Promotional Publication Design:
Development of an Annual Report for the Indiana Academy

An Honors Thesis (HONRS 499)

by

Jason LaMar

Thesis Advisor
Mark Kornmann

Ball State University
Muncie, Indiana
May 4, 1996

Expected date of graduation
May 5, 1996
EPILOGUE

WELCOME

2
WORDS OF WISDOM
Academy Director Dr. Vashti Roberts surveys the year's successes.

SCIENCE

3
FLOWER POWER
African violets used to teach students important aspects of genetic research.

4
RACING WITH THE SUN
Academy team preparing to win international Winston Solar Challenge.

5
ELECTRONIC ELEMENTS
Advanced computer applications classmates design animated periodic table.

MATHEMATICS

6
TEAM-WORK
Students learn cooperation, group-management skills at TEAM competition.

HUMANITIES

7
GLOBAL WARMING-UP
Academy hosts national conference on ecological problems, solutions.

8
FAR EAST IN THE MIDWEST
Chinese language program to be implemented in Indiana schools.

OUTREACH

9
JURASSIC ACADEMIC PARK
Electronic field trip to Chicago Field Museum yields exciting results.
Director’s Note

Dr. Vashti Roberts extends gratitude to all.

As this very special year draws to a close at the Indiana Academy for Science, Mathematics, and Humanities, I’d like to give public recognition to some of the many people who have made it so.

Thank you, Aaron Lake, for providing us with the magnificent Class of 1997.

Academic Life, under the direction of Associate Director Cheryl Adams, provided us with seven new faculty members - Michael Goldfield, David Doiron, Julian Gevirtz, Franklin Shobe, Dennis Federico, Eugene McCane, and Martha Craig — who joined us from the four corners of the globe and did an incredible job of fitting right in.

Our five Outstanding Fellows — David East, Cecil Murray, Jane Starner, Nancy Crouse, and Joe Hellrung — gave new meaning to the words “virtuosity,” “flexibility,” and “friendship” as they set about establishing a temporary home but a permanent place in our hearts. And Felicia Dixon returned as to the English language arts division after working on her doctoral studies for a year.

Residential Life had a number of new faces, too, in Shelly Beber, Jennifer Carlton, Vicki Gutierrez, and Joseph Stuelpe — all of whom pulled together with our other fine residential counselors to help re-establish a sense of community. Lisa May and Brian Schoonaart bloomed in their new leadership roles under the leadership of Vickie Barton, assistant director of Residential Life.

The Office of Outreach Programs provided us with our first national student conference, our first electronic field trip, our first national award for electronic field trips sponsored by a partnership between education and industry, our first national distance learning course, our first indication that there would be a larger national demand for our courses in future years, and the promise of astronomy with evening labs. Thank you, Mark Kornmann and Christi Meredith, for your vision and your tenacity and for an audience of more than 11,000 viewers.

Thank you, Kim Foltz and David Doiron, both of whom had to “hit the ground running” and who became instant successes with their new IHETS assignments. Thank you, Mark Watson and Ken Stuart, for the roles you played with the conference and field trips. Thank you, Outreach support team and Nancy Osborn, for keeping everything organized and precise.

Parent support reached an all-time high, thanks to the efforts of Jim and Marilyn Bickley and a host of other parents too numerous to name. We are proud of the addition of our parent representative, Dr. James Kloer, to the advisory board and know that IABC will continue to soar in 1996-1997 with David and Cathy Stehower at the helm.

Other newcomers who contributed to the success of the year were Liz Sabatine in guidance and Dr. Kristin Gillon in psycho-educational services, who helped students feel “safe” and added a new dimension to Academy living.

Special commendations must also be made to D’Ann Hammersley, who worked tirelessly to get the Class of 1996 into appropriate colleges or universities. College Night was again a huge success. The Awards Brunch on commencement morning also showcased senior awards and scholarships. Summer plans call for placing resumes on the World Wide Web so that prospective employers will be able to review them for job placement.

Finally, to the world’s finest teachers and support staff, I must commend you for an incredible journey. In the pages that follow, you will see glimpses of greatness we have shared and the promises that are to come.

Vashti O. Roberts
SCIENCE

Violets Aren’t Always ‘Blue’

Academy instructor shares budding flower interests with students.

R. Jeff Smith, life science instructor at the Indiana Academy, is a nationally known researcher in the genetics and taxonomy of African violets. Smith writes the hybridizers advice column, “In Search of New Violets,” for the African Violet Magazine (AVM), the official publication of the African Violet Society of America (AVSA). Smith has also written more than 20 feature articles for AVM and has been featured in articles by the Los Angeles Times and Organic Gardening.

Smith started growing African violets as a hobby while in graduate school. He noticed that there was a great deal of variation in the flower colors of African violets. Checking the available research, he found that little had been published on the genetics of this popular flowering house plant, despite 100 years of intense plant-breeding efforts.

“The question was, ‘Could I apply my scientific training to solve these problems of diversity?’” Smith said.

A study of the flower pigment chemicals suggested a model for the genetics of flower color, which was later confirmed by plant-breeding experiments. Students have worked with Smith on various African violet research projects.

“The students have been great,” he said. “The typical scenario is: I teach students a technique, then they come back, help run tests, and amass data.”

One former student in Oklahoma was twice able to take her research to the international Science and Engineering Fair and had two publications in the AVM. Academy students Caitlin Skinner and Matt Glenn also had two publications on the chemical analysis of the flower color pigments, while Skinner and Alesha Nastoff prepared a manuscript on a project involving leaf pigments.

“They’re getting publications out of this, as well as hands-on research and grant application experience,” Smith said of his students, who also happen to be his research assistants. “It’s those types of experiences that really help them in applying to college.”

Current Academy students working on African violet projects include Meena Data (gel electrophoresis of leaf proteins), Neeru Gupta, Cathy Stehower (anther tissue culture for homozygous stock plants), and Charles Bailey (leaf pigments in new African violet species). Data and Gupta received grants from the AVSA for their work.

Brian Dewes, an Academy graduate, also received an AVSA grant for a research project involving a DNA extraction method from African violet leaves.

African violets are native to various mountainous areas of Tanzania and Kenya. The native habitat of these plants is rapidly disappearing, and efforts are being made to conserve the wild species in greenhouses. Smith has 21 of the 23 known species, including plants from the Uppsala Botanical Gardens and a private collector in Nairobi, Kenya. His wild species collection is one of the largest in the United States, second only to the collection at Iowa State University.

“What I’m getting very concerned about is that we only have a handful of original violet clones from Africa,” Smith said. “It worries me that we may be losing a large amount of violet variations, and I’ve only come to that conclusion after this work the students have done.”

Smith also incorporates the African violet work in his classroom instruction.

“I try to emphasize that science is a process,” he said. “It’s something that’s happening right now, right here at the Academy. It’s questions that we don’t have the answers to ... yet.”

AN ORIGINAL African violet (top) can be easily contrasted with modern hybrids (above).

EPILOG

THE INDIANA ACADEMY

3
Group Sets Sights on Solar Race

Student-teacher team constructing sun-powered car for competition.

The Indiana Academy Solar Car Team is currently designing and building a solar-powered car to compete in an annual, international solar car race open exclusively to teams of high school students: the Winston Solar Challenge. With the establishment of the Solar Car Team in the fall of 1995, the Indiana Academy — led by computer science instructor and project director Dennis Federico — has become one of the few high schools in the nation whose students build and race solar-powered cars.

Designing and building a solar car is both an ambitious undertaking and an appropriately challenging project for Academy students, as a project of this magnitude often requires two to three years of work prior to competing, according to Federico.

"These students have accomplished a tremendous amount of work in a short period of time," he said. "They are extremely motivated and show a great deal of commitment to this project."

While the goal of successfully building and racing a solar-powered car is attainable, a more important goal is to engage students in the process of working as a team applying math and science knowledge to solving challenging, real-world problems, according to Federico. The Winston Solar Challenge is, first and foremost, an educational program providing students with the opportunity to experience science education at its best.

Students have made an enormous commitment of time and effort to this project above and beyond their already-demanding academic course loads which are often the equivalent of several concurrent college-level courses, Federico said.

Working during their free time after school, evenings, and weekends in a garage space provided by Ball State University within walking distance of the Academy, students have constructed a frame, developed an aerodynamic outer shell, and are currently developing a steering and suspension system.

Several students returned from Christmas vacation one day early in order to work on the solar car, and students also returned early to work on the car for four days during the Academy’s spring break.

Federico said students worked intensively during the Academy’s two-week May term to complete and road-test the car in time for the international competition in July, after less than one year of student work. Students will work during 1996-97 to improve the car for competing in 1997 and future annual races.

“Our biggest obstacle right now is funding," Federico said. “We have made initial contacts with potential sponsors, but so far we have no corporate contributors.”

The Indiana Academy Parents Booster Club has supported the project by providing

CONTINUED ON PAGE 5
Continued from page 4

the funding to purchase the electric motor that will power the car. The team also began an “Adopt-a-Solar-Cell” campaign to raise the necessary funding to purchase the solar cells that will power the car. Individuals can donate $10, $15, $20, or any other amount to purchase one or more of the approximate 500 cells needed for the vehicle.

The team has also contacted Indiana-based foundations seeking support and continues to seek corporate sponsorship for the project.

“If money is forthcoming, we hope to have something that moves completed by May,” Federico said. “This should get us some publicity, and hopefully once people see the product, we will be able to secure additional funding.”

During the 1996-97 school year, a new science elective course called technology applications will give students the opportunity to work on the solar car and other engineering projects for credit. The course is open to all students and has no pre-requisites. Preliminary enrollment in the new course has surpassed enrollment in nearly every other science elective course offered.

Students in the course will function as an engineering team to design and build working prototype solutions to challenging, real-world engineering problems. Class time will be devoted to student design and construction work.

The course will emphasize problem-solving processes and applying math and science knowledge, particularly physics knowledge. Projects may include, in addition to the solar car, the 1997 National Engineering Design Challenge and other appropriate engineering competitions.

Before coaching the Academy’s Solar Car Team, Federico successfully led students at other schools to national recognition in various engineering projects.

Periodic Table Turns Computer-Animated

Students craft teaching aid for chemistry classes.

Academy students accompanied faculty members to the Hoosier Association of Science Teachers in Indiana conference in Indianapolis on Feb. 9. The conference attracts many science educators from around the state to share in presentations about science teaching.

Seniors Matt Watson and Greg Carter joined Nina Huntsinger and Dr. Claire Baker in presenting “Animate It,” a computer-generated chemistry aid. The two Academy students were instrumental in the creation of this animated, color-coded periodic table that is used by Baker in her AP Chemistry course presentation.

Baker had originally approached the instructional designers at Ball State to create the animation for her, they responded that it would be “too time-consuming and too expensive.”

So when Huntsinger, computer applications instructor, approached the faculty asking for units of teaching that could be used in making animations for projects for her class — a process that was carried out the previous year for Don Hey in physics — Baker responded.

“It seems that when the students have a project that’s actually going to be used, there’s more energy and focus,” Huntsinger said.

“Whereas, if you’re just learning the tools of animation for your own use, there isn’t as much drive.”

Two former Academy students, Richard Dowdell and Cory Gearhart, also assisted in the creation of animation. The periodic table uses color and motion to classify the various elements. Baker said the animation helps her in teaching the students the basic classifications of elements and their relationships.

“We had to work together as a team and be creative in how we set up the animation,” Watson said. “It was kind of a fun thing to do, and it was nice to be able to help out the teachers, because they help us out so much.”

Academy seniors Greg Carter (left) and Matt Watson present their animation work in Indianapolis.

EPILOG

THE INDIANA ACADEMY
SIFTING THROUGH competition problems for the TEAMS tests, Academy students work their way toward this year's win.

TEAM Work — Key to Victory

Two student “think-tanks” retain state title.

This year's Tests of Engineering Aptitude, Mathematics, and Science (TEAMS) Competition was held at Ball State University on Feb. 24. The two Academy TEAMS teams were made up of seniors Joyce Atcheson, Darrell Drake, Jason Drury, Daniel Johnson, Marie Fox, Lainy Mahler, and Barry Weliver and juniors Dan Blanford, Andrew Hires, Thor Martin, and Laura Vanderkam were among 60 Indiana high school students who were invited to compete for a spot on one of the two Indiana ARML teams.

Academy mathematics instructor and ARML coach Kim Foltz said that students were selected for the team based on their performance at practices, on scores from individual practice exams, and from scores on the 1996 AHSME. Monthly practices have been held throughout the year simultaneously at sites at Rose-Hulman Institute of Technology, at Butler University, and at the Indiana Academy.

The ARML is a national competition hosted at sites in Pennsylvania, Iowa, and Nevada. The three sites are linked via satellite for part of the day's events. The Indiana ARML team will travel to the University of Iowa site for the competition on June 1, when more than 100 teams will participate in the event nationally.

Cocurricular Exam Lets Students Test Their Skills

The American High School Mathematics Examination (AHSME), a 90-minute exam that is the premier mathematics competition in the country, was given nationwide on Feb. 15. A total of 28 enthusiastic Academy students accepted the challenge to participate in this year's AHSME. Many of the students remained after the completion of the cocurricular test, discussing their solutions and debating about whose approach was correct.

Seniors Marie Fox and Lainy Mahler and junior Laura Vanderkam tied for the honor of school winner on the AHSME, each earning a score of 104. Junior Andrew Hines and senior Matt Watson also surpassed the 100 mark. These five students qualified for the American Invitational Mathematics Examination, a grueling 15-question, three-hour exam. The AHSME and AIME are used as the qualification tests for member selection of the USA Mathematical Olympiad team.
Environment Takes Focus

Role-playing conference fuels discussion, deliberation about planet.


According to Mark Watson, humanities chair and conference developer, the Academy’s students, faculty, staff, and facilities proved to be more than equal to the challenge of mounting the consortium.

“Honoring our collective commitment to the spirit and action of innovation, the conference employed an altogether unique and, until now, unprecedented approach,” Watson said. “Through the use of extensive dual role-playing within simulated environments, we examined an issue of significant challenge to America and provided viable solutions for its resolution.”

In the four-day simulated national conference on environmental policy, consortium participants role-played authoritative stakeholders from their state or region, representing each of the three major divisions — local, state, and federal — of the American political system. They then developed and drafted extensive policy on a variety of topics, including pollution control and natural resources management.

“This was really different from past conferences, because it called for collaborative participation before the conference even began,” Watson said. “I took this approach because I’m convinced the (ad hoc) way we shape policy today is not only ineffective but dangerous.”

The conference employed a three-step, process-oriented approach originated by Harold Laswell. As a result, participants succeeded in better understanding and exploring the dynamic social and political mechanics and relationships of environmental policy development.

“Working on their roles, planning for their roles, then executing them at the Academy conference probably was the first opportunity for many of these students to be told that what they did really mattered and was important,” Watson said. “This remarkable display of student scholarship, empowerment, and leadership can be expected to have considerable and ongoing impact in the positive shaping of our nation’s future.”

The simulation approach also enabled and empowered participating students to practice the kind of leadership roles that may be demanded of them in the future.

“The responses that I’ve received from participating schools have been very positive because of the excitement created by the intensity of the simulation experience,” Watson said. “I wasn’t surprised. I’ve been conducting simulation experiences for more than 20 years in the classroom, and they always create very exciting, proactive results.”

The final, polished, politically correct policies created by the conference participants were sent to NCSSSMT member schools and to various organizations that assisted with conference consultation.

“This project has very high replication potential,” Watson said. “This is something that can be repeated and succeed — not only in schools, but in businesses and government agencies as well.”

Photo by Jim Troop

A student delegate and facilitator review environmental policy decisions.
CHILDREN IN FIVE INDIANA PUBLIC SCHOOL DISTRICTS WILL BE
exposed to the Chinese language during the next three
years, thanks to a program developed by Dr. Min Zhang,
Chinese instructor at the Academy.

Zhang received a grant from the U.S. Department of
Education Foreign Language Assistance Program and the Indiana
Chinese/Japanese Initiative to implement her three-year project.
Titled "Learning Mandarin Chinese in Indiana," Zhang's program
will be phased into the Gary, Evansville-Vanderburgh, Elkhart,
Frankfort, and Loogootee school corporations.

The five school districts were chosen for the program on the
basis of their submitted language-development proposals.

"This program offers a unique opportunity for Indiana stu­
dents to experience a Far Eastern language and culture," Zhang
said. "The United States is following the example of many other
countries that emphasize the importance of learning a foreign lan­
guage at an early age."

Each school corporation will send a six-member team —
including a district-level administrator, a principal, a media spe­
cialist, two elementary school teachers, and a middle school
teacher — to receive special summer training at Ball State.

During the first two summers, teachers will learn the
Mandarin Chinese language and Chinese history and culture,
along with foreign language methodology and exploratory materi­
als development.

Then, during the third summer, a trip to China culminates
the language training. Teachers will be immersed in Chinese lan­
guage and culture during their visit, including additional language
training at Shanghai Teachers University.

"I hope that we are going to have Chinese programs that will
be implemented in these five school districts by the end of the
program," Zhang said. "Hopefully, this will be a model for other
similar programs around the country."

Zhang, a native speaker of Mandarin Chinese, explained the
importance of teaching the foreign language to children at the ele­
mentary, middle, and high school level.

"One out of four people in the world speak Chinese as their
native language," she said. "China is developing very fast economi­
cally, so this language will be very important in the 21st century."

Studies have also shown that learning a foreign language
enhances understanding of English. 

---

ONAS WALKER, AN ACADEMY SENIOR, THOUGHT HE WAS APPLY­
ing for a college scholarship program when he sent an
essay on the American political system to Alexandria,
Virginia. Instead, he found out his writing won him one
of eight Indiana student positions on the Presidential Classroom
program, presented March 2-9 in Washington, D.C.

"I actually won by mistake," Walker said. "I really didn't
know what to expect for the Presidential Classroom."

Walker said that a few weeks prior to travelling to the nation's
capital, he attended the Harvard Model Congress in Boston.

"It was a very different program from Presidential Classroom," he said. "The Harvard program was much more rigorous, much
more intense. ... The trip to Washington was more of a primer for
students who didn't have much background experience in politics."

The Presidential Classroom is an annual, national project that
was founded in 1968 by President Kennedy to provide outstanding
student leaders with a first-hand look at Washington politics.

Walker said he enjoyed personally talking with featured speak­
ers, including Noel Epstein, publisher of The Washington Post.
‘Time Spies’ Track Dinosaurs

Electronic field trip to Chicago Field Museum earns national award for Academy.

First-grade students from Burris Laboratory School played the roles of “Time Spies” for an electronic field trip titled “Dinosaurs and More,” which took them to the Chicago Field Museum on Jan. 16. The trip was coordinated by the Indiana Academy Office of Outreach Programs and broadcasted live via satellite to about 7,800 students at 266 schools in Indiana, Texas, and California.

Mark Kornmann, assistant director of Outreach Programs, said original plans for a presentation from Washington, D.C. were set aside after a member of the planning group saw the Field Museum’s “Life Over Time” exhibit.

“We pitched our idea to the museum, and they bent over backwards to get involved in this type of program,” Kornmann said.

Peter Laraba, a museum geologist, accompanied Burris first-grade teacher Renee Huffman on a brief exploration of Earth’s early inhabitants. The hour-long program was a mixture of taped museum footage and live, two-way interactive videoconferencing, which allowed students from across the nation to call in and ask Laraba questions during the show.

“I have no doubt this type of electronic field trip Ball State is putting together is new and innovative,” Laraba said. “It's really nice when someone comes and says they have the capacity to reach thousands of kids, and they want to work with you.”

Several students from Huffman’s class got to ask their questions in person. They visited the Field Museum as part of the program and sat in with Laraba to fulfill their Time Spies assignment: to figure out whether a bone found at an excavation site belonged to a dinosaur.

Huffman said the students’ dinosaur research provided an educational foundation for the field trip. Half her class visited Chicago in November to film the taped footage, while the rest participated in the “live” portion of the program.

“The program not only appealed to students in the primary grades, but back at Burris, the fourth, fifth, and sixth graders were glued to the sets,” Huffman said.

Children who tuned in to “Dinosaurs and More” also role-played as Time Spies, trying to figure out if fossils belonged to a dinosaur or a “dino-not.” A dinosaur lived on land, but a dino-not was a reptile that flew or swam. This allowed them to use the scientific method, which includes gathering evidence, forming a hypothesis, and drawing conclusions.

“The kids had some excellent questions,” Kornmann said.

A Ball State television production unit provided a camera crew and equipment to bring the Field Museum to school children across the nation.

“Ball State did everything,” Laraba said. “All the museum had to do was provide the space and my time.”

Due to the program’s success, the Indiana Academy was among the recipients of a national award for a partnership to produce electronic field trips for students across the country. At the 6th Annual IDL-CON Conference in Washington, D.C., the U.S. Distance Learning Association presented its 1996 Annual Partnership Award to the Indiana Academy, Ball State, Chicago’s Field Museum, Ameritech, the Indiana Higher Education Telecommunications System, and the Corporation for Educational Communication.
What follows is the written component of the creative project titled "Promotional Publication Design: Development of an Annual Report for the Indiana Academy." The project itself consists of an extensive layout mock-up of Epilog, the Academy's new magazine-style annual report that I devised and executed. The developmental process involved in the production of Epilog encompasses all aspects of publication design, including stylistic considerations and content revisions, as well as the infrastructural nature of dealing with varied contributors. Finally, the end result of the Epilog project promises even greater promotional tools that will be utilized by the Indiana Academy in its future endeavors.
In December 1995, I was approached by Mark Kornmann, assistant director of Outreach Programs at the Indiana Academy and Ball State journalism instructor, about my senior thesis. He asked if I had decided on a topic or project goal for my thesis. When I responded “no,” Mark suggested that I consider working on a project for the Indiana Academy - a project that he had been mulling over for some time. His idea involved creating an annual report for the Academy in a magazine-style format. It sounded like an interesting proposition to me, so I told him I would think about it during winter break.

After returning from my vacation in January 1996, I told Mark that I would be glad to undertake the annual report project. My reason for this was twofold: I thought it would provide me with a unique design opportunity that wouldn’t be available in any other setting - classroom or otherwise - plus it would provide the Indiana Academy with a wonderful new promotional vehicle. I was excited by the prospects of my thesis, and so was Mark. I then immediately began brainstorming and creating “thumbnail” layouts for the new magazine. This part of the publication design process is probably the most important yet contingent aspect of formulating a journal “from scratch,” because there must be an equilibrium between the layout and the content. Otherwise, the publication won’t be effective.

In mid-February, I consulted with Mark about my various preliminary design choices. His enthusiasm and approval, tempered by some appropriate constructive criticism, gave me the confidence to continue with the next important phase of the plan: selecting a publication name. This part of the publication process was surprisingly difficult. I tossed around several names, yet none of them had the right “ring” nor gave the proper impression of the magazine. Finally, though, I settled on “Epilog.” I chose this
which, by the way, is defined as “a speech addressed to the spectators by an actor at the end of a play” — because I envisioned this magazine as the organ of the Indiana Academy, dramatically singing its triumphs and accomplishments. I wanted the publication to serve as the flagship promotional piece for the Academy. But I also recognized the advantages of a more reflective, end-of-the-year approach. Hence, by combining drama and introspection, I thought “Epilog” effectively conveyed the publication’s message. Mark agreed, though I’m not certain everyone else who eventually became involved in the project fully understood the title’s significance.

At the end of February, I was supposed to lead a conference-room discussion with Academy faculty members about Epilog and their possible involvement. Rather than try to track down every possible article subject, I had high hopes that the faculty would come to me with their own success stories. I was terribly disappointed. When the time for the meeting came, only a solitary faculty member — humanities chairman Mark Watson — was present. This was especially discouraging because there are approximately 20 total faculty members. Still, I discussed my intentions with Mark Kornmann and Mark Watson, explaining how I imagined the magazine and its mission. (I have included a copy of the proposed production ladder that I presented at the meeting.) Watson promised to pass the information along to his department personnel, and — after being advised by Kornmann — I sent memorandums to all the absent faculty members. In these memos, I invited them to stop by the Outreach Office and discuss Epilog with me. Unfortunately, that didn’t work well either, so eventually I had to personally track down many faculty members and attempt to cull some information from all of them.

By mid-March, I had already completed many preliminary necessities for the magazine: setting up a layout grid; selecting
typefaces for headlines, subheadlines, and body copy; finalizing an overall, consistent "look" for the pages; and arranging the various departments. The font I used for the main body copy was a modern serif type called "Berkeley Medium," which I then applied to the headlines, also. This typeface repetition is especially important to give a publication a clean, consistent appearance. Then, I used a modern sans-serif type called "Black Bear" for subheads and photo caption lead-ins, because I thought its bold strokes nicely complemented the slender elegance of the Berkeley characters. I also decided on an interspersed "spot color" to accent the mostly black-and-white interior pages; this was a maroon-like hue known as Pantone 202 CVU in the universally accepted (though esoteric) color-printing world. Why did I select this color? Mainly because it's one of the "official" colors of the Indiana Academy, which hopefully would trigger institutional recognition in the readers; I also did this because dark red is a bold hue that attracts attention to the page layout. And - since the official school title is The Indiana Academy for Science, Mathematics, and Humanities - I divided up the sections in the order of "science," "mathematics," "humanities," and "outreach" to once again trigger institutional recognition.

Between the end of March and beginning of April, some faculty stories began filtering in to me. Despite some people's interest, the general attitude I perceived from the faculty was one of apathy and indifference. So, I eventually wrote two more memorandums asking for more involvement and story ideas. (I have included dated sample copies of each of the memos I sent out.) Still, I sifted through the few submissions I had, deciding what would work in the overall "Epilog" scheme. For the most part, the faculty-written articles were excellent - though I must admit my
stereotypical surprise that someone with a Ph.D. in chemistry or mathematics could effectively compose an interesting story. I set aside my stereotypes, of course, and began reworking all of the articles into a consistent, magazine-style format. This process involved three major steps: editing the original submission for grammatical and typographical mistakes, interviewing the appropriate faculty member to glean some "direct quotes" for the story, and restructuring the original article to include these quotations and other additions.

It sounded easy enough, but by mid-April I began to appreciate the true difficulty of this task. The most prevalent obstacle was simply trying to contact the faculty members and set up interview times. The Academy's class loads, by their very nature, often afford little office time to the faculty members — and those office hours that they do have are sometimes ignored but always sporadic. I did manage, however, to ultimately track down the main faculty members I needed, including Nina Huntsinger, Dr. Jeff Smith, Mark Watson, Karen Whitehead, and Dr. Min Zhang. I interviewed each of them fairly extensively — at various times in various locales — to gain insight into their stories and to generate some direct quotes I could use within those stories. They were all extremely helpful and cordial and made my job of revising much easier. During this process, I also was fortunate to literally run into two Academy students — Jonas Walker and Matt Watson — who I then interviewed for other, supplementary quotations that I needed. Also during this time, I approached Dr. Vashti Roberts, the superintendent of University Schools and director of the Indiana Academy, about doing an equivalent to the "editor's note" found in most magazines. I thought this would be a good way to provide a general overview of the Academy's educational environment from an administrative standpoint, and she agreed.
Though everything had gone relatively smoothly until the end of April, I was eventually presented with a rather complex and difficult task: assembling Epilog's photography and artwork. I hoped to have at least one photograph or piece of artwork to accompany each article, and it turned out that my wish almost came true. The trick, however, was trying to find the artwork. For example, I spent almost half an hour in Dr. Smith's office looking through dozens of African violet color slides, finally deciding (with him) on two photos that were especially striking and illustrative of violet hybridization. I then had to go to West Quad and use a photojournalism professor's slide scanner to capture the images in an applicable computer format. I think the results were well worth the effort. Another example involved the photograph accompanying the outreach section's electronic field trip article. Though I scrounged around the offices to get copies of photos we took in the Chicago Field Museum, I couldn't find the shots that I needed. So I went to Photographic Services, where, after looking through the "official" proof sheet from the trip, I found the particular pose that I liked; I stopped by to pick up the print a few days later. Once again, however, I think the results were well worth the extra trouble.

Although I encountered many other interesting complications throughout Epilog's development process, the end result is incredibly pleasing. I firmly believe that the Epilog "annual report" will serve as the Academy's main showcase of talent, success, and excellence - both this year and in years to come. Though thanks go to all of the Indiana Academy faculty members and administrators who helped me with this publication, I am especially indebted to Mark Kornmann, my advisor and the original visionary of this project, for his insight and guidance. I can only hope that our combined work on this, my senior thesis, will yield even greater creations in the future. As I look back on my
work with Epilog, I smile knowingly. This is my imagination come to fruition, sprouting from the first seeds of creativity that began germinating in my mind in December. This is a fitting coda to my educational career at the Ball State University ... I will walk away from the Honors College with a marvelous sense of satisfaction and accomplishment.
APPENDIX I:
INTRA-FACULTY CORRESPONDENCE
ANNUAL REPORT AGENDA

I. Concept
   a. "Epilog" — refers to a final overview of the Academy year; "final chapter" or "closing"
   b. Currently envisioned as a magazine-style, non-traditional annual report; departmental articles/briefs should be included
   c. Continuing theme throughout publication should be similar to a "log" (i.e. personal accounts of success, achievement, etc. in a reflective manner)
   d. Emphasis should be given to most important events; also give equal attention to the person who accomplished

II. Guidelines
   a. It would be ideal to limit each “main story” to approx. 750 – 1,000 words; “briefs” should be no more than 250 words
   b. Focus should remain mostly on students’ achievements, although faculty should also be recognized for extraordinary achievement
   c. Despite “log” format, avoid using first-person — except under special circumstances; refer to colleagues/students in “formal” third-person

III. Timeline
   a. Drafts of all briefs due no later than February 24
   b. Drafts of all main articles due no later than March 8
   c. All artwork/photography due no later than March 15
   d. Design production will begin immediately; projected time to printer: March 22

IV. Considerations
   a. Two-color vs. three-color vs. full-color?
   b. Length: 18 – 24 pages?
   c. What is the focus of each department?
February 28, 1996

TO: Indiana Academy Faculty

FROM: Jason LaMar,
Outreach Office

RE: Epilog Story Submissions

This is just a reminder that I would like to have any of your story submissions for Epilog, the Academy’s inaugural magazine-style annual report, at your earliest possible convenience. As the project designer, I envision Epilog as a non-traditional annual report that resembles an informative magazine more than a list of fiscal budget and demographic figures. Hence, any stories of outstanding Academy achievement — preferably about students, but about faculty as well — would be an excellent way to showcase “the best of the best” about our school and the people who work and learn here.

I was hoping to have at least one “main” article from each department, which would be approximately 1,500 words. I would also like at least two “briefs,” which would be no more than 250 words, from each department. Once again, each of these ideally should present extraordinary achievement by an Academy student or faculty member. Feel free to submit more, though space availability may be at a premium.

Thank you for your consideration and assistance. I look forward to reading all the submissions, and I firmly believe that Epilog will evolve into a superb portrait of the talented juniors, seniors, and teachers at The Indiana Academy.
March 18, 1996

TO: Indiana Academy Faculty/Staff
FROM: Jason LaMar, Outreach Office
RE: Epilog Story Submissions

This is another reminder that I would like to have any of your story submissions for Epilog, the Academy’s inaugural magazine-style annual report, at your earliest possible convenience. Any stories of outstanding Academy achievement – preferably about students, but about faculty as well – would be an excellent way to showcase “the best of the best” about our school and the people who work and learn here.

As of today, I have received very few stories from faculty/staff members. We were hoping to have this to the printer no later than the end of April, which means I really need your writings soon.

If you have any questions or are unclear about what exactly is needed for this publication, please contact me. My office number is 5-7368.

Thank you for your attention and consideration.
April 8, 1996

TO: Indiana Academy Faculty/Staff

FROM: Jason LaMar,
Outreach Office

RE: Epilog Story Submissions

Although I have received an abundance of stories from the mathematics and computer science departments, I still do not have enough physical science, humanities, or student life articles for Epilog. Let me reiterate that main articles only need to be 750 - 1,000 words, while "briefs" only need to be 250 words. Also, any accompanying photographs/artwork that you may have would be greatly appreciated.

We hope to have this to the printer by the end of April, which means I really need your writings as soon as possible. Please contribute to Epilog. This is an ideal way to showcase your achievements and your students' achievements, but it will only be as good as your submissions.

If you have any questions or are unclear about what exactly is needed for this publication, please contact me between 10 a.m. - 5 p.m. on Mondays and Wednesdays. My office number is 5-7368.

Thank you for your attention and consideration.
APPENDIX II:
ORIGINAL STORY SUBMISSIONS
"Periodic Table Turns Computer-Animated"

Three Academy students accompanied various faculty to the HASTI(?) conference in Indianapolis on Feb. 9. The conference attracts many science educators from around the state to share in presentations about science teaching. Seniors Matt Watson, Greg Carter, and David Newcum assisted in the presentations. Watson and Carter joined Nina Huntsinger and Dr. Claire Baker in presenting "Animate It."

The two Academy students were instrumental in the creation of an animated periodic table that is used by Baker in her AP Chemistry course. Baker had approached the instructional designers at Ball State to create the animation for her, but she was told that it would be too expensive to build. So when Huntsinger approached the faculty asking for units of teaching that could be used in making animations for projects for her Advanced Computer Applications class, Baker responded.

Two former Academy students, Richard Dowdell and Cory Gearhart, also assisted in the creation of animation. The periodic table uses color and motion to classify the various elements. Baker said the animation helps her in teaching the students the basic classifications of elements and their relationships.

Newcum was the technical expert who assisted various science faculty with their Calculator-Based Laboratory (CBL) presentations. He was able to get the TI-82 graphing calculators to respond to the programs using probes for data entry and was able to help with both the CBL’s and graphing calculators during the presentations. CBL presentations were done by Don Hey, Dr. Jeff Smith, Karen Whitehead, Hassan Fakhrudden, Dave Doiron, Dr. Claire Baker, Dr. Tom Adams, David East, and Michael Mayfield. This was a situation where one of the students at the Indiana Academy was able to accomplish something that was totally unrelated to a class but extremely helpful and worthy.
Ten Academy students have been chosen to participate on the 1996 Indiana entry to the American Regions Mathematics League. Based on their scores on the 1995 American High School Mathematics Examination (AHSME), seniors Darrell Drake, Jason Drury, Daniel Johnson, Marie Fox, Lainy Mahler, and Barry Weliver and juniors Dan Blandford, Andrew Hires, Thor Martin, and Laura Vanderkam were among 60 Indiana high school students who were invited to compete for a spot on one of the two Indiana ARML teams.

Academy mathematics instructor and ARML coach Kim Foltz said that students were selected for the team based on their performance at practices, on scores from individual practice exams, and from scores on the 1996 AHSME. Monthly practices have been held throughout the year simultaneously at sites at Rose-Hulman Institute of Technology, at Butler University, and at the Indiana Academy.

The ARML is a national competition hosted at sites in Pennsylvania, Iowa, and Nevada. The three sites are linked via satellite for part of the day's events. The Indiana ARML team will travel to the University of Iowa site for the competition on June 1. More than 100 teams will participate in the event nationally.
During the first week of October 1995, The Indiana Academy was privileged to host the National Conference for Specialized Secondary Schools' annual student conference. Academy students, faculty, staff, and facilities proved to be more than equal to this challenge.

Honoring our collective commitment to the spirit and action of innovation, the conference employed an altogether unique and, until now, unprecedented approach: to examine through the use of extensive dual role-playing within simulated environments an issue of significant challenge to America and provide viable solutions for its resolution. This, then, was the genesis of "The Shaping of 21st Century Environmental Policy."

In this simulated national conference on environmental policy, consortium participants role-played authoritative stakeholders from their state or region, representing each of the three major divisions - local, state, and federal - of the American political system. The conference employed a process-oriented approach and, as a result, succeeded in better understanding and exploring the dynamic social and political mechanics and relationships applicable to environmental policy development.

The Academy genuinely appreciated the outstanding contribution that each conference participant provided to the success of "The Shaping of 21st Century Environmental Policy." This remarkable display of student scholarship, empowerment, and leadership can be expected to have considerable and ongoing impact in the positive shaping of our nation's future.

Clearly, given the conference's considerable positive outcomes, the simulation format employed represented a challenge worthy and sufficient of the skills, abilities, and potentials evident in the consortium students. The simulation approach enabled and empowered participants to practice in advance the kind of leadership roles that will surely be demanded of them in the near future.

The Academy applauds each participant's willingness to risk, to explore, and to summon the remarkable confidence necessary to have succeeded as an active participant in this now widely recognized milestone event.

In the days immediately following the conference, while considering the unbelievably vast pace, energy, and faith that had
been exhibited by conference participants, visiting faculty, consulting practitioners, facilitators, and directors. I encountered these lines from Emerson that seem appropriate to our experience: "He in whom the love of truth predominates ... submits to the inconvenience of suspense and imperfect opinion; but he is a candidate for truth ... and respects the highest law of his being."
"Let's Talk Mathematics"
by Karen Whitehead

The mathematics and computer science division at the Indiana Academy for Science, Mathematics, and Humanities offered a variety of opportunities to students during the 1995 - 96 school year. The classes that were offered ranged from advanced algebra through three levels of elementary analysis to three levels of calculus, including Advanced Placement AB and BC classes.

There were also some more advanced classes, including discrete mathematics, probability, multivariable calculus, and differential equations. Also, a variety of other classes such as statistics and finite math were taught. Plans are underway for the introduction of two new mathematics courses next year: mathematical modeling and AP statistics.

Currently, five students are finishing up differential equations, a course that is academically at the sophomore university level. Those students are Marie Fox, Darrell Drake, Matthew Saunders, Reena Kapoor, and Daniel Johnson. There are also two students, Dan Moore and Matt Smith, doing an independent study in linear algebra, another university-level class.

In the mathematics courses at the Indiana Academy — except for the more advanced theoretical classes — students are required to rent or buy a graphing calculator. The Academy is currently using Texas Instrument calculators, and students who have no experience when they come to the Academy soon gain skill with these machines to enable them to understand more in mathematics. The instructors try to use the "Rule of Three" in their classes — i.e., that concepts need to be introduced graphically, analytically, and numerically. They believe that students truly have a better understanding when students learn in this way.

In computer science, both of the instructors teach sections of the computer applications class. Each student at the Academy is required to pass the computer apps class or test out with a computer proficiency test. Beyond that class, many students take advantage of our programming classes, multimedia class, data structures class, or computer science seminar. Some of the advanced computer science students include Dan Blandford and Darius Wei.

During the school year, the Academy participates in two ongoing mathematics contests administered by Kim Foltz, one of the mathematics instructors. One is the National Mathematics League and the other is the Indiana Mathematics League. Each month, some
of the students meet after school hours to attempt these 30-minute, six-problem tests. The scores are sent in, and the school is ranked among participant schools in Indiana and the United States. In February of each year, a team of our students participates in the JETS contest at Ball State, and this year the Academy entered two teams of eight students. All students are encouraged to take the AHSME, or American High School Mathematics Examination in February. The top scorers then have an opportunity to take the AIME, or American Invitation Mathematics Exam. Finally, some students participate in the American Regions Mathematics League, a national competition of mathematics teams from each state.
"Group Sets Sight on Solar Race"
by Dennis Federico

The Indiana Academy Solar Car Team is currently designing and building a solar-powered car to compete in an annual, international solar car race open exclusively to teams of high school students, the Winston Solar Challenge. With the establishment of the Solar Car Team in the fall of 1995, the Indiana Academy has become one of the few high schools in the nation whose students build and race solar-powered cars.

Designing and building a solar car is both an ambitious undertaking and an appropriately challenging project for Academy students; a project of this magnitude often requires 2 to 3 years of work prior to competing. While the goal of successfully building and racing a solar-powered car is attainable, a more important goal is to engage students in the process of working as a team applying math and science knowledge to solving challenging, real-world problems. The Winston Solar Challenge is, first and foremost, an educational program providing students with the opportunity to experience science education at its best.

Students have made an enormous commitment of time and effort to this project above and beyond their already-demanding academic course loads which are often the equivalent of several concurrent college-level courses. Working during their free time after school, evenings, & weekends in a garage space provided by Ball State University within walking distance of the Academy, students have thus far constructed a frame, developed an aerodynamic outer shell, and are currently developing a steering and suspension system. Several students returned from Christmas vacation one day early in order to work on the solar car; students also returned early to work on the car for four days during the Academy’s Spring Break. Students will be working intensively during the Academy’s two-week May Term to complete and road-test the car in time for the international competition in July, after less than one year of student work. Students will work during 1996-97 to improve the car for competing in 1997 and future annual races.

The Indiana Academy Parents Booster Club has supported the project by providing the funding to purchase the electric motor that will power the car. The team recently began an Adopt-a-Solar-Cell campaign to raise the necessary funding to purchase the solar cells that will power the car; individuals can donate $10, $15, $20, or any other amount to purchase one or more of the over 500 cells needed. The team has contacted Indiana-based
foundations seeking support and continues to seek corporate sponsorship for the project.

During the 1996-97 school year, a new science elective course, Technology Applications, will give students the opportunity to work on the solar car and other engineering projects for credit. The course is open to all students and has no pre-requisites. Preliminary enrollment in the new course has surpassed enrollment in nearly every other science elective course to be offered.

Students in the course will function as an engineering team to design and build working prototype solutions to challenging, real-world engineering problems. Class time will be devoted to student design and construction work. The course will emphasize problem-solving processes and applying math and science knowledge, particularly physics knowledge. Projects may include, in addition to the solar car, the 1997 National Engineering Design Challenge and other appropriate engineering competitions.

The coach of the Solar Car Team, and instructor of the Technology Applications course, Indiana Academy Instructor Dennis Federico, has, in recent years, successfully led students to national recognition in engineering projects. Mr. Federico coached the student engineering team that ranked third in the nation in the 1994 National Engineering Design Challenge, successfully creating a robot capable of carrying 125 lbs of groceries up stairs. In 1995, his students successfully created a computer-controlled robot arm capable of displaying a series of transparencies on an overhead projector.
"Violets Aren't Always 'Blue'
by Dr. Jeff Smith

Dr. Jeff Smith, life science instructor at the Indiana Academy, is a nationally known researcher in the genetics and taxonomy of African violets. Smith writes the hybridizers advice column, "In Search of New Violets," for the African Violet Magazine (AVM), the official publication of the African Violet Society of America (AVSA). Smith has also written more than 20 feature articles for the AVM and has been featured in articles by the Los Angeles Times and Organic Gardening.

Smith started growing African violets as a hobby while in graduate school. He noticed that there was a great deal of variation in the flower colors of African violets. Checking the available research, he found that little had been published on the genetics of this popular flowering house plant, despite 100 years of intense plant-breeding efforts. A study of the flower pigment chemicals suggested a model for the genetics of flower color, which was later confirmed by plant-breeding experiments.

Although Smith doesn't breed African violets for commercial sales, 20 of his cultivars have been released for sale among African violet hobbyists. His "Genetic" series have variegated foliage, while his "Tomorrow" series have solid green leaves. Smith's plants are introduced through "The Violet Express," a mail-order hobbyist firm in Eagle River, Wisconsin.

Students have worked with Smith on various African violet research projects. One student in Oklahoma was twice able to take her research to the International Science and Engineering Fair and had two publications in the AVM. Indiana Academy students Caitlin Skinner and Matt Glenn also had two publications on the chemical analysis of the flower color pigments, while Skinner and Alesha Nastoff prepared a manuscript on a project involving leaf pigments. Current Indiana Academy students working on African violet projects include Meena Data (gel electrophoresis of leaf proteins), Neeru Gupta, Cathy Stehower (anther tissue culture for homozygous stock plants), and Charles Bailey (leaf pigments in new African violet species). Data and Gupta received grants from the AVSA for their work. Brian Dewes, an Indiana Academy graduate, also received an AVS grant for a research project involving a DNA extraction method from African violet leaves.

African violets are native to various mountainous areas of Tanzania and Kenya. The native habitat of these plants is rapidly disappearing, and efforts are being made to conserve the wild
species in greenhouses. Smith has 21 of the 23 known species, including plants from the Uppsala Botanical Gardens and a private collector in Nairobi, Kenya. His collection of the wild species is the second largest in the United States — the largest is at Iowa State University — and one of the largest collections in the world. Some of his current research is identifying the plants in the collection and determining if new species need to be described. Smith is currently collaborating with researchers at Pennsylvania State University for a DNA study of the genus.

In addition to the wild species, Smith has a collection of more than 200 different kinds of African violets. He keeps a light stand in his office, on which he grows more than 30 different cultivars.