

# Bringing Human Diversity into the Mainstream of Entomology

DOROTHY FEIR, JOYCE HILLIARD-CLARK, JOSEPH R. LARSEN,  
LINCOLN MOORE, EDGAR G. KING, and JANE L. HAYES

## Why Not Her?

Dorothy Feir

**T**HE JUNE 17, 1988, AAAS CONGRESSIONAL BULLETIN stated that "... female and minority students ... by the year 2000 will comprise 80 percent of the new entrants into the work force." If we believe this—and it is more or less a statistical fact—why are we here? We are here to make certain that the idea in that statement comes to fruition and to discuss what we can do to make certain that women and minority students are prepared to reach any position on the ladder of success. The increased numbers of women and minorities entering the work force mean that there will be a much larger work force and much more competition for available positions.

When I was asked to participate in this informal conference I was asked to express my views on ways to increase the participation of women in our discipline and in society. Much of what I will say will apply to minorities, physically handicapped, and men as well as women because the pathway to opportunity should be the same for everyone. A significant point to keep in mind, however, is that the pathway has not been the same because of conscious as well as some unconscious decisions and actions by the majority group, white males. Therefore there is a kind of backlog of attitude as well as inadequate preparation that must be overcome in "mainstreaming" women and minorities. There are no sound, justifiable reasons for the continuing lack of women in positions of responsibility and authority.

The situation for women has improved greatly or we would not be able to have this particular conference, would we? There are many more women in college who are majoring in the sciences and who are entering graduate programs than there were 20–30 years ago. But there are not so many as there could be and, according to Sheila Widnall in an article in *Science* 1988, far more women than men drop out of graduate school before obtaining their doctorates. Other results of Widnall's survey give us many clues as to what needs to be done. She reports that women "differed significantly from men in their perceptions of their preparation for graduate study, in the pressures and roadblocks that they experienced, and in the strategies that they developed for coping with these pressures." I urge you to read this article. I especially urge you to digest and to incorporate into your action program the following statement from the article: "A reasonable

## Bringing Human Diversity into the Mainstream of Entomology

James A. Richmond and Susan P. Whitney

**S**TATISTICS ARE SKETCHY or lacking on the numbers of women, members of minority or ethnic groups, and physically and mentally impaired people employed in entomology. Traditionally, able-bodied white males filled the majority of entomological positions in government, academia, and industry. Data are not compiled to confirm the current makeup of the almost 9,000 ESA members. If attendance observed at society meetings during the past 10 years is a barometer, however, white males still dominate entomology. Underrepresentation of certain groups in entomology and in professional work forces in general is a problem (Silver et al. 1988). Solutions to that problem must include training as well as employing, and ultimately weaving into the field an equitable proportion of members of each group.

Changing the obvious imbalance will be challenging. Patterns in a work force usually remain static for years (U.S. Census). But joint efforts at all levels by organizations that employ entomologists can make a tremendous difference. The question is whether decisionmakers are willing to accept the unmistakable facts, face the problem, and take necessary actions.

It seemed appropriate to organize this Informal Conference at the ESA Annual Meeting to begin to face the problems. A panel of people who understand the issues involved and the existing conditions was convened to discuss the topic. In addition to those whose viewpoints make up the body of this article, other participants in this conference were Pedro Barbosa, Department of Entomology, University of Maryland, College Park, and Ronald J. Kuhr, Associate Dean and Director of Research, College of Agriculture and Life Sciences, North Carolina State University, Raleigh.

Partial proceedings of an Informal Conference held at the National Meeting of the Entomological Society of America, Louisville, Ky., December 4–8, 1988.

The extremely low employment of members in the underrepresented groups is not a negative reflection on any one individual, nor was the Informal Conference intended to lambaste people in key positions. Rather, the primary purposes of this conference were to highlight the lack of equitable diversity in science, and particularly entomology, to discuss the employment issue openly, and to generate thoughts for recommendations that may improve existing conditions. Perhaps, the latter purpose will help alleviate the problem of underemployment of the target groups by establishment of a steering committee to study the problem, by making employers more aware of the problem, by emphasizing the valuable human resources available, and by eliminating the "we can't find any" syndrome (Harvey & Scott-Jones 1985). □

### References Cited

- Harvey, W. B. & D. Scott-Jones. 1985. We can't find any: the elusiveness of black faculty members in American higher education. *Issues in Ed.* III: 68–76.
- Silver, J. H., R. W. Dennis & C. Spikes. 1988. Black faculty in traditionally white institutions in selected Adams states: characteristics, experiences and perceptions. Southern Education Foundation, Atlanta.

---

*James A. Richmond is a research entomologist, USDA–Forest Service, Southeastern Forest Experiment Station, Raleigh, N.C. Susan P. Whitney is pesticide coordinator, University of Delaware, Newark.*

---



*Catherine Reppell, Robert Brady, and Dorothy Feir (left to right) trapping mice to collect ticks.*

objective for the education of women and minority students is that they have a fair chance to succeed in graduate school; that the feedback loop of lowered expectations based on sex or race, leading to lowered self-image and finally to lower performance, be broken by conscious action by faculty and students; and that the students be aware of the future consequences of career-related decisions.” The awareness of the consequences of our decisions is difficult and we all would probably have benefited greatly from some discussion of this in our formative years, i.e., from age 0 to 100!

---

*If we want to attract more women to entomology,  
we need to do something about the stereotype  
of women screaming at the sight of a bug.*

---

If we want to attract more women to entomology, we need to do something about the stereotype of women screaming at the sight of a bug. We need to reach students in grade schools and high schools. How many of you have visited a grade or high school in the past few years to talk about possible careers in entomology? How many of you have tried to explain your research or your interests in entomology to young students? You can all do this. You can emphasize the equal opportunities for boys and girls by including research done by both men and women. There is a greater impact on girls in the audience if the presentation is by a woman—or is that a mistaken idea?

Once girls are in college, how can you guide them toward studies in entomology? Women on the campus, and men who are concerned about the problem, should take every opportunity to speak to student groups or girls' groups about entomology and how to prepare for careers in entomology. The opportunities, rewards, and problems need to be presented clearly. Try to give guest lectures in related courses and include in all your lectures as many references to the work of women as you can search out. Displays for bulletin boards and display cases should be prepared and should include women and minorities in them because omission of these is a subtle but definite form of education. If a woman is not included, find out why the display did not include her. Why not her?

Whether you are in a college, government, or industrial setting, occasionally invite a class or a group of students to tour your lab and see what you do. It is good for you and it is good for them. Many undergraduates are eager to participate in research projects on a volunteer basis if you do not have the resources to pay them. Students can also be given credit for working on research projects. Admittedly there are sometimes problems with volunteers, but you have to balance your goals and your efforts. Actively seek out some of these students. And in making your selections, remember to ask “Why not her?”

## Bringing Human Diversity into the Mainstream of Entomology

James A. Richmond and Susan P. Whitney

**S**TATISTICS ARE SKETCHY or lacking on the numbers of women, members of minority or ethnic groups, and physically and mentally impaired people employed in entomology. Traditionally, able-bodied white males filled the majority of entomological positions in government, academia, and industry. Data are not compiled to confirm the current makeup of the almost 9,000 ESA members. If attendance observed at society meetings during the past 10 years is a barometer, however, white males still dominate entomology. Underrepresentation of certain groups in entomology and in professional work forces in general is a problem (Silver et al. 1988). Solutions to that problem must include training as well as employing, and ultimately weaving into the field an equitable proportion of members of each group.

Changing the obvious imbalance will be challenging. Patterns in a work force usually remain static for years (U.S. Census). But joint efforts at all levels by organizations that employ entomologists can make a tremendous difference. The question is whether decisionmakers are willing to accept the unmistakable facts, face the problem, and take necessary actions.

It seemed appropriate to organize this Informal Conference at the ESA Annual Meeting to begin to face the problems. A panel of people who understand the issues involved and the existing conditions was convened to discuss the topic. In addition to those whose viewpoints make up the body of this article, other participants in this conference were Pedro Barbosa, Department of Entomology, University of Maryland, College Park, and Ronald J. Kuhr, Associate Dean and Director of Research, College of Agriculture and Life Sciences, North Carolina State University, Raleigh.

Partial proceedings of an Informal Conference held at the National Meeting of the Entomological Society of America, Louisville, Ky., December 4–8, 1988.

The extremely low employment of members in the underrepresented groups is not a negative reflection on any one individual, nor was the Informal Conference intended to lambaste people in key positions. Rather, the primary purposes of this conference were to highlight the lack of equitable diversity in science, and particularly entomology, to discuss the employment issue openly, and to generate thoughts for recommendations that may improve existing conditions. Perhaps, the latter purpose will help alleviate the problem of underemployment of the target groups by establishment of a steering committee to study the problem, by making employers more aware of the problem, by emphasizing the valuable human resources available, and by eliminating the "we can't find any" syndrome (Harvey & Scott-Jones 1985). □

### References Cited

- Harvey, W. B. & D. Scott-Jones. 1985. We can't find any: the elusiveness of black faculty members in American higher education. *Issues in Ed.* III: 68–76.
- Silver, J. H., R. W. Dennis & C. Spikes. 1988. Black faculty in traditionally white institutions in selected Adams states: characteristics, experiences and perceptions. Southern Education Foundation, Atlanta.
- 
- James A. Richmond is a research entomologist, USDA–Forest Service, Southeastern Forest Experiment Station, Raleigh, N.C. Susan P. Whitney is pesticide coordinator, University of Delaware, Newark.*



*Catherine Reppell, Robert Brady, and Dorothy Feir (left to right) trapping mice to collect ticks.*

objective for the education of women and minority students is that they have a fair chance to succeed in graduate school; that the feedback loop of lowered expectations based on sex or race, leading to lowered self-image and finally to lower performance, be broken by conscious action by faculty and students; and that the students be aware of the future consequences of career-related decisions.” The awareness of the consequences of our decisions is difficult and we all would probably have benefited greatly from some discussion of this in our formative years, i.e., from age 0 to 100!

---

*If we want to attract more women to entomology,  
we need to do something about the stereotype  
of women screaming at the sight of a bug.*

---

If we want to attract more women to entomology, we need to do something about the stereotype of women screaming at the sight of a bug. We need to reach students in grade schools and high schools. How many of you have visited a grade or high school in the past few years to talk about possible careers in entomology? How many of you have tried to explain your research or your interests in entomology to young students? You can all do this. You can emphasize the equal opportunities for boys and girls by including research done by both men and women. There is a greater impact on girls in the audience if the presentation is by a woman—or is that a mistaken idea?

Once girls are in college, how can you guide them toward studies in entomology? Women on the campus, and men who are concerned about the problem, should take every opportunity to speak to student groups or girls' groups about entomology and how to prepare for careers in entomology. The opportunities, rewards, and problems need to be presented clearly. Try to give guest lectures in related courses and include in all your lectures as many references to the work of women as you can search out. Displays for bulletin boards and display cases should be prepared and should include women and minorities in them because omission of these is a subtle but definite form of education. If a woman is not included, find out why the display did not include her. Why not her?

Whether you are in a college, government, or industrial setting, occasionally invite a class or a group of students to tour your lab and see what you do. It is good for you and it is good for them. Many undergraduates are eager to participate in research projects on a volunteer basis if you do not have the resources to pay them. Students can also be given credit for working on research projects. Admittedly there are sometimes problems with volunteers, but you have to balance your goals and your efforts. Actively seek out some of these students. And in making your selections, remember to ask “Why not her?”

The next step is graduate school. How can you help these young women once they are in graduate school? See to it that they take the most challenging courses, help them select meaningful research projects, make sure they present group or departmental seminars, get them involved in local and national professional societies, and most of all impress on them that their voices and comments need to be heard. In summary, make sure that each woman develops her complete complement of competencies. Then when the magic day of graduation comes, the women are on an equal footing with the men, and your role is to help them get the best position for which they are qualified. When you hear of an opening, remember to ask "Why not her?"

These are the more tangible things that you can do, but there are other objectives that need to be accomplished. Many young women have a mental set or attitude that creates a need for a great deal of encouragement before they can envision themselves in positions of competition or authority. And the mental vision is the beginning. You, men and women, have to help these young women look down the road 10 or 20 years to see where they will be or where they would like to be. Traditionally, boys have been concerned about their futures because they anticipated the need to support a family and attain some stature in the community. Girls have not been encouraged to view their futures in this way or to make long-range career goals. It is time they did so. Many young women have to support themselves as well as various types of families, and they need to prepare early in life to do so. With increasing opportunities for women, men will not automatically move into the best paying positions, and many women may be the principal wage earners in their families. The truth is, I think, that there are many men who would rather not be in competitive jobs or managerial positions, just as there are many women who do not want these "opportunities." It is time for both genders to seek satisfying life roles without worrying about what they "should" be doing. But the expectations, the attitudes, the mental sets of both men and women have to incorporate these changes. In the meantime, we have to encourage women to prepare for new roles, we have to guide them so that they will not be surprised by some of the still discriminatory actions in the world and so they will be better able to laugh them off or do something constructive about them. It is never pleasant to see someone less qualified than you get a job you want, but when you realize the reasons and know that you have legal as well as collegial support for opposing this action, you will do something about it. In my opinion, it is still quite true that frequently the job a woman does is criticized more severely than the same job done by a man, that a man's mistakes are overlooked much more readily than a woman's, and that a man's personality and idiosyncracies are accepted or ignored much more readily than a woman's. Once young women realize these things, they can develop better ways of coping; and once men realize these things, many of them will quit doing them. Most people want to do the right thing, but logic rather than tradition should determine what is right.

The burden of mainstreaming is not totally on the establishment, of course. Young women must be conscious of their roles and the consequences of their actions. They must learn the best ways to get things done by watching and observing successful men as well as women. They must know their rights and how to assert them. They must put forth the extra effort to stop any discriminatory action or threat that they see. There is strength in numbers and, as the number of women in significant positions increases, opportunities for women will increase and we will no longer have to ask ourselves and others, "Why not her?" □

#### References Cited

Widnall, S. 1988. AAAS presidential lecture: voices from the pipeline. *Science* 241: 1740-1745.

*Dorothy Feir, Past-President of ESA, is Professor of Biology at St. Louis University, St. Louis, Mo. Her current research is concerned with the incidence and transmission of Lyme disease in the Midwest.*

# Challenges Facing Blacks in Nontraditional Fields

Joyce Hilliard-Clark

O ties have

## Limited Choices

Education and social customs in my youth were separate and unequal. As a result, I saw only two realistic choices during the 1960s when I graduated from high school—teaching school or nursing. I chose to become a biology teacher because of my high school biology teacher, several grade school teacher role models, and mentors. Attending a private women's college did little to enhance my career choices. The faculty and course offerings at the traditionally black college were not sufficient to prepare a student to enter a field such as forestry or entomology.

After nine years of teaching high school, I decided I needed a career change. With a husband, two young children, and house and car payments, the decision was not easy. In retrospect, I see that I took a tremendous risk. Fortunately, ignorance of risk is one of the virtues of youth. At the time, I knew I had enjoyed school, so going back to school seemed like a good way to make a career change. Major barriers in returning to school included fear of failure, family responsibilities, and loss of job security and benefits. The need to change, however, was greater than the drawbacks, so I took a leave of absence from teaching and went to North Carolina State University.

Because I am writing this paper, it is obvious that I succeeded. I earned a Ph.D. degree in forestry from N.C. State in 1985. That success shows that barriers are being removed, but I want to assure you that barriers did exist. The barriers I saw and felt included the negative attitudes of some instructors, a feeling that I was unable to compete scholastically, covert and sometimes overt unfriendliness from other students, failure of others to extend a helping hand, a lack of warmth and acceptance, and an uneasy feeling of being excluded from all but the formal social life of the campus. It is not surprising that the dropout rate among blacks was high, and special programs did not exist to help us meet our special needs.

## Succeeding on the Job

Since 1985, I have had similar problems on the job, too. Like anyone else, I have to keep abreast of technological changes to remain marketable. I am in competition, and it is discouraging to be earning less than others who are in similar positions. Other discouragements include charges of reverse discrimination, whites and males believing I have taken their job, negative images and stereotyping, low expectation of supervisors, being oversupervised, nitpicking by supervisors, not receiving needed resources to accomplish a task, being assigned inconsequential tasks, not being given sufficient authority to accomplish goals, and mismatches between assignments and abilities.

I believe that I have succeeded and that I will continue to succeed. An individual's formula for success must include creativity, ingenuity, tenacious drive, plain



Joyce Hilliard-Clark.

stubbornness, and commitment to develop and occupy a niche in an organization.

A person trying to break into a nontraditional occupation or organization has problems of perceptions—that individual's perceptions as well as the perceptions of others. The best a black or minority individual can hope for is to be judged on the merit of performance. To succeed, that person must perform well. But it is hard to perform well in the midst of real and perceived barriers. When a remark can be interpreted in a positive or a negative manner, it is hard for an outsider who is trying to get in not to interpret it negatively. It is hard not to perceive nonexistent barriers.

There are more than enough real barriers. In organizations that have been traditionally closed to blacks or women, Regina Nixon in a 1985 article in the *Urban League Review* says that subtle, rigid, and restrictive barriers function to "preclude promotion or lead to failure on the basis of 'fit' rather than competence." The key problem is with social interaction, which is absolutely necessary for blacks to be successful in managerial positions. Attitudes of blacks as well as whites bar blacks from certain kinds of social interactions. A white may feel uncomfortable interacting with a black peer, and the same is often true for blacks. Discomfort works both ways. In addition, general personal appearance often is a selection criterion for promotion. Skin color is not something a person can or should want to change, but it certainly may affect an employer's perception of one's ability, or performance, or both.

Blacks often feel isolated from the informal networks where a major portion of decisionmaking takes place. In part, that isolation is self-imposed. It is difficult for blacks and women to penetrate the "old boy network" and some are reluctant to try. Blacks face a two-headed dragon. Being friendly with white colleagues makes you an "Oreo" or an "Uncle Tom" in the eyes of some blacks. Associating with blacks gives you a reputation with some whites as being militant and "... precludes you from being accepted as yourself rather than as a representative of a minority group" Linda Stutz (1975).

Blacks who aspire to managerial positions face great difficulties. To succeed, they must become well rounded. They must be able to think and act on a number of different levels, and while they are doing so, they must retain their cultural heritage. Many blacks have succeeded in these tasks, but they have tended to be those with extraordinary ability.

### Facing a National Problem

The successes of some nonwhites and some females tend to obscure a national problem of underuse of the labor force. Successes are often interpreted as indications that the system is working as it should. Statistics, however, tell a different story. Despite the perception of many males that females are taking their jobs, unemployment rates are higher for women (9.3% nationally and 6.1% in North Carolina) than for males (7.9% nationally and 4.1% in North Carolina) (U.S. Department of Labor 1987, North Carolina Department of Labor 1984). Unemployment figures are 13.9% nationally and 9.9% in North Carolina for nonwhites compared with 7.8% nationally and 4.1% in North Carolina for whites.

A special report in *Business Week* (September 1988) reported that white males continue to dominate the job market, but that their role would shrink as additional women and nonwhites enter the labor force. To deal with a dwindling supply of skilled labor, however, the United States must make the investments that are necessary to fully use its people. After years of neglect, the problem of inadequate "human capital" has reached critical proportions. As the economy depends increasingly on women and minorities, a massive job of education and

social reform will be required to obtain the necessary skills needed for today's job market.

Women and nonwhites are concentrated in low-paying jobs and earn considerably less than white males. Since the 1960s, some blacks have achieved economic and occupational parity with whites, but the majority have not. The same may be said for women.

By 1995, it is estimated that blacks and hispanics will make up 28% of the college age cadre in the United States. Yet these minorities currently account for less than 2% of the doctoral degrees awarded in the sciences. After years of rapid growth, participation by women in the sciences and engineering has reached a plateau. In some areas, female participation is dropping. Blacks, who make up 12% of the population, earn only 5% of the medical degrees and less than 4% of the degrees in law and business. From 1979 to 1985, the percentage of blacks earning bachelor of science degrees dropped from 6.4 to 5.6%. In the past decade, the number of blacks earning Ph.D. degrees declined by 17%.

### Institutional Solutions

My personal experiences tells me that there are institutional barriers to the advancement of nonwhites and females in organizations. Statistics indicate that time alone is not taking care of the problem. It seems obvious that institutions must first recognize that barriers exist. Only then can they seek solutions. If the climate for minority and female success is nonsupportive, and I think it is, they must change the climate to one of support. Institutions must create an environment of understanding in which cultural differences are promoted rather than stifled.

I see a general need for four actions: personal attention and sponsorship by mentors, immediate inclusion of women and minorities on management teams, a genuine commitment to diversity, and an aggressive recruitment program.

---

*I see "valuing diversity" as a catch-phrase of successful managers in the 1990s as they strive to accommodate gender, ethnic, and cultural differences in the workplace and the marketplace.*

---

The personal attention and sponsorship that a mentor can provide greatly eases social integration into an organizational setting. Beneficial associations with "significant others" can greatly enhance the likelihood of survival in a new environment.

In 1956, Howard Becker and Anselm Strauss (1956, 62, 253–263) described sponsors and their role:

Sponsors are typically older, established veterans who function to govern younger mobile individuals in a number of ways: (a) to teach them unwritten or informal rules of behavior and policy; (b) to attune them to politics and power relationships; (c) to prepare them to fill their shoes or take on more responsibility at a higher level; (d) to arrange a number of critical learning experiences; and (e) to alert the 'favorites' to the proper sequence and timing of career moves. Thus, the central role of the sponsor is to socialize one into the customs and folkways of life and to prepare them for career advancement.

Women and minorities must be placed on management teams because white males by themselves cannot deal with the ethnically diverse U.S. marketplace. An organizational prosperity in the 1990s will depend on how well it performs in a multicultural environment. The diversity already exists, and institutions must learn to "manage diversity."

I believe that institutional success will require a real commitment to diversity. I see "valuing diversity" as a catch-phrase of successful managers in the 1990s as they strive to accommodate gender, ethnic, and cultural differences in the workplace and the marketplace. In the past, workers have been expected to blend into the organization. Today's trend is to accept heterogeneity, because nurturing diversity makes good business sense.

Aggressive measures are needed to remedy the underrepresentation of minorities and females in the sciences and technology. Minorities should be encouraged to pursue science and technology careers, which can be promoted through partnerships among historically black colleges and universities, industry, and government. Students must have access to advanced courses and scientific equipment to be successful. College instructors must guide qualified minority and women students toward the scientific workplace. The Entomological Society of America can provide leadership, incentives, and administrative policies to recruit students, and it can increase one's chances of success through mentoring.

In all these efforts, an atmosphere of acceptance and nurturing must be maintained. There are no easy solutions to the challenges that minorities and females face. Dedication, education, and personal commitment can make a difference, but they are not enough: We also need the help of others. It is society's advantage to build a diverse workforce by capitalizing on all the human resources available. Society must build a diverse workforce to remain at status quo. □

### References Cited

- Becker, H. & A. Strauss. 1956. Careers, personalities, and adult socialization. *Am. J. Sociol.* Nov.: 235-263.
- Business Week. 1988. Special report, Needed: human capital. Sept. 19: 101-141.
- Nixon, R. 1985. Black managers in corporate America: a good fit? *Urban League Rev.* II: 44-57.
- North Carolina Department of Labor. 1984. Statistical abstract, 5th ed. North Carolina State Data Center, Research and Planning Service, Raleigh.
- Stutz, L. 1975. Dealing with a two-headed dragon professionally and socially. *Contact* 5: 58-60.
- U.S. Department of Labor, Bureau of Labor Statistics. 1987. Employment and earnings. Washington, D.C.

---

*Joyce Hilliard-Clark is Program Coordinator for the Department of Community Colleges in Raleigh, N.C. She works with instructors of agriculture, natural resources, service occupations, math, and science to ensure quality of curriculum programs within the community college system. She also conducts technical workshops for instructors' staff development.*

## Handicapped in the Sciences

---

Joseph R. Larsen

**T**HOUGH MY TRAINING many years ago was in entomology, I currently serve as director of a rehabilitation education program. In that capacity, I am deeply concerned by many of the problems that face all disabled individuals. My major concern is attitudinal barriers in the minds of people, barriers that allow more than 60% of a viable work force in America to be unemployed.

Having served as head of the Department of Entomology at the University of Illinois for 5 years and subsequently as Director of the School of Life Sciences for 11½ years, I had many opportunities to work with individuals with disabilities. For some 14 years, I also worked with the National Science Foundation and AAAS in the development of programs for young men and women with disabilities to enter the field of science. It has taken us a long time to understand the potential of the disabled and to give them the opportunity to function in society. In the Ancient World, Spartans and others killed their physically imperfect citizens. This was done because of superstition and the pressing need of group survival. A physically disabled person was a risk to the safety and economic well-being of the group. In the Middle Ages, society didn't do a great deal more. The disabled became objects of ridicule and jesting; they were often the court jesters in medieval society. During the Renaissance, there was an awareness of the problem. The physically disabled were at least recognized; however, they were often confined to asylums and little was done to allow them to reach their potential.

By the 18th century, there was some organized social interest in the welfare of disabled citizens. It came in the form of custodial care. The first real effort was the establishment of an institution in Orbe, Switzerland, in 1780. It was not until the 19th century that any effort was made to educate people with disabilities. The first home to offer care and educational facilities for the disabled was opened in Munich in 1820. After this, many public and private schools for the handicapped sprang up not only in Europe but also in the United States. In the 20th century came the realization that care and education were not enough—that society must prepare the disabled to become self-supporting. Probably the most significant event was the establishment of the vocational rehabilitation program in 1920. Since then, thousands of disabled persons have become useful, productive citizens of their communities. As we move into the 21st century, we are finally beginning to realize that people



with disabilities can function in any environment and make a significant contribution to the world in which they find themselves. One of the finest examples that I can use tonight is our past president of the Entomological Society of America, Stanley Beck, who is physically disabled, but who not only distinguished himself as president of this organization but also as an outstanding scientist.

*Joseph Larsen at work in his laboratory at the University of Illinois at Urbana-Champaign.*

It is critical for you to realize that disabled people represent a significant portion of the population. During the years between 1974 and 1984, the U.S. Department of Transportation did a survey in which they noted that the able-bodied population increased at a rate of approximately 10%, while the disabled population increased at a rate of 38%. Those are startling figures and demand an explanation. The reasons are fairly obvious. They include the development of better medicine, improved ways to deal with congenital or genetic problems, better medical care for those who have experienced traumatic injury, and new technological advances that have enabled us to keep alive people who might have died. Another reason that is perhaps startling but nevertheless real is injuries due in part to our increased leisure time and more emphasis on physical activity. We now have more time to do damage to our bodies, and we do an outstanding job. I recall in my first year as Director of Rehabilitation at Illinois that, of the 18 students in the Beckwith Living Center, 14 were there as a result of diving or swimming accidents. It is essential to realize how easy it is for us to damage our bodies and bring about situations that render “healthy” people disabled, limiting their future activities.

It is most important for you as entomologists, teachers, and scholars to recognize your responsibility for allowing individuals with disabling conditions to have the opportunity to pursue careers and make significant contributions in the field of entomology. One of the greatest dangers we have is making up people’s minds for them. My own experiences as a young student with a broken neck come to mind. I was constantly reminded by others that it would really be great for me to do certain things, but that I couldn’t do other things in a wheelchair. These people really didn’t know what I could or couldn’t do in a wheelchair; their advice was based on assumptions about what I could not do. The assumptions were erroneous. The longer I work with people with disabilities, the more I come to realize that they can do anything they desire if the opportunities are provided and barriers are removed. Most of the physical barriers in the environment are gradually being eroded. Things are much better than they were 35 years ago. There are curb-cuts on university campuses and in cities; there are cars with hand-controls; buildings have ramps; and doors, bathrooms, and elevators have been engineered so that they can be accessed by handicapped individuals.

However, it has not always been thus. In my own situation, and please forgive me for using a personal experience, but sometimes they are the closest, I recall

having gone through my period of rehabilitation and returning to Johns Hopkins as a graduate student where I had been accepted before I broke my neck. They had never had a person in a wheelchair completing a Ph.D. at the School of Hygiene and Public Health, and I had never been in a wheelchair before. So we had a great deal of learning to do! Perhaps some of it can be exemplified by an experience I had with a professor of physiology who is now deceased. He called me into his office before classes were to start and said, "Larsen, I don't give a damn if you are in a wheelchair. I expect you to do everything that everybody else in this class does. Is that clear? (Yes, Sir, that's very clear.) I don't expect to make special concessions for you and the responsibility to cover all the material and complete the assignments is yours."

I suspect he couldn't have done me a nicer favor. Yes, he irritated me. I set my jaw and was determined never to ask for any special favors regardless of the conditions. That afternoon I went to the Physiology Laboratory, which was a regular dog lab. I found tables that "Kilroy" in full posture would have had to peek over. I could have gone underneath the bench with my wheelchair much easier than I could have gotten up to the table. That night I brought a fellow graduate student back to the lab; we turned the table over and cut 18 inches off each leg of the bench. Two days later we were dissecting our first dog. I will never forget that professor coming into the laboratory, stopping at our table and saying, "What the hell is going on here?" I said to him with equal fervor, "You take care of your responsibilities and, as you suggested, I'll take care of mine." He never said another word and frankly I think the people in our group enjoyed their physiology much better because they got to do it all sitting down.

---

*Entomology is a diverse science and there are many things within this field in which people with disabilities can work and make significant contributions.*

---

Well, the world is ripe with stories of people who simply didn't understand. I recall when coming to Baltimore to reenter graduate school, I needed a driver's license. I was told at the time that they were reluctant in the State of Maryland to give a driver's license to people who drove with their hands or only with the use of hand-controls. I pointed out that there must be someone I could talk to; I had to have access to my automobile.

I was invited back a week later to sit before a special panel chaired by a fine old gentleman, an M.D. by trade, and one who was just not very familiar with people with disabilities. He said, "I suppose you rely on the strength in your arms to drive."

"Yes, sir."

He asked, "Do you have any kind of strength at all in your upper extremities?"

I said, "I think I have sufficient strength."

He said, "Well, I'll just come and check it." He got up and walked around the table. Mind you, this was at a point in the meeting where I had been allowed to cool my heels for an hour-and-a-half while I waited for that board to have dinner—which didn't exactly leave me in the most pleasant of moods. He said, "Squeeze my right hand." I took his right hand, gave it about ten thousand pounds of pressure, but he was right handed and managed to sustain life fairly well.

But then came the coup de grace. He said, "I suppose being right handed, your left hand is not as strong."

I said, "That's probably true." He said, "Well, let me see how much strength you have in your left hand."

I looked forward to this with great enthusiasm. I took his left hand and I gave it all the power I had and I assure you that my left hand is as strong as my right hand. I rolled and cracked and popped his knuckles, and I decided when the handshake was ended. As he extracted his limp hand from mine and plunged it into his pocket, I could see him desperately trying to massage life back into his hand.

I have found in my working with disabled students over the past years that the biggest problem is lack of understanding. That doctor simply made my decision

---

for me before I had an opportunity to demonstrate my capabilities. You cannot make up people's minds for them as to what they can or cannot do. I firmly believe that every young man and woman who desires to go into entomology as a scientist have every right to be given free rein in making their own decisions. Entomology is a diverse science and there are many areas within this field in which people with disabilities can work and make significant contributions. I doubt very much that I would be interested in doing field work again. However, with all of the vehicles that have been designed and are now available for people with disabilities, I cannot honestly say that someone with a severe disability should be inhibited from getting into the field and accomplishing any kind of research they have a desire to do. We have recently developed a program in rehabilitation engineering at the University of Illinois, and I have come to the conclusion that anyone who has a desire to accomplish anything can do so, given the proper engineering skills to help, some ingenuity, and the knowledge of what they want to do.

This brings me to the next point and that is that you must rely heavily on people with disabilities to help you understand. They know their expectations and their limitations. They understand their disability. Don't try to do it for them. Let them do what they can and then tell you what their needs are.

As a graduate student, I was in the middle of some experimentation in the laboratory and needed a bottle of sulfuric acid. At Hopkins we have an open stock room. I went into the stock room; the sulfuric acid was stored about five or six shelves up. Impossible for me to reach, I took the arm off my chair, reached up and slid the bottle of sulfuric acid to the edge of the shelf. When it reached the critical point of gravity taking over, I simply gave it a shove and caught it in my arm. About the time it left the shelf, I heard behind me a great gasp—fortunately it didn't alter my ability to catch. When I turned around to see who was on the verge of death, I saw one of my former professors, who said, "My God, Joe, whatever you need let me know and I'll get it for you!"

Well, probably pulling five-pound bottles of sulfuric acid off the sixth shelf in the stock room is not the wisest thing to do. But no one was around. I needed the acid. Again, you have to rely on the individuals with the disability to determine what they can and cannot do. I implore you, don't make up their minds for them; don't tell them that because of their disability they couldn't possibly function in a laboratory, or anywhere else.

As I worked with the National Science Foundation and the AAAS in trying to break down the mentality that exists in society that people with disabilities cannot work in laboratories, we were constantly confronted with the predetermined mind set of individuals who said that young disabled children in grade school and high school should eliminate from their hopes and aspirations any thought of going into science. The real barriers today are still the attitudinal barriers. Oh, sometimes you have to make modifications. Sometimes you have to cut 18 inches off a laboratory table. AAAS has developed a book called *Able Scientists—Disabled Persons or Careers in Science* by S. Phyllis Stearner (1984). I encourage you to get a copy of it and read it. It is about 28 scientists from varying areas of biological and physical science who have shared their experiences as people with disabilities and some of the barriers and frustrations they faced going into their own area of research.

Examples of the kinds of barriers that can be put in front of people are those that were experienced by John Gavin, a molecular biologist and Director of Research for the Cutter Laboratories, Berkeley, Calif. It took John almost three years of constant searching after his decision to return to school to find a supportive university that would admit him to complete his Ph.D. At the time he submitted applications to various graduate schools, he already had more professional publications than some of the tenured professors in the institutions rejecting him. However, he finally found an understanding mentality at Rutgers University, where he was accepted into the Department of Bacteriology. This is just one example of many. I give you John Gavin's example to point out clearly that the most serious barriers that face you sitting out there in the audience are the

attitudinal barriers—the people who feel that an individual with a disability cannot pursue a degree in science.

When we visited high school and university laboratories all over the country and showed them ways to make very simple modifications to allow people with disabilities to function, the faculties were constantly amazed. They realized that they had built up personal biases that undoubtedly eliminated many people who had a strong desire to enter the field of science from doing so, thus preventing them from making significant contributions. When I graduated from the Johns Hopkins University and completed a post doctorate at the University of Pennsylvania, with Vincent Dethier, I felt that I was ready for any job in the country. I have a file at home (we can laugh at it now, but then it was pretty serious business); I applied to more than 150 universities and colleges in the United States and was told consistently that I looked great on paper but that because I was in a wheelchair I simply could not function at their institution.

I am delighted that entomology has organized this meeting and that you are willing to take a look at the subject of “Bringing Human Diversity into the Mainstream of Entomology.” You have had for many years some excellent role models in entomology—people with disabilities, including our former president. The world of science is now filled with good role models and many peers. I encourage you to go back with a personal determination to see that individuals with disabilities have an opportunity to function in any branch of entomology. Let them pursue the career that they feel they are capable of doing. Let them make significant contributions. By all means, don’t make up their minds for them.

In closing, I will leave you with a philosophy I have. It is ability that counts in life, not disability. I think there are two key phrases that will help you if you have the opportunity and the privilege of working with someone with a disability. Those two key phrases are self-adaptation and adaptation of the environment. Insist that individuals make all the self-adaptation they can, let them survey the environment, and let them accomplish as much as they can on their own. When they have reached the limits of their capability and need the environment to be adapted to enable them to function with their disabling condition, then you modify the environment. Most adaptations of the environment can be made simply and without major cost. □

#### References Cited

Stearner, S. P. 1984. Able scientists—disabled persons or careers in science. Foundation for Science and the Handicapped, Oakbrook, Ill.

*Joseph R. Larsen, Ph.D., was Director, Division of Rehabilitation Education Services, University of Illinois at Urbana-Champaign, from 1985 to 1989. He died on 17 February 1989, before this paper went to press.*

## The Role of the Black Entomologist

Lincoln Moore

I WAS EXTREMELY HONORED to have been asked to participate in the first informal conference, “Bringing Human Diversity Into the Mainstream of Entomology.” However, I was puzzled by the time of day given the group to hold this informal conference. You see, it follows in the old belief that if you keep things in the dark, then you do not have to deal with them in the light. In other words, we can simply say that the problem does not exist. This is what has happened with the black society. Many of our white counterparts see blacks as people that would like to be left in the dark, in the back, in the corner. When looking at my topic, the role of the black entomologist and in thinking about my career as a professional entomologist, I wondered, “Why was I asked to give this presentation?” The only answer I came up with was, “Why not?”

The black professional entomologist must be both a role model for the black community and a professional. As a role model, the black entomologist must try to interest young students in science and math—students who have no idea what a career in science and math could really mean to them—while fielding such questions as, “Why are you working with bugs and not with people if you are a doctor?” Depending on the neighborhood where you live, you might be the only professional in the area. Therefore, you are called upon whenever there is a program that deals with careers.

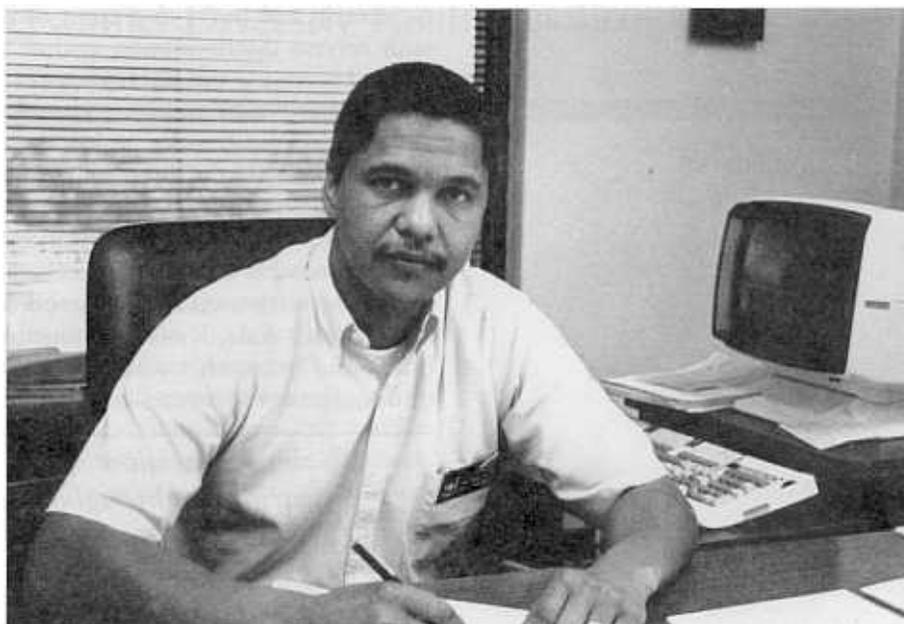
For a black professional entomologist, the old saying that you have to be twice as good as the average white professional to be accepted holds true.

If, by chance, you become accepted, you are seen as the exception to the rule, or you are seen as not being black but a “good scientist.” As a black entomologist, you start with one foot on top of water and the other in quicksand. You must learn the “good old boy network” quickly, and you must tread lightly to become part of the network while trying to keep part of the black identity. Then, as you start to succeed, you are asked where would you like to be 10 to 15 years from now, or, if you stay with the organization, where would you like to be before you retire. That’s when you sit back and dream, allowing the phrase, “I would like to be head scientist or chief,” to roll off your tongue and out of your mouth. The problem with this kind of dreaming is that you are talking to a person who has his eyes on the same position and feels that because you are black, you have a better chance of getting the position because of affirmative action.

This is where the organizational norms take over. You are asked how to increase the number of blacks in a profession and whether you would be willing to help. Therefore, you must serve your employer in the recruitment of other blacks into the profession as well as in schools that offer degrees in entomology.

If you do a good job as a recruiter, you are placed in a position that requires the use of personal skills to assist management in meeting its equal employment opportunity (EEO) goals. The usual label placed on you is that you work well with people. The unwritten implication, however, is that you would not do as well as a professional entomologist. You are an obvious asset to the organization, but at what personal price? The problem with this kind of thinking is that it is coming from some of our most progressive thinking professionals. These professionals believe they are doing the employee a favor when, in fact, they are practicing racism. This form of racism is better described as institutional racism. That is, blacks are not at the level we think they should be when dealing with scientific matters. The saying that if you are black you have to be twice as good has taken on new meaning in the 1980s. Therefore, if black professionals are going to become a force in scientific or professional societies, we must start now to change the way we think about blacks and their ability to perform as professionals. We must also stop thinking that once blacks are accepted, they must become non-black.

Let me go back and address the issue of institutional racism. This form of racism has its roots deeply embedded in the American way. Black is bad as in devil’s food cake, whereas white is good and holy as in angel cake. Therefore, one must look beyond the usual signs of racism that were displayed before the passing of the Civil Rights Act of 1964 that gave blacks the same rights as whites. Although these rights were given to blacks by the Civil Rights Act, the courts and society have not allowed black citizens to move into the mainstream of America. Instead, society has forced blacks to deal with a form of racism that is very hard



*Lincoln Moore.*

to identify and prove in a court of law. Institutional racism is more concerned with reverse discrimination against white males than with addressing the real issue of reversing the discrimination against blacks. Institutional racism paints a picture that blacks are being hired over whites at all levels in our society when, in fact, blacks still make up less than 10 percent of the professional work force and are usually in the lower half of the profession. Yet, many say blacks, females, Native Americans, and other minorities get professional jobs because of some EEO effort rather than qualifications. In some cases, members of these groups may get jobs for which they were not the best qualified, but this form of discrimination is our answer to the "good old boy" mentoring system that is available to the white male. I wonder sometimes what happens when one white male is beaten out by another white male for the same job? Does the loser still cry foul or does he see the winner as being the better qualified?

---

*We should envision a society with minorities and women distributed throughout all levels of the organization.*

---

Institutional racism was addressed by Edward Jones (1986) in an article published in the *Harvard Business Review*, entitled "Black Managers: The Dream Deferred." In this article, Jones talks about the plight of blacks in the business world and how all their gains are seen only as affirmative action gain, and not as solid accomplishment. Therefore, blacks are not CEOs at any of the Fortune "1,000" companies. In fact, according to a 1982 article in the *Wall Street Journal* (cited by R. A. Homer in 1986), executives of these companies think blacks are less intelligent than whites.

This type of thinking is not exclusive to the business world. It is very real in the scientific world and America in general. President Reagan addressed this concern in an address at Tuskegee University. "If black Americans are to progress socially and economically, . . . it is imperative that they be part of the great technological and scientific changes now sweeping our country and the world. And it's just as vital for America that all her citizens march into the future. . . . As our country moves into the 21st century, it's crucial that more young black Americans follow the path. . . . America must not be denied the benefits of the creativity and talents of its citizens."

In conclusion, solving the problem of racism can only be achieved through the commitment of individuals like you, reaching out to others, striving constantly, working together, communicating with others, and searching for cooperative ways to solve one of society's most persistent problems. I applaud ESA for taking a positive approach to the issues at hand, and hope that we remember that people with different perspectives, values, and points of view can enhance the organization's overall mission, effectiveness, and future. Therefore, we should envision a society with minorities and women distributed throughout all levels of the organization. Once this has been accomplished, we can say that Civil Rights for all our members have been achieved, and we will no longer need these types of workshops or conferences. Until this happens, I would like to challenge you to be a risk taker—risk getting involved with black ESA members to learn, to change, to exchange, to grow, and to respect their points of view from their cultural backgrounds. □

### References Cited

- Homer, R. A. 1986. Combatting racism on the job. *Business Week Careers*. Winter: 55–56.
- Jones, E. W., Jr. 1986. Black managers: the dream deferred. *Harvard Business Review*. May–June: 84–93.

---

*L. M. Moore is an entomologist with the USDA Forest Service. His interests include insect ecology and remote sensing. He is currently stationed at North Carolina A&T University, Greensboro.*

## Personnel Diversity Facilitates Program Enrichment

Edgar G. King and Jane L. Hayes

IMPORTANT TO BOTH OF US as professional entomologists but for somewhat different reasons is "bringing human diversity into the mainstream of entomology." It was natural to find that we, a white male and female, had had different experiences and had come to the underlying issues from quite different perspectives. We have learned from our discussions and appreciate the opportunity to share with you this distillation of them. We did find at the outset that we shared two areas of agreement: the primary issue was discrimination, and lack of diversity may inhibit productivity as well as be a manifestation of discriminatory attitudes.

The U.S. Department of Agriculture has a central and clearly stated position on discrimination. In a widely publicized memo issued 12 June 1986 to Assistant Secretaries and Agency Heads (including the Agricultural Research Service [ARS]), Secretary Richard E. Lyng stated "I will not tolerate discrimination in any form. I expect you to make equality of opportunity and respect for civil rights an integral part of all decisions and processes affecting your work force and programs." He concluded: "Do not take this matter lightly. I expect you to assume personal responsibility . . . to correct any program or . . . practice that results in inequitable treatment. Failure to do this will be viewed as a grievous weakness in management which, in my view, no other accomplishments can offset." (*Washington Post*, 14 June 1986).

Both of us have observed discrimination based on sex, race, religion, national or regional origin, age, economic status, or a handicapped condition. Within our profession, we have seen discrimination arise from differences in educational background, and not simply by degree but also by specific institution or institution type, such as land grant versus non-land grant college.

*With discrimination and low diversity, many of the best and brightest people may be missed.*

The relationship between diversity (as measured by the number of groups and proportion of personnel in each) and productivity is an interesting and important one. With discrimination and low diversity, many of the best and brightest people may be missed: as a direct consequence, the productivity potential is also likely to be low. Our best example of the relationship between diversity and productivity comes from the ARS laboratory (Southern Field Crop Insect Management Laboratory [SFCIML]) where this collaboration began. In recent years, particularly 1981–1985, the SFCIML showed a fourfold increase in productivity as measured by publications, presentations, and invitations. During this time, SFCIML personnel diversity (as measured by a common diversity index) increased from 15.94 to 24.51.<sup>1</sup> Selection criteria (knowledge, skills, and ability) were rigidly applied (see USDA–SEA Directive 418.3 1981) and performance standards were vigorously used to promote productivity (see USDA–ARS Manual 420.1 1986). Although diversity "for diversity's sake" can be divisive, the recognition associated with a highly productive work atmosphere can be unifying. To avoid division, hiring or recruitment must be based on objective criteria and carried out without discrimination.

<sup>1</sup>Diversity [Index of diversity =  $e^H$ , where  $H = -\sum_i P_i \log P_i$  (R.E. Ricklefs, 1979 *Ecology*, 2nd ed., pp. 686–687. Chiron Press, New York)] was measured by frequency of representation (p) among groups (N) in 4 categories: sex-race, age, home state, and location and type of degree institution (data source: 1981–1985 SFCIML Annual Plans and Progress Reports).



*Edgar G. King and Juanita Escamilla, location administration officer, reviewing the FY 91 Agricultural Resource Management Plan for the Subtropical Agricultural Laboratory, Weslaco, Tex.*

One of the consequences of increased productivity and recognition is the opportunity for advancement. Within the past 3 years, several SFCIML scientists have accepted reassignments or promotions, or both, including both of us (Dr. Hayes is now a Project Leader within the USDA Forest Service, and Dr. King has become the Laboratory Director/Location Leader of the Subtropical Agricultural Research Laboratory, Weslaco, Tex.). Having come full circle, this situation sets the stage for the maintenance of diversity and presumably productivity, if adherence to affirmative action policies is continued in filling the vacancies created by advancement and reassignment.

We appreciate our agency and department's national commitment and perspective on Equal Opportunity and Affirmative Action (e.g., 1988–1992 USDA–ARS Mid-South Affirmative Action Plan). Adherence to antidiscrimination policies and follow through are essential at all levels. We both have observed that local customs, which often resist diversification, greatly influence how business is conducted in laboratories in individual states or regions of the country. We feel strongly that setting an appropriate example within broad-reaching programs can have an important and beneficial effect in overcoming the resistance of local customs.

The work atmosphere is critical, and here again setting an example is essential. In 1972, one of us (Dr. King) began an insect-rearing project at Stoneville, Miss., that required hiring a large number of people. Purposefully, people were hired nonselectively from the local community because little formal training was required. Although the professional community at Stoneville was composed largely of white males, the available work force of the area was predominantly black (56.3%) and often female (54.2% of blacks and 52.9% of total). The people we hired were expected to join in rearing insects that had never been reared in such large numbers. The ultimate goal of the project was clear, but rearing procedures had to be changed almost monthly as the required numbers grew and research revealed new information. There was an assumption that trust and loyalty would be reciprocated and that enthusiasm for the program would be shared as part of a joint effort. Because everyone was working together, there was open communication. There were opportunities for some financial advancement, particularly for team leaders. Hence, there was an opportunity that recognition and stature could be gained.

By 1976, the goal of evaluating this propagation technology was achieved. Despite extensive personnel changes each year, enthusiasm was sustained over the 4 years of the project. Today, many of the people who worked in that program are prominent members of the Stoneville ARS work force. For example, Willye Harrison (a black female), who started as a temporary insect production worker, is now Quarantine Officer and entomologist-in-charge of the Stoneville Research Quarantine Facility. G. G. Hartley (a white male), who started as a biological technician in late 1972, is now entomologist-in-charge of the Stoneville insect-rearing program and is participating in an insect-rearing symposium at this national meeting. Archie Tucker (a black male) began work as a 10th grade student in the Federal Stay-in-School Program, completed a college degree, and left insect rearing in 1987 to become Property Officer for the ARS Mid-South Area. Now retired, biological technician Lavenia Miles was particularly enthusiastic and hard working and, as a woman over 50, set an outstanding example for everyone by going back to school to earn her masters' degree and by being coauthor of a number of papers with Dr. King. Other permanent full-time ARS personnel had their beginning with the program. Still others have gone on to other professional careers.

There is a commonality to this highly diverse and productive work environment and others we have observed or experienced: goals were clearly defined; expect-



*Jane Hayes and Kermit McAdory, biological aide, Southern Crop Insect Management Laboratory, examining contents of a pheromone trap.*

tations were high, but realistic; communication was good; there were opportunities for improvement and advancement. These are the same ingredients needed in academic training programs, whether at the undergraduate or graduate level (e.g., Widnall 1988).

Our experiences lead to four major observations:

- (1) Discrimination based on any stereotypes, including educational background, limits productivity, as well as diversity, because the best and brightest people will be missed.
- (2) Local customs often resist diversity, so that a national and agency policy on equal employment opportunity and affirmative action is essential.
- (3) Diversity enriches programs, often resulting in new, higher quality products, but it may be divisive.
- (4) The effects of diversity and productivity are amplified as successful personnel are recruited for other positions. □

### References Cited

Washington Post. 1986. Statesman at agriculture. Editorial 14 June 1986, The Washington Post, Washington, D.C.  
 Widnall, S. 1988. AAAS presidential lecture: voices from the pipeline. Science 241: 1740–1745.

---

*Edgar G. King is the Director of the USDA–ARS Subtropical Agricultural Research Laboratory in Weslaco, Tex. His research interests as entomologist and Leader of the Biological Control of Pests Research Unit emphasize control of arthropod pests by propagation and release of parasites and predators. J. L. Hayes is a supervisory research entomologist with the USDA–Forest Service, Southern Forest Experiment Station, Pineville, La. Her research interests include ecological genetics and population dynamics of insects.*