richmond, was named the Virginia Institute for Scientific Research's (VISR) first full-time employee. In addition, the Virginia Academy secured temporary housing for the new VISR on the campus of the University of Richmond. Six months later, Gwathmey proudly announced to the VAS that "the Virginia In-

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stitute for Scientific Research was incorporated as an independent non-profit organization, operating under its own board of trustees, for the purpose of conducting and promoting research in the natural sciences."⁸³ Within two days, Senator Bird with the support of Senator Battle of Charlottesville introduced a bill to the General Assembly asking for a \$40,000 appropriation to cover the VISR's operational costs through 1950. In response, the Legislature allotted \$20,000 to the Institute for the two-year period.⁸⁴ Never one to fight the future, Miller praised Gwathmey's accomplishments, writing in the 1948 *Proceedings* that "...perhaps the most important accomplishment this year is the launching of the Virginia Institute for Scientific Research. It is now incorporated, independent, and functioning . . ." ⁸⁵

After lobbying the Legislature, in 1949, advocates for the new Institute secured the vacant Museum Building, also known as the Confederate Old Soldier's Home, located in the Robert E. Lee Camp Memorial Park as housing for part of its laboratory and administrative facilities. Unfortunately, Mrs. Daisy Avery, Chair of the Museum Operation Committee of the Daughters of the Confederacy (DOC), angrily proclaimed that she would ask for an injunction to halt the Institute's use of the building. Apparently, Old Sorrel, Stonewall Jackson's perfectly preserved horse, would have to be removed in order for the VISR to move into the building. After a lengthy controversy between the State of Virginia and Mrs. Avery's branch of the DOC, the battle over the horse concluded. Old Sorrel was evidently moved⁸⁶, and the VISR opened its headquarters in the Museum and offered the VAS a third-floor room for use as an office or repository.⁸⁷

Four years later, sixteen full-time scientists working with a budget of ninety thousand dollars staffed the Institute. In 1950, the Board of Trustees of the Virginia Institute for Scientific Research turned over management to the University of Richmond. By 1958, Sidney Negus boasted to Council that the budget had swelled to nearly one quarter of a million dollars with twenty-six full-time scientists on board.⁸⁸ For the next twenty years, the VISR functioned out of the University of Richmond, providing the Commonwealth, United States Government, and private industry with research data primarily in the field of marine ecology. This success was not to be lasting, however. Funding dropped as the Virginia Institute for Marine Science in Gloucester became more and more active, becoming an independent agency in 1962. The University of Richmond also began to expand and to need the space. In

1978, the Institute ceased to operate as a research facility, and in 1994, the University of Richmond decided to fully close the Institute's doors.⁸⁹

Lending financial support to the Virginia Institute of Scientific Research and offering small grants to Virginia scientists was possible because of the continued efforts on the part of the Research Committee to increase the \$12,000 endowment fund. During the 1940s, contributions to the fund continued to trickle in from the usual sources — for example Virginia businesses, civic leaders, and older members of the VAS — who were appealed to directly by the committee. In 1943, however, a new source of funding, generated by an unexpected source, appeared from outside the Commonwealth. In 1942, Gillie A. Larew of the faculty of Randolph-Macon Woman's College submitted a brief article to the college's alumnae magazine about the Virginia Academy. In glancing through his wife's copy of the magazine, the article caught the eye of banker C.M. Goethe of Sacramento, California. By the end of the year, Goethe had pledged two hundred dollars annually to the endowment fund, provided the Academy could match his donation with an even four hundred dollars.⁹⁰

Initially, it appeared as if the motivation behind Goethe's pledge lay strictly in his inability to construct two parks in the Sacramento region due to intense opposition from "men absorbed in profit-making." And as he maintained: "It is for this reason that I feel the extreme need of doing everything possible any individual can towards conservation of pure research."⁹¹ Further investigation, however, reveals a very different, and somewhat disturbing, motivation:

Of late years, we have been particularly interested in human genetics and eugenics. We prefer our own contribution go toward human genetics, or eugenics, if possible. . . Mrs. Goethe descends from Virginia forbears [sic]. I cannot forget the impact that the book "Wins" (White-Indian-Negro) had on eugenic thought. Again, probably no commonwealth in America can do more to approach the sane solution of our Negro problem. We naturally sympathize with the Southern viewpoint in this matter.⁹²

Only vague references to Goethe's interest in eugenics appear in VAS correspondence or "Minutes." Yet since the letter from which remarks quoted above are taken is located in the Virginia Academy Archives, it is likely that Council and the Research Committee, at least,

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were well-aware of the Goethes' racist views. One could argue, then, that in accepting the donation from the California banker and his wife, the Virginia Academy of Science at the very least did not stand in opposition to the Goethes' advocacy of eugenics. Given the racial tension of the times, however, the Virginia Academy's position is not surprising. While the Goethes' donations arrived throughout the 1940s, they arrived sporadically, making it difficult to pinpoint the exact amount the family actually contributed.

Along with maintaining the fiscal stability of the endowment fund, the Research Committee continued to offer special awards to deserving Virginia scientists. Beginning in 1940, an Academy Research Prize in recognition of an outstanding paper of original research was given, along with the Jefferson Gold Medals already sponsored by the Richmond scientific instrument company Phipps and Bird, Inc.⁹³ In 1944, the name of the Academy Research Prize was changed to the J. Shelton Horsley Award, a fitting memorial to the man who devoted almost eighteen years to creating and stabilizing the endowment fund. In support of the new Virginia Junior Academy of Science, which the VAS officially chartered in 1941, the Research Committee established a prize of fifty dollars — later named the E.C.L. Miller award — to recognize “outstanding work by any science club within the state.”⁹⁴ It was first presented to a small, local organization of young scientists, the Warren County Society of Scientists, Front Royal, in 1943.

In sum, the efforts of the Virginia Academy of Science to draw a wider group of academic scientists into active research, while well-intentioned in every way, were not particularly successful. In some sense, the times as well as the administrative practices of Virginia's institutions of higher education were obstacles that the Academy could not have mustered the power to overcome; yet in another sense, that very lack of influence vitiated the initiatives it did undertake. The James River Basin project, which was very well conceived in every way, lacked the impact it should have had because of the continual foot-dragging of the participants. The research grants were probably of insufficient dollar value to have attracted the scientists who most needed them — younger people from the second-tier schools. In its attempt to include everybody, it is likely that the VAS reduced the size of the grants until they attracted very few. At the same time, however, all of these efforts, coupled with the success of the Virginia Institute for Scientific Research, did indicate the Academy's keen awareness of the real need within the

Commonwealth for support for research throughout the academic institutions.

Relations with Industry:

Southern Association for Science and Industry

On March 20, 1940, George D. Palmer, a chemistry professor at the University of Alabama and a native southerner, spoke before the general membership on "Scientific Research, the Hope of the South." President Franklin D. Roosevelt had targeted the south as an industrial and economic wasteland and earlier the Southern Governors' Convention had called for economic development. In response, Palmer appealed for the establishment of a southern scientific research organization to investigate southern resources.⁹⁵ According to Palmer, the marriage of business and scientific research, supported by vast natural resources, had enabled the United States to attain its present economic power. Businessmen and academics needed to join forces to tap into the unexplored — and unexploited — resources of their region. But how to foster such cooperation? How to persuade the businessmen to invest in academic research programs? Palmer's answer was simple: first, academies of science, with their committees, sections, and journals, would actively promote the southern scientists and their research/earnings potential. Second, a new federation of southern scientists, representing the entire region, would have as its goal enlisting the interest and financial support of business.⁹⁶

Not only did Palmer's plan draw notice from several prominent state journalists, garnering him much-needed statewide support, but equally as important, his address attracted the attention of the AAAS, which published it in the July 5, 1940, edition of *Science*. Always on the watch for ways to increase scientific activity within Virginia, Secretary-Treasurer of the Virginia Academy of Science, E.C.L. Miller, immediately requested five hundred reprints of the article to distribute to the general membership. The reprints generated considerable interest within the Virginia Academy Council, compelling President Rudd to write Palmer in early July, pledging the VAS's support to the endeavor and requesting more information as to the exact nature of the proposed organization. Replied Palmer:

The question of research in the south is one which concerns all southern states. . . I sincerely believe that the

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state academies of science are doing much for the southern states, and that a Southeastern Scientific Society would greatly help us to know each other and our problems.⁹⁷

Over the next year, Palmer lobbied for the new organization, time and again pointing out that the disparity between economic growth in the north and that in the south had much to do with the trend in the former to combine business and scientific research. By spring of 1941, Palmer had persuaded both the southern state academies of science and many of the state's leading business interests to at least attend the inauguration of the Southern Association for the Advancement of Science at the Alabama Academy of Science's 1941 meeting. According to the *Journal of the Alabama Academy of Science*, "delegates from practically all the scientific organizations of the south and representatives in scientific and industrial fields of eleven southern states" — a grand total of about 150 — arrived in Mobile, Alabama, on March 20th for the two-day event.⁹⁸

The Virginia Academy of Science played an integral role in this first meeting and in the life of the Association. During the first day, Wortley Rudd presided over the first symposium titled "Scientific Work in the South," while Arthur Bevan, state geologist of Virginia and a member of the faculty of the University of Virginia, spoke on the possibilities of geological research in the South. At the first organizational meeting of the Southern Association for the Advancement of Science (SAAS), Rudd was elected president.⁹⁹ The SAAS set as their goal to address the question of why the south, with "vast supplies of human and material raw products, could not use these resources to become as prosperous as other sections of the Nation."¹⁰⁰ Furthermore, the group agreed to foster cooperation — conceived of as supporting economic development — between the various industries and institutions of higher education to help slow the outflux not only of the raw materials that the south exported but also of the young college graduates, who left to go to other regions of the United States where professional opportunity was greater.

Over the next year, Rudd, Palmer, and other members of the Executive Committee corresponded frequently, as they defined the formal goals of the organization and the strategy by which they might be achieved. Of particular influence on Rudd was a letter he received from professor emeritus of chemistry at Johns Hopkins University, Emmett Reid. A childhood friend of Rudd's, Reid offered sage advice for the

future development of the south. "To get industrial research to come down South, university research must be built up . . . Ph.D. work must be enlarged and encouraged so that Virginia offers more than six doctoral programs."¹⁰¹ Indeed, with the exception of doctoral programs at the University of Virginia and Virginia Polytechnic Institute, Virginians were forced to look outside their state for the Ph.D.

In his opening address of the second SAAS, which was sponsored by the Georgia Academy of Science in April 1942, Rudd set forth the agenda. "One of our primary objectives," he announced, "is to improve the educational facilities of the south so that our boys and girls may be able to get adequate training in research and the sciences in southern institutions. This will require the expenditure of many millions in the construction of laboratories and the establishment of research libraries and other research facilities." Furthermore, in order for southerners to fully appreciate the resources available and possible opportunities for their region, it is "proposed that the south study itself, through the schools." To achieve such ends, the SAAS is developing curricula which it hopes to have "universally adopted in southern curricula." Second, Rudd explained, without adequate facilities, scientists cannot be expected to discover new and exciting ways to utilize the region's raw materials in the manufacture of finished goods. "Technological research creates new finished-goods industries. SAAS would encourage the south to provide facilities for a constant and intensive study of its resources so that finished goods, and not the furnishing of raw materials, may be its source of wealth." Third, reported Rudd, the SAAS will undertake: "an inventory of southern resources" in which "agricultural and climatic resources, education, finance, fisheries, forest, labor, manufacturing, markets, minerals, power, research, transportation, water, and specialized human resources, such as managerial, scientific, and economic." Finally, promised Rudd, the SAAS would fight to quell the post-war conversion of defense plants that would facilitate economic prosperity of one region of the nation and not others.¹⁰²

Following Rudd's address, Eugene Talmadge and Frank Dixon, governors of Georgia and Alabama, pledged their support for the Association.¹⁰³ Although the SAAS was organized primarily by southern scientists, the symposiums, such as "Conservation of One of the South's Major Crops — Its Forests"; "The Teaching of Science in the Secondary Schools of the South"; "As Others See Us"; and "Role of Scientific Re-

search in Development of Natural Resources of the South" reflected the interests of both academics and business. This was not to be the case for long, however. Businessmen, including Lloyd C. Bird, a member of the VAS and chair of the scientific instrument firm Phipps and Bird of Richmond, Virginia, dominated the meeting. Judging by the Executive Committee's decision in 1942 to change the name of the SAAS to the Southern Association for Science and Industry (SASI), business interests wanted center stage.¹⁰⁴

It did not take long for SASI publicity to sound "like a Chamber of Commerce for the entire South." In his speech as President-elect, Bird proclaimed that "God grant that science and industry, linked together in a common cause will, with the cooperation of other forces, make Jefferson's assertion that 'the mass of mankind was not born with saddles on their backs' a living truth. . . ." ¹⁰⁵ Responding to this and other proclamations of unity, Miller sent a letter of concern to Stow, chair of the Committee on Resources of Virginia for the VAS, skeptically and, arguably critically, remarking that the SASI was:

obviously 'big business'... There is not one line or one thought as to who is to profit by the businesses involved in the SASI or as to how profits are to be distributed. Apparently, it is just assumed that they will go to 'the right persons' just as they went in the gay 1920s until one third of our people are again without adequate food, clothing, or shelter or are on relief; then again a collapse and widespread misery followed by a third war.

To what extent, he queried, should the VAS affiliate with such a policy?¹⁰⁶

Others echoed the skepticism of Miller, especially in 1944 when the Association retained a public relations expert and moved its headquarters from Alabama to Richmond, Virginia, the home city of Lloyd C. Bird. For while the Association issued statements of concern for southern education¹⁰⁷ and pledged financial support to university and college research programs, its real commitment lay in attracting the experts and research laboratories of businesses to the region.¹⁰⁸ Despite the active participation of the VAS's own Bird, the Virginia Academy slowly lost interest in the organization, as it increasingly served the needs and interests of those scientists and industrialists outside the academic world.

Virginia Junior Academy of Science

Efforts towards improving science education continued to be a major impetus for action within the Virginia Academy of Science. Not only was the Committee on Science in the Public Schools constantly seeking to improve the level of science education for teachers and students, but also committees such as Research and Long Range Planning considered ways in which they might elevate and improve the status of science education. However, the new decade was to be characterized by an effort of a different sort: the evolution of a junior academy of science. While the official authorization statement of the Junior Academy of Science by the Virginia Academy of Science carries the date June 30, 1940, its true roots extend to the 1938 meeting of the American Association for the Advancement of Science held in Richmond, Virginia.¹⁰⁹ In discussing how to promote science at the annual Academy Conference, members of the Committee on Science in the Public Schools of the VAS learned of the recent rise in other states of high-school science clubs, several of which were organized into Junior Academies of Science by the respective state academies of science.¹¹⁰ While the majority of new Junior Academies of Science were sponsored by academies in the midwest, in the east the VAS found especially interesting the Science Club sponsored by the American Institute of Science and Engineering of New York City (AISE). Managed by trustee H.H. Sheldon, this multidisciplinary Institute had as a primary goal the encouragement of new science clubs throughout the nation, and accordingly pledged their services to the Virginia Academy of Science should it consider establishing a science club.¹¹¹

Over the Christmas holiday, President-elect Ruskin Freer appointed a committee, chaired by Lloyd Bird, to “study the place of science in the high schools” and present recommendations to Council on the advisability of a Virginia Academy-supported science club or junior academy.¹¹² The committee adopted a two-pronged strategy. First, Bird and his group decided to establish the number of existing science clubs in the Commonwealth and determine the degree to which high-school teachers were interested in the science club movement. With the help of the Virginia Department of Education and the Virginia Education Association, the committee sent a letter — signed by Fred Alexander, State Department of Education, Francis Chase, Executive Secretary of the Virginia Education Association, and Lloyd Bird — and questionnaire to seven-hundred high-school principals in the state. The response was

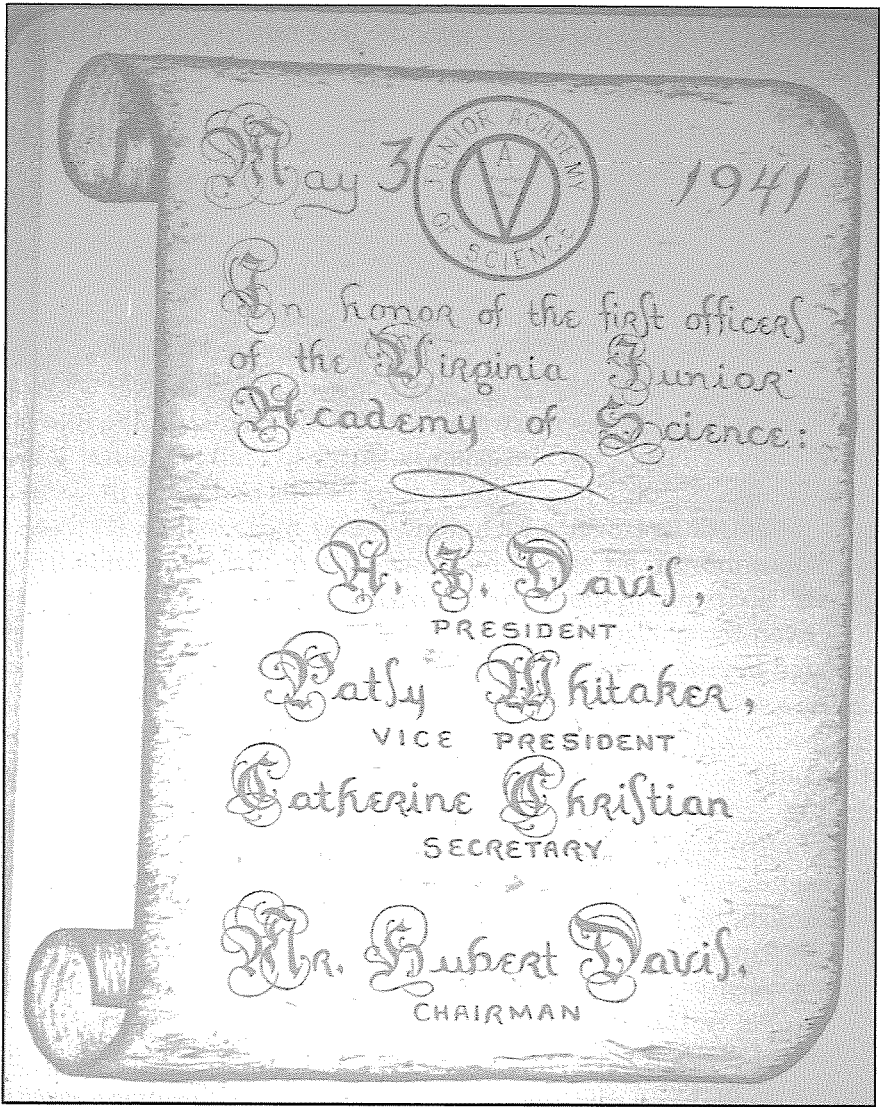
positive: fifty science clubs already were in operation and about fifty high-school principals and teachers indicated strong support for more. Tangentially, the committee, supported by President Freer, issued a statement to all members of the VAS in which the establishment of science clubs was listed as a new objective of the Virginia Academy of Science.¹¹³

As the second stage of the strategy, the committee sought to bring the issues of science clubs to not only educators, but also to the public at large. To this end, E.C.L. Miller arranged to be keynote speaker for the October meeting of the Virginia Education Association, addressing the audience on "Why A Science Club." Following Miller's positive reception, the Virginia Academy of Science sponsored H.H. Sheldon of the American Institute of Science and Engineering to deliver a speech on the many benefits of science clubs before the Thanksgiving meeting of the Virginia Education Association. After his talk, Sheldon joined President-elect George Jeffers and Sidney Negus to discuss the science club movement live over a Richmond-based radio station (WRVA).¹¹⁴ That same month, an article by Jeffers titled "Science Clubs in the Schools" appeared in the *Virginia Journal of Education*.¹¹⁵

Given the enthusiasm generated thus far, the committee felt encouraged in January of 1940 to ask the State Department of Education to issue a second letter to the high schools extolling the value of science clubs as an important supplement to science education.¹¹⁶ Shortly thereafter, committee member Hubert Davis contacted the science club sponsors, inquiring whether or not they would be interested in a Virginia Academy-sponsored Junior Academy.¹¹⁷ Their overwhelmingly positive response led the Virginia Academy to invite the sponsors to the annual meeting at Virginia Military Institute.

Anticipating detailed questions concerning the exact nature of a junior academy from the sponsors and the Academy members, the VAS invited Otis W. Caldwell, Director of the Junior Academy Program in the United States for the AAAS, to address their concerns. Caldwell's affirmation of junior academies coupled with the recommendations of Bird's committee encouraged Council to accept the motion made by George Jeffers and seconded by Rodney Berry to authorize the formation of a Junior Academy, "leaving the details to the incoming president of the Academy and to the Council."¹¹⁸ The new President, Wortley F. Rudd, set the first organizational meeting for June 5, 1940.

To provide guidance for the new Junior Academy, President Rudd and those present at the June meeting — Miller, Bird, Jeffers, Davis,



Charter of the officers of the first Virginia Junior Academy of Science meeting, held on May 3, 1941, at the George Wythe Junior High School building in Richmond, Virginia.

and Negus — instituted a Junior Academy Committee divided into two groups: an organization committee, composed of science club sponsors, and a sponsoring committee, comprised of members of the Virginia Academy of Science.¹¹⁹ During the next eleven months, the Junior Academy Committee outlined a working constitution, established membership guidelines for science clubs, printed the charter of the junior academy, and developed a working relationship with the Long Range Planning Committee.¹²⁰ Finally, the Junior Academy Committee spelled out the three chief objectives of the new organization:

1. To discover and develop scientific ability through science clubs in secondary schools
2. To foster fellowship among its members and the members of the Virginia Academy of Science
3. To develop a background among its members which will eventually result in leadership in the Virginia Academy of Science.¹²¹

On May 3, 1941, Chairman Hubert Davis convened the first annual meeting of the Virginia Junior Academy of Science at the George Wythe Junior High School Building in Richmond. Called together in conjunction with the meeting of the Virginia Academy of Science, seventeen affiliated clubs were present — their membership totaling over two hundred high-school students. The impressive turnout — coupled with events such as the address of keynote speaker Austin Clark (Curator of Echinoderms at the United States National Museum), the Science Quiz Program in which students from various high schools answered questions over the radio, and the morning and afternoon sessions of the Junior Academy — ensured a successful first meeting. Seeking to expand the potential of the Virginia Junior Academy of Science (VJAS), at the annual business meeting, Council agreed to affiliate the VJAS and its member clubs with the American Institute of Science and Engineering. Within the affiliation, the American Institute pledged to “conduct all business with Virginia clubs through the Junior Academy organization, to help finance the organization, and to cooperate in any way possible in promoting science club activities.”¹²²

A mere six months later, the Virginia Junior Academy of Science received disheartening news: the American Institute withdrew all support for science clubs outside the City of New York in order to support the burgeoning national organization, Science Clubs of America.¹²³ At its Council meeting in January of 1942, the VAS decided for the time

being to forego affiliation with Science Service — a national organization devoted to offering administrative assistance to local and regional junior science clubs — opting instead to provide “in-house” financial and administrative support for the twenty-one science clubs — approximately five hundred members — affiliated with the Junior Academy of Science. This policy lasted one year. By the end of January 1943, Sidney Negus had negotiated an acceptable agreement between Science Clubs of America and the Virginia Junior Academy of Science. The new policy provided any science club in Virginia with joint membership in the two organizations upon affiliating with either one. Thus, the young members could receive both the attendant benefits of an esteemed national club as well as state-wide support.¹²⁴

While wartime restrictions prohibited annual meetings in 1943, 1944, and 1945, the Virginia Junior Academy of Science Committee continued to explore the nature of its mission. Instrumental in his efforts to keep the VJAS and science education in Virginia moving forward, chair Hubert Davis worked tirelessly throughout these three years. Not only did Davis continue to impress upon the high-school students throughout the state the necessity of entering such contests as the National Talent Search, but he also continued to recommend to Council ways to improve science education and the Junior Academy. Encouraged by the Research Committee’s annual prize (beginning in 1943) of fifty dollars to an outstanding science club, Davis asked Council to consider establishing new awards, including “a scholarship to be awarded to a science club sponsor for the most outstanding work with a science club during each year. That this scholarship be large enough to enable the sponsor¹²⁵ to attend some outstanding institution and do graduate work for a full summer in the field of science.”¹²⁶ Several years later in 1946, Davis’s suggestion to award the sponsors began to bear fruit: science supporter A. R. Nance partially funded a seventy-five dollar scholarship; the University of Virginia donated sixty dollars to the Mountain-Lake Service Fellowship; and William and Mary fully funded the one-hundred-dollar Donald D. Davis scholarship.

At the same time Davis championed another goal: the organization of a Virginia Science Talent Search. Only one year later, Council gave authorization, stating:

in the event national legislation is enacted to aid in education of young scientists, the Virginia Science Talent Search experiment, if it has accomplished nothing else, will

Hubert J. Davis, science instructor in several Virginia public schools and the driving force behind the Virginia Junior Academy of Science, was named Science Educator of the Year at the Tidewater Regional Science Fair in 1988.



have demonstrated the progressive attitude of the State Department of Education, the Virginia Education Association, the City of Richmond proper, and the Virginia Academy of Science toward science education at the high-school levels.¹²⁷

Interested high-school students were interviewed at the newly established Regional Science Open Houses, held at various universities and colleges throughout the state to promote "science in action" through lectures, laboratory visits, and exhibits. The early success of this program can be measured by the fact that by its second year, in 1948, each of the fifteen top candidates received assistance in obtaining scholarships at various colleges.¹²⁸

When Davis resigned as chair of the VJAS Committee in 1947, twenty-four schools were members, represented by eighteen science clubs and sixteen sponsors, and more than five hundred student members participated in the VJAS. In order to reach these students within their individual high schools, the VJAS Committee, chaired by F. G. Lankford in 1948 and Boyd Harshbarger in 1949, instituted the Speaker's Bureau to compile lists of available speakers from the academic and industrial fields to address interested high schools throughout the state.



Participants in the Virginia Junior Academy of Science meeting of May 8–9, 1942, stand in front of the Hotel Roanoke, Roanoke, Virginia.

While the idea was sound, implementation was difficult. Often, such speakers were objected to by high-school principals claiming that the speakers tried to “sell the idea of science to high-school students” as opposed to having the students “naturally” come across scientific ideas in textbooks and through classroom lectures. By 1951, chair of the Bureau, S.S. Obenshain of Virginia Polytechnic Institute reported to the VAS that “quite often the opportunity to make use of a competent speaker was simply ignored.” Despite such a cool reception, the VJAS Committee decided to continue the Speaker’s Bureau well into the new decade.¹²⁹

In its efforts to create and then to sustain the Junior Academy of Science, the VAS revealed what was best about itself. It is obvious from this case that a genuine interest in and commitment to science education characterized the Virginia Academy. The effort to develop the Junior Academy required two key pieces to be in place: a leader of consid-

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erable vigor within the Senior Academy, which was certainly true of Hubert Davis's role in this matter, and a receptive and cooperative group outside the VAS with which to work, which the teachers readily supplied.

Science Museum of Virginia

If the VAS's interest in science education was deep and abiding, so too was its commitment to a museum of science that would be one of the arms of a state-wide effort to help with the public understanding of science. Beginning in 1933, the Virginia Academy of Science began what would turn out to be its long campaign to establish just such a museum. As first Chair of the Museum Committee, George Jeffers set a precedent during the 1930s, with his tireless efforts to persuade the General Assembly of the benefits of a state museum of science. Jeffers' lobbying had no effect, however, which is not surprising, given the essentially rural character of the Commonwealth and its adherence to the tenets of the "Byrd Machine." It was not until the early 1940s, when the beginnings of the war effort made apparent the power of science and technology, that such efforts had much of a chance to bear fruit.

In early 1941, the Museum Committee led by President Rudd, President-elect George Jeffers, and W.T. Sanger, President of the Medical College of Virginia, mounted another campaign, contacting individual political leaders throughout the Commonwealth. Jeffers took the lead, writing to then-Congressman Colgate Darden of Norfolk, an announced candidate for the governorship. "Mr. Darden," began his letter of February 3, "In thinking about your plans for the future progress of Virginia, I hope you will be able to consider the advisability of a State Museum of Science." Jeffers continued, pledging the Virginia Academy's support to the proposed endeavor and ending by stating "I am not writing any other candidate."¹³⁰ Darden immediately responded, thanking Jeffers for his letter and expressing his high regard for the ideas of the Virginia Academy of Science.¹³¹ President Sanger followed suit in a letter dated February 12, outlining for Governor James Price the importance of establishing a "great museum for Virginia."¹³²

Yet it was not until George Jeffers successfully enrolled Senator Robert K. Brock of Farmville that members of the legislature seriously considered the idea of a science museum. A self-proclaimed "patron of science," by February 16, 1942, Senator Brock had corralled enough votes

to pass Senate Joint Resolution #19, authorizing the creation of a "State Commission on the Advisability of Establishing a State Museum of Science. . . to consist of one member of the Senate to be appointed by the President of the Senate, one member of the House of Delegates to be appointed by the Speaker of the House of Delegates, the President of the Virginia Academy of Science, and two persons appointed by the Governor."¹³³ Senator Brock and Delegate Henry Johnson of Hylas represented the legislature, while newly-elected Governor Darden appointed George Jeffers and William Sanger. Acting President of the Virginia Academy of Science Marcellus Stow also served. The new commission chose Jeffers as chair and Sanger as secretary.

One year later, the commission presented the fruits of their labor to the governor and the General Assembly.¹³⁴ Based on data culled from all major science centers or "museums"¹³⁵ in the South, numerous correspondence with Vail Coleman, an expert in Museum Studies at the Smithsonian Institution, and a public hearing held in the State Capitol on July 22, the commission recommended that "the State of Virginia establish an independent institution, with its own board of trustees, to be known as the Virginia Museum of Science. . . ." Further, the commission concluded that the new science museum should be located in Richmond, "preferably in the area of the Capitol Square" and that "a board of nine trustees be provided for the new museum." Last, the commission requested the state appropriate \$125,000 for construction of the building and equipment, \$25,000 annually for operation and maintenance, and \$50,000 for the new building site.¹³⁶

In describing their conception of the proposed science museum, the commissioners stressed function, projecting that the "older, curiosity of museum where exhibits are 'stored' is outmoded." A modern museum of science needed to be a science center, "a veritable beehive of activity" for all ages. Young students needed to be fully cognizant of the natural resources of Virginia, and educational exhibits and programs held at the museum could accomplish such ends. In addition, considerable outreach to citizens of the state could be effected through travel exhibits, publications, group trips to the museum, and other related activities. Finally, the commissioners pointed out that "many science and education departments of the Virginia government, university and college professors in general, and businesses whose livelihood were tied to the successful promotion of science and technology could be counted upon to cooperate with ideas, exhibits, [and] patronage."¹³⁷

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Given the high praise the commission's report received, one might expect the legislators to take immediate action. Yet three years passed before the unanimous recommendations of the commission were even accepted by the General Assembly and nearly twenty more before overtures were made toward fulfilling the recommendations of these commissions. The Museum Advisory Commission, appointed by Governor Tuck, first met in November 1946. Among those in attendance, Hanmer, Jeffers, and Ivey Lewis discussed the director and acquisitions and listed some 24 individuals who might serve on an advisory board for the museum.¹³⁸

There is in the archives and the oral history no hint as to why this apparently successful effort simply stopped. One very likely reason is the deflection of so many people's energies because of the effort called forth by World War II. The war itself changed the face of Virginia more than anyone might have imagined in 1943; the returning veterans, who poured into the universities in great numbers, changed the nature of higher education. Mature, earnest, determined in their pursuit of the education they had earned by virtue of their service to their country, they were a kind of student new to Virginia professors, who found their energies absorbed by the educational demands. The younger, newer members of the professoriate, some of whom had the advantage of working for or studying with the European scientists who had fled Nazism, had very high expectations of themselves and their universities in terms of research. Another very likely reason is a tight state budget, placing funding for a museum on the back burner. It is probable, then, that these factors combined to push the project of the science museum far into the background. It was not, however, entirely forgotten, and the museum's time finally would come as the decade changed.

VAS and Race

By the 1940s, racial inequities had become an issue within the southern culture, especially within the realm of education. As a mirror of the larger Virginia society, the Virginia Academy of Science reflected a membership which although it sounded receptive to black participation — indeed, it sounded encouraging of the potential membership of African-American scientists — did not support such claims with concrete actions. In 1944, responding to Alabama Academy of Science's President Ernest V. Jones's query whether or not blacks were prohib-

ited from membership, Miller replied that there never had been a "policy as such." From time to time, papers had been read by "colored persons," yet there did not exist a way to determine how many blacks were members of the Academy. Miller continued by indicating that some social functions that mixed blacks and whites had created slight problems, but assured Jones that "in recent years we have been getting away from such occasions."¹³⁹

Obviously, Miller gave Jones's inquiry serious consideration, for only one week later he wrote again, relaying a recent conversation with Garnett Ryland, faculty member of the University of Richmond and a leader in the Interracial Commission of Virginia. According to Ryland, the best policy would be to "go along and treat colored people just as you would treat anyone else and not do much talking." Although committed to reform, Ryland further advised: "[W]hatever you do or do not do, it will be a long and slow process . . . I know of no White person here in Richmond who is disturbed the slightest because the railroads charge colored people first-class fares and give them second-class service."¹⁴⁰ Finally, Ryland criticized the attitude of the majority of southern people, commenting that "it will be humiliating when the Supreme Court comes along and tells the South how to behave. . . . Everyone goes blythly [sic] along and completely ignores it [inherent southern racism]. Against such a smug moral vacuum, I fear yours [the Virginia Academy of Science and the Alabama Academy of Science] would be a voice crying in the wilderness."¹⁴¹ Miller seemed to approve of Ryland's suggestion to quietly treat "colored" folk with the same decency as "anyone else."

Miller shared his correspondence with Sidney Negus, revealing his surprise that Alabama still did not accept "Negro members."¹⁴² Science, he challenged, should take the lead in helping with the racial problem. Clearly, Miller and others in the Academy felt that their organization should be inclusive, easing the tensions of the "racial problem," rather than exacerbating them. However, in advocating a "don't ask, don't tell policy," the VAS exemplified the attitude of the norm rather than that of an association willing to charge forward in the face of injustice. Miller's inability to account for the number of African Americans in the organization belies an ignorance that was certainly by choice. With only several black institutions of higher education in Virginia, the race of members drawn from their faculty would have been apparent. Furthermore, racial tensions were so great in Virginia in the 1940s, that

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any black participation would have been noted. For example, a letter from Lubow Margolena Hanson to Foley Smith written in 1949, several years after Miller's correspondence with Jones, asked: "Will you please let me know whether an attempt has been made to arrange the Yearly Meetings of the Academy at a place where all members could meet and visit without embarrassment?" A handwritten note attached to the letter indicated that she was a "Negro member."¹⁴³ Hanson's letter also underscored the perennial difficulty in finding lodging and dining facilities for African Americans in a legally segregated state. A real commitment on the part of the Virginia Academy of Science to including black members would be reflected by a paper trail in support of locating suitable accommodations. Such evidence is not available.

This is not to argue that the VAS did not make gestures towards inclusion. Indeed, in 1949, Morgan E. Norris, a black professor of medicine at Virginia Union University (VU) wrote to state chemist J. C. Jones asking for a statement attesting to the fact that the VU science department was in need of new equipment. As state chemist, Jones felt it would be unethical for him to write the requested statement, so he forwarded the letter to Harshbarger. One week later, Harshbarger contacted Norris, writing:

I was interested to learn of your activities in furthering science among the Negro race. The success which the Negro has made in science in Virginia has been phenomenal ... We in the Virginia Academy of Science have never distinguished according to race.... In visiting Virginia Union, I was impressed with the vigor and quality of work of this group ... a strong science department at Virginia Union might be the stimulus needed to produce another Carver and to give the race the recognition due them.¹⁴⁴

Viewed in context, Harshbarger's words of praise were an honorable and well-meaning attempt at racial equality. Indeed, affirming comments emphasizing the accomplishments of African Americans are so rare from this period of Virginia's history that Harshbarger's intent — though patronizing to late twentieth-century ears — must have been of the highest order.

Reflections: 1940–1952

As this period drew to a close, the VAS was heading into an era of civic and racial strife within the Commonwealth. Certainly there were

gains to be capitalized upon: the James River Basin project was a significant achievement, the VJAS was an exciting and successful venture, and the Academy itself had survived this turbulent period. The failure to boot home the science museum did not seem to be of major concern, but, given the early evidence of political support, the museum still had the potential for being realized. But the small cloud of which the correspondence among Miller, Ryland, and Jones gave evidence was, in fact, the herald of a coming storm.

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- ¹¹ Jeffers, "A History of the Virginia Academy of Science," p. 31. Also Paul Siegel to Charlotte Webb, Interview, March 26, 1995. Blacksburg, Virginia.
- ¹² William Ham to Charlotte Webb, Interview, March 5, 1995, Richmond, Virginia.

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- ¹³ *Proceedings of the Virginia Academy of Science, 1940–41*, p. 208. Special Collections, Virginia Tech.
- ¹⁴ *Proceedings of the Virginia Academy of Science, 1947–48*, p. 17; in 1948 membership reached 1007. Special Collections, Virginia Tech.
- ¹⁵ Jeffers, "A History of the Virginia Academy of Science," p. 31.
- ¹⁶ *Proceedings of the Virginia Academy of Science, 1941–42*, pp. 193–94. Special Collections, Virginia Tech.
- ¹⁷ *Ibid.*, p. 198.
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- ¹⁹ Samuella Crim, "Report on the Science Teachers Section," 1950. Special Collections, Virginia Tech.
- ²⁰ Ruskin Freer was a professor at Lynchburg College and Robert Carroll a Lieutenant Colonel at Virginia Military Institute. For a biographical piece on Carroll, see Dean Foster, "Colonel Robert Patrick Carroll: A Retrospective," *VMI Alumni Review* (Spring, 1994).
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- ³² "Minutes of the Long-Range Planning Committee Subcommittee on the *VJS*."
- ³³ "Minutes of the VAS Council," May 1943. Special Collections, Virginia Tech.
- ³⁴ Boyd Harshbarger, "The History of the Virginia Journal of Science," p. 14, unpublished manuscript, 1960. Special Collections, Virginia Tech.
- ³⁵ Ivey Lewis to members of the VAS, April 15, 1946. Special Collections, Virginia Tech.
- ³⁶ The Virginia Journal of Science Committee was composed of Robert Brumfield, Alfred Burger, Paul Patterson, Wilber Schael, and Ladley Halsted.
- ³⁷ *Proceedings of the Virginia Academy of Science, 1946–47*, p. 34. Special Collections, Virginia Tech.
- ³⁸ *Ibid.*
- ³⁹ Harshbarger, "The History of the Virginia Journal of Science," p. 20.
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- ⁴⁰ The first issue of the new series was dated January 30, 1950. Edited by Boyd Harshbarger, the Graphic Arts Department of the *Radford News Journal* printed the edition.
- ⁴¹ George Jeffers, "A State Academy Charts Its Course," *Scientific Monthly* (1943), p. 5. Special Collections, Virginia Tech.
- ⁴² *Ibid.*
- ⁴³ Wortley F. Rudd, Sidney Negus, and E.C.L. Miller to Membership of the Virginia Academy of Science, 1940. Special Collections, Virginia Tech.
- ⁴⁴ Long Range Committee to VAS membership, October 25, 1940. Special Collections, Virginia Tech.
- ⁴⁵ Members of the new committee who were present at this meeting were Prof. Arthur Bevan, Lloyd Bird, Prof. Julian Burruss, Francis Chase, Justus Cline, Prof. Frank Geldard, Prof. William Hanlan, Dr. Shelton Horsley, Prof. George Jeffers, Catesby Jones, Prof. Ivey Lewis, Prof. E.C.L. Miller, Robert Nelson, Prof. Sidney Negus, Prof. Garnett Ryland, Prof. A. Updike. Members not present were Raymond Bottom, Virginius Dabney, Dr. Meta Glass, Dr. Sidney B. Hall, and R. M. Sanford. Cited in Long Range Committee to VAS membership, October 25, 1940. Special Collections, Virginia Tech.
- ⁴⁶ The names and positions of the consultants are: Van Bohson, Director of Research, the DuPont Company, Waynesboro; Austin Clark, Curator of Echinoderms, Smithsonian Institution; Colonel Edwin Cox, Manager of the Chemical Division, Virginia-Carolina Chemical Corporation; Hubert Davis, high school science teacher, Williamsburg; Julius Fishburne, President, Times-World Corporation, Roanoke; Dr. Douglas Freeman, Editor, *Richmond Times Leader*; Colonel Julien Hill, President, State-Planters Bank and Trust Company, Richmond; Mrs. John Littlepage Ingram, Richmond; Dean H. E. Jordan, Department of Medicine, University of Virginia; Prof. Gillian Larew, Mathematics Department, Randolph-Macon Woman's College; Prof. R.E. Loving, Physics Department, University of Richmond; Mrs. Stuart McGuire, Richmond; E.W. Magruder, Chief Chemist, F.S. Royster Guano Company, Norfolk; Elis Olsson, President Chesapeake Corporation, West Point; Dr. I.C. Rikken, State Commissioner of Health; President W.T. Sanger, Medical College of Virginia; Allen Saville, President, Allen J. Saville, Inc.; James Smith, physician, McGuire Clinic, Richmond; Aubrey Straus, retired, Richmond; L.M. Walker, Jr., State Commissioner of Agriculture; Robert West, Director, Bureau of Industrial Research, University of Virginia; and Prof. I.D. Wilson, Biology Department, Virginia Polytechnic Institute.
- ⁴⁷ Jeffers, "A State Academy Charts Its Course," p. 8.
- ⁴⁸ Justus Cline to Long Range Planning Committee, 1941. Special Collections, Virginia Tech.
- ⁴⁹ At that time, these counties were: Highland, Bath, Allegheny, Craig, Giles, Montgomery, Roanoke, Botetourt, Rockbridge, Augusta, Bedford, Amherst, Nelson, Albemarle, Greene, Orange, Louisa, Fluvanna, Buckingham, Appomattox, Campbell, Prince Edward, Cumberland, Goochland, Powhatan, Amelia, Nottoway, Dinwiddie, Chesterfield, Henrico, Hanover, New Kent, Charles City, Prince George, Surry, James City, Warwick, Elizabeth City, Isle of Wight, Nansemond, Norfolk, Princess Anne.

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- ⁵⁰ "Report of the Special Committee on the James River Project," May 1, 1941. Special Collections, Virginia Tech.
- ⁵¹ "Minutes of the Research Committee," April 5, 1941. Special Collections, Virginia Tech.
- ⁵² "Report of the Special Committee on the James River Project."
- ⁵³ *Ibid.*
- ⁵⁴ *Proceedings of the Virginia Academy of Science, 1940-1941*, pp. 162-63. Special Collections, Virginia Tech.
- ⁵⁵ As quoted in Jeffers, "A State Academy of Science Charts Its Course," p. 10.
- ⁵⁶ "Senate Bill No. 200," Monday, February 16, 1942. Special Collections, Virginia Tech.
- ⁵⁷ Marcellus Stow to Virginia Academy of Science, April, 1942. Special Collections, Virginia Tech.
- ⁵⁸ Chronological outline of James River Project, no date. Special Collections, Virginia Tech.
- ⁵⁹ *Ibid.*
- ⁶⁰ "Report of the James River Committee to Council," May 1949. Special Collections, Virginia Tech.
- ⁶¹ Chronological outline of James River Project. Also in Sidney Negus, "The James River Project," *VJS* (1950), pp. 194-195. Special Collections, Virginia Tech.
- ⁶² Jeffers, "A State Academy of Science Charts Its Course," p. 10.
- ⁶³ E.C.L. Miller to Frank A. Geldard, April 11, 1941. Special Collections, Virginia Tech.
- ⁶⁴ "Virginia Academy of Science: A Review of the First Ten Years of the Research Committee, 1929-1938," 1939. Special Collections, Virginia Tech.
- ⁶⁵ E.C.L. Miller to Richard Hoffman, November 28, 1945. Special Collections, Virginia Tech.
- ⁶⁶ "Suggestions for the Awarding of Research Grants by the Virginia Academy of Science," 1942. Special Collections, Virginia Tech.
- ⁶⁷ At the time, this group consisted of the Medical College of Virginia, University of Virginia, University of Richmond, Washington and Lee, and Virginia Polytechnic Institute.
- ⁶⁸ At the time, this group consisted of Bridgewater, Emory and Henry, Hampden-Sydney, Hollins, Lynchburg, Mary Baldwin, Randolph-Macon, Randolph-Macon Woman's College, Roanoke College, Sweetbriar, Virginia Military Institute, William and Mary, Farmville State Teacher's College, Madison State Teacher's College, Radford State Teacher's College, Hampton Institute, Virginia State Teachers College, Virginia Union University, and Martha Washington.
- ⁶⁹ This group consisted of Averett, Blackstone, Bluefield, Eastern Mennonite, Fairfax Hall, Marion, Shenandoah, Southern Seminary and Junior College, Stratford, Sullins, and Virginia Intermont.
- ⁷⁰ "Suggestions for the Awarding of Research Grants by the Virginia Academy of Science," 1942.
- ⁷¹ See Daniel Kevles, *The Physicists: The History of a Scientific Community in Modern America* (New York: Knopf, 1978).

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- ⁷² "Suggestions for the Awarding of Research Grants by the Virginia Academy of Science," 1942.
- ⁷³ "Suggestions for the Awarding of Research Grants by the Virginia Academy of Science," October 9, 1942. Special Collections, Virginia Tech.
- ⁷⁴ E.C.L. Miller to Otis Caldwell, June 24, 1943. Special Collections, Virginia Tech.
- ⁷⁵ E.C.L. Miller to Long Range Committee, June 24, 1943. Special Collections, Virginia Tech.
- ⁷⁶ *Proceedings of the Virginia Academy of Science, 1943–44*. Special Collections, Virginia Tech.
- ⁷⁷ E.C.L. Miller to Members of the Research Committee, October 9, 1943. Special Collections, Virginia Tech.
- ⁷⁸ R.J. Main to E.C.L. Miller, November 19, 1943. Special Collections, Virginia Tech.
- ⁷⁹ *Proceedings of the Virginia Academy of Science, 1945–46*, pp. 42-43; *Proceedings of the Virginia Academy of Science, 1946–47*, pp. 42-43. Special Collections, Virginia Tech.
- ⁸⁰ *Proceedings of the Virginia Academy of Science, 1944–45*, p.18; *Proceedings of the Virginia Academy of Science, 1945–46*, pp. 41-43. Special Collections, Virginia Tech.
- ⁸¹ Marcellus Stow to E.C.L. Miller, November 24, 1943. Special Collections, Virginia Tech.
- ⁸² Allan T. Gwathmey to Members of the Virginia Academy of Science, "Brief Resume of Proposals for Establishment of a Virginia Research Institute," 1945. Special Collections, Virginia Tech.
- ⁸³ *Proceedings of the Virginia Academy of Science, 1947–48*, p. 23. Special Collections, Virginia Tech.
- ⁸⁴ *Proceedings of the Virginia Academy of Science, 1947–48*; Sidney Negus, "Statement Concerning the Virginia Institute for Scientific Research before the General Laws Committee," January 30, 1958. Special Collections, Virginia Tech.
- ⁸⁵ *Proceedings of the Virginia Academy of Science, 1947–48*, p. 15.
- ⁸⁶ Attempts to track the whereabouts of the horse led to the discovery that he languished in isolation at VMI, somewhat to the surprise of the staff members there. It may be assumed that VMI's sense of history rose to the occasion, since on July 21, 1997, the *Hampton Roads Daily Press* headlined "Jackson Horse Buried at VMI a Century after Death." The remains were interred with "full honors."
- ⁸⁷ *Virginia Journal of Science*, New Series, I (1950), p. 298. Special Collections, Virginia Tech. For information on the history of Old Sorrel around that time, see "Fate of 'Old Sorrel' May Stir Battle in Confederate Circles," *Richmond Times-Dispatch*, December 30, 1948. See also "Little Sorrel," *Bristol Herald-Courier*, April 10, 1949.
- ⁸⁸ Sidney Negus to Council, January 30, 1958. Special Collections, Virginia Tech.
- ⁸⁹ Data from Cheryl Lewis and Herb Peterson, August 26, 1996. Business Office, University of Richmond. .
- ⁹⁰ C.M. Goethe to President Theodore H. Jack, December 3, 1942. Special Collections, Virginia Tech.
- ⁹¹ *Ibid.*
- ⁹² *Ibid.*

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- ⁹³ Walter Flory, "History of the Research Committee," no date. Special Collections, Virginia Tech. As recounted in Chapter One, Phipps and Bird withdrew the Jefferson Gold Medal awards due to insufficient support.
- ⁹⁴ Thelma Heatwole, "History of the Virginia Junior Academy of Science," p. 15, unpublished manuscript, no date. Special Collections, Virginia Tech.
- ⁹⁵ George D. Palmer, "Scientific Research, the Hope of the South," March 20, 1940. Special Collections, Virginia Tech.
- ⁹⁶ *Ibid.*
- ⁹⁷ George Palmer to Wortley Rudd, July 10, 1940. Special Collections, Virginia Tech.
- ⁹⁸ *Journal of the Alabama Academy of Science* 13 (July 1941), p. 18. The printed program is in the Special Collections, Virginia Tech.
- ⁹⁹ George Boyd of the Georgia Academy of Science was elected President-elect, Milton H. Fies of DeBardelaben Coal Corporation was chosen as Vice-President, and George Palmer selected Secretary-Treasurer.
- ¹⁰⁰ *Journal of the Alabama Academy of Science* 13 (July, 1941).
- ¹⁰¹ Emmet Reid to Wortley Rudd, January 14, 1942. Special Collections, Virginia Tech.
- ¹⁰² Wortley Rudd to SAAS, April, 1942. Special Collections, Virginia Tech.
- ¹⁰³ *Ibid.*
- ¹⁰⁴ *Ibid.*
- ¹⁰⁵ "The Way to Greater Prosperity for the South," pamphlet published by the Southern Association of Science and Industry, 1943. Special Collections, Virginia Tech.
- ¹⁰⁶ E.C.L. Miller to Marcellus Stow, October 21, 1943. Special Collections, Virginia Tech.
- ¹⁰⁷ The SASI established the Southern Regional Educational Board in 1949. While the VAS participated on the Board, the real value of the Board to the Academy was that the ideas and strategies it developed for the region were useful to the VAS as it tried to improve science education in Virginia. Special Collections, Virginia Tech.
- ¹⁰⁸ In *To Foster the Spirit of Professionalism* (Tuscaloosa: University of Alabama Press, 1991), pp. 143-154, Nancy Smith Midgette offers a full account of the rise and fall of the SASI.
- ¹⁰⁹ *Proceedings of the Virginia Academy of Science, May 2-4, 1940; Virginia Journal of Science* I (November 1940), p. 187.
- ¹¹⁰ "Minutes of the VAS meeting," May 5-7, 1940. Special Collections, Virginia Tech.
- ¹¹¹ Thelma Heatwole, "Report of the Virginia Junior Academy of Science to Virginia Academy of Science History Committee," Fall 1965. Special Collections, Virginia Tech.
- ¹¹² "Minutes of the VAS Meeting," May 5-7, 1940. Other members of the Committee were J.T. Christopher of George Washington High School, Danville; Hubert Davis, Portsmouth; George Jeffers, Longwood College, Farmville; Sidney Negus; P.M. Patterson; J.A. Reese; J.A. Rorer; W.E. Trout; and I.A. Updike.
- ¹¹³ "Minutes of the VAS Meeting," May 5-7, 1940.
- ¹¹⁴ Over Christmas, 1939, Jeffers would give one more solo radio address on the subject of science clubs.

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- ¹¹⁵ George Jeffers, "Science Clubs in the Schools," *Virginia Journal of Education* (November, 1939).
- ¹¹⁶ Lloyd Bird to State Department of Education, January 11, 1940. Special Collections, Virginia Tech.
- ¹¹⁷ Hubert Davis to Science Club Sponsors, January 19, 1940. Special Collections, Virginia Tech.
- ¹¹⁸ *Proceedings of the Virginia Academy of Science, 1939–40*. Special Collections, Virginia Tech.
- ¹¹⁹ Members of the former Committee were: Chairman Hubert Davis, Matthew Whaley High School, Williamsburg; Vice-Chairman W.W. Nofsinger, Jefferson High School, Roanoke; Secretary, Francis Allen, Pulaski High School, Pulaski; J.T. Christopher, George Washington High School, Danville; Elizabeth Gillespie, Maury High School, Norfolk; C.G. Gibbs, Floyd High School, Floyd; William Kell, Clarksville High School, Clarksville; H.S. Holmes, Petersburg High School, Petersburg; Martha Lipscomb, Thomas Jefferson High School, Richmond; and W.I. Nickels, Lane High School, Charlottesville. Members of the latter Committee were: Chairman John Alex Rorer, University of Virginia; Vice-Chairman George Jeffers, Farmville Teacher's College; L.F. Addington, Wise High School, Wise; Executive Secretary Francis Chase, Virginia Education Association, Richmond; and Dr. I.A. Updike, Randolph-Macon College.
- ¹²⁰ *Proceedings of the Virginia Academy of Science, 1941–42*. Special Collections, Virginia Tech; Thelma Heatwole, "Report of the Virginia Junior Academy of Science to Virginia Academy of Science History Committee," Fall 1965.
- ¹²¹ Thelma Heatwole, "Report of the Virginia Junior Academy of Science to Virginia Academy of Science History Committee," Fall 1965.
- ¹²² Ibid.
- ¹²³ This organization was also referred to as Science Service.
- ¹²⁴ Sidney Negus to Members of Council, January 27, 1943. Special Collections, Virginia Tech.
- ¹²⁵ Vera Remsburg points out that among the more involved sponsors were: Vada Miller, Susie Floyd, Lena Artz, J. Francis Allen, W.I. Nickels, J.L. Jarman, Martha Lipscomb Walsh, Morris Tischler, J.E. Reitz, Frank Kizer, and Mae Jennings in Vera Remsburg, "VJAS-Its Beginning and Development from 1941–1973," May 2, 1973. Special Collections, Virginia Tech.
- ¹²⁶ Hubert Davis, notes of "Report to VAS Council," 1944. Special Collections, Virginia Tech. Also, the Research Committee prize of fifty dollars was later re-named the E.C.L. Miller award.
- ¹²⁷ Sidney Negus, *Proceedings of the Virginia Academy of Science, 1945–46*. Special Collections, Virginia Tech.
- ¹²⁸ *Proceedings of the Virginia Academy of Science, 1947–48*.
- ¹²⁹ *Virginia Journal of Science*, New Series, II (1952): 249. Special Collections, Virginia Tech. Before closing out the Education Section, it is important to note that efforts continued outside working with the high-school students to promote science clubs and chapters. In 1950, the Academy found itself with two "Official Collegiate Chapters" when the petitions for affiliation from groups at Virginia Military Institute and Virginia Polytechnic were approved. See *Virginia*

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Journal of Science, New Series I (1950), p. 300. However, college participation was not to become a major focus for the VAS. The following year the collegiate members, though not a particularly strong group, decided to continue their activities for another year. It was agreed that a definite effort would be made to attract new members, and that a separate section meeting with papers would be held at the 1952 meeting. See *Virginia Journal of Science*, New Series II (1951), pp. 281-282.

- ¹³⁰ George Jeffers to Colgate Darden, February 3, 1941. Special Collections, Virginia Tech.
- ¹³¹ Colgate Darden to George Jeffers, February 6, 1941. Special Collections, Virginia Tech.
- ¹³² William T. Sanger to James Price, February 12, 1941. Special Collections, Virginia Tech.
- ¹³³ *Acts of Assembly*, p. 989, 1942. Special Collections, Virginia Tech.
- ¹³⁴ To review the complete report, see Senate Document No. 3, "Museum of Science Advisory Commission: Report of the Commission to the Governor and General Assembly of Virginia," December 1, 1943. Special Collections, Virginia Tech.
- ¹³⁵ Science museums, *per se*, did not exist in the south. Wings of museums, however, were devoted to science, and centers in which students could explore scientific ideas were available.
- ¹³⁶ Senate Document No. 3, "Museum of Science Advisory Commission: Report of the Commission to the Governor and General Assembly of Virginia," p. 8, December 1, 1943. Special Collections, Virginia Tech.
- ¹³⁷ *Ibid.*, p. 7.
- ¹³⁸ Minutes of the Museum Advisory Commission meeting, November 2, 1949.
- ¹³⁹ E.C.L. Miller to Ernest V. Jones, January 13, 1944. Special Collections, Virginia Tech.
- ¹⁴⁰ *Ibid.*
- ¹⁴¹ E.C.L. Miller to Ernest V. Jones, January 26, 1944. Special Collections, Virginia Tech.
- ¹⁴² E.C.L. Miller to Sidney Negus, 1944. Special Collections, Virginia Tech.
- ¹⁴³ Lubow Margolena Hanson to Foley Smith, November 19, 1949. Special Collections, Virginia Tech.
- ¹⁴⁴ Boyd Harshbarger to Morgan E. Norris, June 16, 1949. Special Collections, Virginia Tech.

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