

# NEW YORK CITY ALLIANCE NEWS



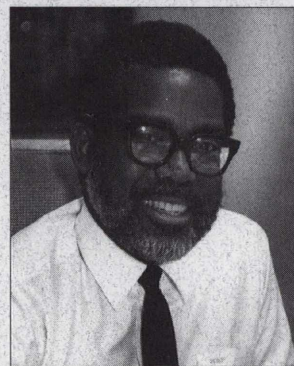
ALLIANCE FOR MINORITY PARTICIPATION IN SCIENCE, ENGINEERING AND MATHEMATICS

## ***Leveraging AMP Research Scholarship Funds Through Mini-Institutes, Some Thoughts from the Principal Investigator, Dr. Neville A. Parker***

“As AMP enters Phase II,” says Dr. Neville Parker, “we must reach as many students as possible and derive the maximum benefit from our funding. We should use our resources creatively. Mini-institutes developed around the research projects of CUNY faculty would be a vehicle for enhancing our research program and attracting outside funding.”

Dr. Parker points out that, while in Phase I AMP offered research opportunities only to undergraduates, in Phase II the program has the ability to include high school and graduate students in research activities. Phase II provides support for one hundred and sixty undergraduate Research Scholars, forty high school students, and sixty graduate students. “Mini-institutes would allow us to bring this continuum of students, from high school through graduate school, into research,” he says. There are two programs which Dr. Parker feels AMP could emulate. The first is the NASA/GISS Institute on Climate and Planets (ICP), in which students from high school, college, and graduate school join NASA scientists to work on cutting edge projects in climate and planetary research. The second is the City University Institute for Transportation Systems at City College. There, a team of graduate and undergraduate students, who are joined by high school students during the summer, work with Dr. Parker to find solutions to the problems of recycling construction demolition waste. The team will remain in place for the life of the research project, though its composition may change as some students graduate and others come into the program. Creating similar, project-centered mini-institutes through AMP would maximize a key resource, the university’s research faculty, whose time is at a premium. “Our challenge at AMP is not only to attract students to research,” says Dr. Parker, “but to find faculty who are willing to open their laboratories and mentor them. The mini-institute allows one professor to guide and inspire a whole group of students while developing an enthusiastic and effective project support system. Within the research team, students learn from each other, and high school students and undergraduates have the heady experience of working with graduate students who are already set on a career in science.”

“The AMP program should be a starting point and a catalyst, not an end in itself,” says Dr. Parker. “Through mini-institutes we would establish a series of research projects which are up and running and doing important work. This type of success should attract support from the private sector. That has certainly been my experience at the Institute for Transportation Systems. We have the resources within Phase II to make some new and exciting things happen. We can leverage the money which the National Science Foundation is investing in science, mathematics, engineering, and technology education at CUNY.”



*Dr. Neville A. Parker  
NYC AMP Principal  
Investigator*

## ***Research, Mentoring, and Course Restructuring are the Focus of a Fall Colloquium***

***CUNY Faculty Research, Mentoring of Undergraduate Research Scholars, and SMET Course Restructuring*** was the title of the CUNY Faculty Development Colloquium held at Borough of Manhattan Community College on October 24. The program was co-sponsored by the New York City

Alliance, which has worked for five years to create and institutionalize a cadre of SMET mentors at CUNY.

The Colloquium’s Keynote address was delivered by Dr. Ronald Thornton, Director of the Center for Science and Mathematics Training at Tufts University, where he has worked on developing more effective ways of teaching science from the middle school level up. Dr. Thornton outlined his educational philosophy which exemplified what AMP has been trying to accomplish through the

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Louise Mirrer, *Vice Chancellor  
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Louise Squitieri	<i>NY City Technical</i>
Leon Johnson	<i>Medgar Evers</i>

### Project Administrator

To Be Named

### Senior Administrative Assistant

Jeanette Schnabel	<i>City</i>
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### Administrative Assistant

Maria Colabella	<i>City</i>
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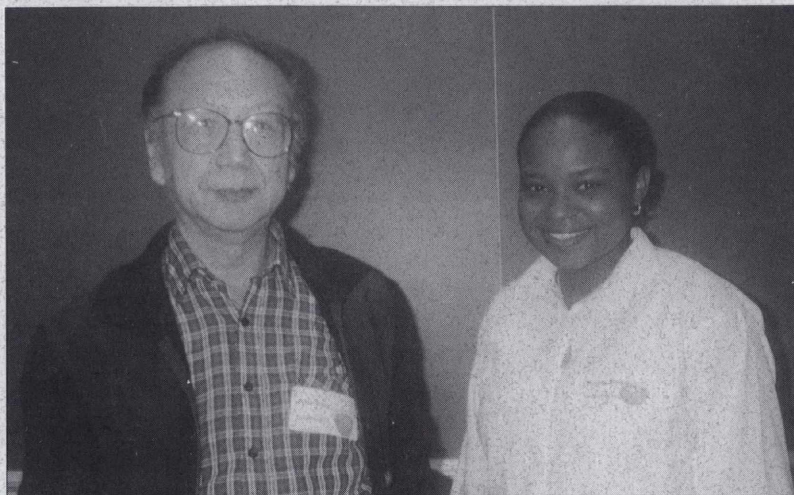
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### New York City Alliance News

**Editor:** Helena Leslie  
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The New York City Alliance for Minority Participation is funded by a grant from the National Science Foundation.



*A mentor/student team: Professor Peter Wong and Daphne Demas of Queensborough Community College. Daphne offered a poster presentation on "Photodeposition of Iron Pentacarbonyl onto PVG Glass."*

restructuring of SMET courses at CUNY. He advocated peer instruction and collaborative work, activity-based curriculum materials which encourage classroom consensus and let the physical world be the authority, and appropriate use of technology. He stressed the importance of emphasizing conceptual understanding and linking abstractions to the concrete. He showed how specific applications of these principles to the teaching of physics at Tufts have improved students' understanding and mastery of physics subject matter and increased enrollment in physics courses.

Dr. Thornton's presentation was followed by a Faculty mentoring panel consisting of Dr. Stanley Bajue of Medgar Evers College, Drs. Joseph Barba, Winfred Sylvester, and Neville Parker of City College, Dr. Louise Squitieri of New York City Technical College and Dr. Lawrence Sher of Borough of Manhattan Community College.

The panel exemplified the best in SMET mentoring at CUNY but also pointed to the work ahead if mentoring is to become standard practice across the University. In his initial comments, Dr. Parker described mentoring as "a comprehensive understanding of the student and an ability to forestall academic difficulties by tackling areas which are not academic." "Mentoring," he said "is a totally engaging process." Dr. Squitieri pointed out that as AMP tries to expand the number of teachers at CUNY willing to become mentors it must face the fact that teachers often do not know what to do and students do not know what to expect. "An educational program is necessary for mentors," she concluded. Dr. Barba emphasized that mentoring should be done by all faculty members. "If mentoring is done only by a few people," he said, "they burn out." Dr. Bajue spoke of starting the mentoring process as early as the high school years so that students do not fall through the cracks. Dr. Sylvester described how he gets students to look at what he has accomplished in his own life, to realize that he was not born a professor, and that they too can fulfill their aspirations. "I am a mentor because I love people. It is a human thing to do," he explained.

The program concluded with an array of twenty-three poster presentations from seven campuses which exemplified the stellar work which can be done when students and mentors join in research.

*"The ICP is attempting to integrate high level research with educational efforts that will benefit students, educational instructors, and research staff. It is doing this in a manner which is innovative and unique, through projects in climate and planetary research which will have implications for everyone.*

*The ICP retreat will lead to a strategic plan which will impact the way in which we teach science and the way in which an organization such as NASA can affect science teaching. As the ICP work previously done at the GISS facility is transferred to satellite institutes on CUNY campuses, the program will maximize resources at the participating colleges, high schools, and GISS to make significant contributions to education and research. In the ICP, students have contributed their creativity, GISS has brought its material and intellectual resources, and CUNY has served as an interface between the two. In the process the University has strongly influenced the way in which scientific instruction and research take place in higher education."*

*Dr. Fitzgerald B. Bramwell*

*Vice President for Graduate Studies and Research, the University of Kentucky  
Founding AMP Principal Investigator*

## **The ICP Takes Stock and Plans for the Future**

Since 1994 the NASA/GISS Institute on Climate and Planets has brought together students and faculty from CUNY campuses and New York City high schools to do cutting edge research in teams led by NASA scientists. In preparation for its second three-year phase, the ICP held a retreat to discuss past accomplishments and plan for the future. "The hope," says ICP Director Carolyn Harris, "was to enter Phase II of the program with an understanding of the lessons learned from the pilot period and a clearer vision of the program model on which to base our future activity."

The retreat, which took place in October at Hunter College, brought together thirty-five students, including several returning alumni, school and college administrators, and scientists. The event was facilitated by Dr. Fitzgerald Bramwell, the founding AMP Principal Investigator, now Vice-President of the University of Kentucky, who continues to be an important ICP advisor.

Prior to the retreat, participants engaged in a web dialogue held on the ICP Virtual Research Institute. On the day itself, they divided into teams and discussed the project's goals and activities, individual and institutional responsibilities, and the research program. "The retreat," says Ms. Harris, "allowed us to get input on how to run the program from the people who contribute to it and benefit from it. It helped us learn how best to serve our constituents, taking into account the needs of their institutions."

Ms. Harris found the retreat very helpful in handling the crucial issues of replication and evaluation. She points out that the ICP is increasingly being challenged to pursue activities which benefit the largest possible number of young people, but that it must take into consideration the goals of its participating schools and colleges, and of NASA. "We must do something that fits us and our resources," she says. "The challenge," she continues, "is to be able to share and replicate what we are doing. Replication is very important to NASA."

The group determined that the best way to disseminate ICP activities and share the project's educational strategy was through the ICP Virtual Research Institute and through the teacher preparation and enhancement courses which the project is developing. In terms of evaluating the ICP's success, the consensus of the retreat was that two appropriate measures would be the number of student research products on the Web and the number of research programs in the schools. Participants agreed, however, that assessing the quality of those products and programs poses a greater challenge.

Looking towards the future, the retreat saw the ICP casting a wider net as schools and colleges in the project become resources for other institutions and develop their own particular areas of scientific expertise. As the ICP matures, GISS, originally the venue of most project activities, will increasingly be the test bed, while participating schools and colleges play an ever greater role, becoming fully functioning research institutes.

## **The ICP Participates in the College Preparatory Initiative Conference "Developing Shared Expectations"**

ICP Director Carolyn Harris and a panel consisting of Brendan Curran of Townsend Harris High School, Michael Carvelas and Joel Shapiro of Clara Barton High School, and Barry Fried and Michael McDonnell of Canarsie High School presented ICP activities and curriculum at the Fall conference of the College Preparatory Initiative.

They engaged conference participants in sample activities from two on-going projects which address the newly-revised New York State Standards. In the first project, five Brooklyn High Schools are collaborating to measure and analyze local weather conditions. The data they collect is uploaded at the ICP's central station for use by all students involved in Earth Science. In the second project, the ICP is working with student researchers at the Bronx High School of Science to understand the effects of aerosols on the atmosphere.

## ***AMP's Teacher Preparation Initiative is Up and Running***

With thirteen participating high schools, twenty-six teaching assistants and thirteen teacher/mentors, the Alliance's Teacher Preparation Initiative is becoming well established. The program began in the summer of 1997 when six high schools took part in the Science Teacher Preparation Academy Summer Institute. It is continuing on campuses during the academic year, entering the spring semester with seven new schools on board.

The Initiative seeks to provide AMP students with the knowledge and skills they need to teach science, mathematics, and technology in an urban, multicultural environment. The program is pairing CUNY SMET majors with master teachers from the New York City Board of Education, who train them in the use of exemplary science curricula. Kevin Gravesande, a junior at New York City Technical College, majoring in electrical engineering technology, worked with Mrs. Debera Deutchman at Hillcrest High School in Jamaica, Queens in the Summer Institute. He is continuing in Mrs. Deutchman's classroom during the academic year. "I had always been interested in being a teacher," says Kevin, "but over the summer I realized that this is what I really want to do."

Kevin feels that he has developed a rapport with the students at Hillcrest because he is close to them in age and knows their world. Mrs. Deutchman says that he has been a wonderful role model and a tremendous help, especially in the fall when she had a class of thirty-four students. "Many of the kids were not where they should have been in their command of the material, and Kevin helped me find out what each one knew. He worked with kids who were at risk of failure. He talked to them about motivation and study habits - and they listened. He has been so popular that kids from the summer session come to my class looking for him," she says. Kevin has learned a lot from Mrs. Deutchman. "I often skipped steps when I was explaining things to the kids because I understood the material myself. Mrs. Deutchman would tell me to slow down and show me different approaches," he says. After City Tech, Kevin plans to earn a B.S. at either Columbia or Virginia Tech. He hopes to continue working in the City's schools while he finishes his studies.

For Janet Smith, an honors Bronx Community College graduate in electrical engineering technology, now majoring in computer science at City College, the Summer Institute was an empowering experience. She and teacher Rosemary Williams had two groups of students in the program at Morris High School. One was unruly, and Janet found that she was able to help Ms. Williams control the class. Because the groups were at different levels



*Janet Smith with students at Morris High School*

## **The Original Teacher Preparation Academy High Schools, Listed by Superintendency**

### **BASIS**

*Fort Hamilton High School*

### **BRONX**

*Morris High School*

### **BROOKLYN**

*South Shore High School*

### **MANHATTAN**

*A. Philip Randolph High School*

### **QUEENS**

*Hillcrest High School*

### **ALTERNATIVE**

*Lincoln Hostos Academy*

## **High Schools Joining the Project in Spring 1997**

### **BASIS**

*John Jay High School*

### **BRONX**

*Theodore Roosevelt High School*

### **BROOKLYN**

*Canarsie High School*

### **MANHATTAN**

*Manhattan Center for Science and Math*

### **CMSP**

### **QUEENS**

*Richmond Hill High School*

### **ALTERNATIVE**

*Brooklyn College Academy*

academically, Ms Williams used slightly different experiments to teach the same earth science curriculum and engaged Janet in tailoring the instruction to fit individual needs. "I loved the kids," she says, "and they loved me, which was a great feeling." Janet returned to Morris for the fall semester. In addition to her studies at City College she is participating in Americorps, where she is applying her computer skills to evaluating the establishment of a Business Improvement District in the City College neighborhood.

"The Teacher Preparation Academy is already providing its students with the opportunity to experience teaching," says AMP Project Director Dean Louise Squitieri. "The next step is to engage them in research through mini-institutes on CUNY campuses. This will give them the understanding of scientific inquiry which is the hallmark of fine teaching in SMET disciplines."

## STEERING COMMITTEE PROFILES

### **Dean Diane Call, Queensborough Community College**

Dr. Diane Call, the Assistant Dean of Instructional Support Services at Queensborough Community College, is the new QCC representative on the AMP Steering Committee. A Queensborough veteran of twenty-six years, Dean Call's broad responsibilities at the college include academic administration, admissions, and overall enrollment management. She holds three degrees from Columbia University: a doctorate in college and university administration, a master's in community college administration, and a master's in student personnel administration.

Dean Call has spent her entire Queensborough career in student services. This gives her considerable expertise in the issues AMP faces as it seeks to bring more students into SMET disciplines and support them on the academic path to SMET careers. Dean Call has been responsible for the College Discovery program, which identifies students who have been disadvantaged and assists them

through retention activities. She has overseen CSTEP at Queensborough and has led the Freshman Year Initiative. She has supervised the college's peer mentor project and tutorial services.

Despite an incredibly full administrative schedule, Dean Call finds time for the classroom. She is on the faculty of the Long Island University Graduate School of Education where she teaches courses on counselling and ethical and legal issues in the master's program in college student development. "Being an administrator, a teacher, and dealing with so many aspects of students' lives allows me to see problems from all points of view," she says.

Dean Call finds her new position on the AMP Steering Committee rewarding and is very pleased with the impact which the program has had at Queensborough. "We have extraordinary faculty spearheading AMP on campus," she says. "AMP is part of a strong corpus of NSF-funded programs at Queensborough. The combined impact of these initiatives in departments such as Physics and Electrical and Engineering Technology is greatly enhancing the teaching of SMET disciplines."

## AMP STUDENT IN THE NEWS

### **Shelly Ann Miller, A High Achiever at Brooklyn College**

Shelly Ann Miller, a senior at Brooklyn College majoring in biology, already has an impressive résumé. In 1997 she received two of the college's most prestigious awards in the sciences. She was named Most Outstanding Research Student and was granted the Libby Kohl Banks Scholarship for showing motivation and achievement in the study of biology. As an undergraduate, she has already made presentations to meetings of the Society for Neuroscience and the Society for Integrative and Comparative Biology. She has published abstracts (co-authored with her mentor, Dr. Martin Schreibman) in *American Zoologist*, *The Society for Neuroscience Abstracts*, and *In vivo*.

The work which has brought her these accolades is the research she and graduate student Katherine Flynn have been doing under Dr. Schreibman's mentorship. Currently working at Brooklyn College's new Aquatic Research and Environmental Assessment Center, which Dr. Schreibman directs, they have been studying the dynamics of the NMDA glutamate receptor, and its involvement in regulating the onset of puberty in the platyfish *Xiphophorus maculatus*.

Shelly has been in the AMP program since 1995. When she approached Dr. Schreibman about working in his laboratory and learned that she would have to commit a minimum of fifteen hours a week, she was daunted. She has to support herself and did not know how she could make the time. Dr. Schreibman solved the problem by telling her about AMP. It is the project's stipends which have allowed her to do her outstanding work. "When I think of my research," she says, "I credit



*Shelly Ann Miller*

my father with instilling in me the strength, perseverance, and patience to pursue my goals, and I thank AMP for the funding which makes it possible."

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## NEW YORK CITY ALLIANCE

### ***Dean Erwin Fleissner and Dr. Frank Scalzo, AMP Veterans, Retire from CUNY***

AMP wishes to thank two important members of its team who have retired from CUNY. Professor Erwin Fleissner, Dean of Sciences and Mathematics at Hunter College, was instrumental in structuring the proposal to the National Science Foundation which established the Alliance on CUNY campuses. A member of the AMP Steering Committee from the project's inception, he has been invaluable in guiding AMP through Phase I. Dean Fleissner speaks with pride of the spirit of cooperation the program has engendered in the CUNY SMET community and the opportunities the Undergraduate Research Experience Program has afforded talented SMET students.

In retirement, Dean Fleissner is working on a long-postponed book on molecular biology. He also will be consulting to the Hastings Center on how new developments in the life sciences

and related bioethical issues affect medicine and society.

Dr. Frank Scalzo, a twenty-eight year veteran of Queensborough Community College, where he was Professor of Mathematics and Computer Science, became AMP Program Administrator in 1994. He previously had served as the QCC AMP campus coordinator. While at AMP, Dr. Scalzo was deeply involved in the CUNY AMP/NASA GISS partnership. He intends to pursue that interest in retirement. He will be working at GISS part time, serving as a special assistant to the Institute's Head, Dr. James Hansen, and helping with the NASA/CUNY cooperative agreements.

Of the past five years Dr. Scalzo says, "My association with the New York City Alliance has been very rewarding. I am extremely proud of the many achievements of the AMP family. The project's commitment to enhancing the educational achievements of underrepresented groups through research, curriculum development, teacher preparation, and government and private sector partnerships is to be commended."

**Effective Immediately**  
**A New E-mail Address for NYC AMP**  
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