

November 2016

# FUSION

Journal  
of

THE AMERICAN SCIENTIFIC GLASSBLOWERS SOCIETY

P.O. Box 453 • Machias, NY 14101

[www.asgs-glass.org](http://www.asgs-glass.org)





## OFFICERS AND BOARD OF DIRECTORS

President	Joseph S. Gregar
President-Elect	Philip Legge
Secretary	Kaite Jones
Treasurer	Victor Mathews

## SECTIONAL DIRECTORS

Sabrina Bélanger	Jeff Haut
Chris Bock	Ron Bihler
Dennis Wargo	Richard Smith
Scott Bankroff	Philip Sliwoski
Benjamin Revis	Mike Ronalter
Mike Souza	

## PAST PRESIDENTS

† J. Allen Alexander	Joseph S. Gregar
† Karl H. Walther	Joseph Walas, Jr.
† Arthur Dolenga	A. Ben Seal
† Alfred H. Walrod	* Robert J. Ponton
† Richard W. Poole	Ian B. Duncanson
† William E. Barr	† Allan B. Brown
† Charles J. Cassidy	Richard C. Smith
† Jonathan Seckman	Richard P. Gerhart
† William A. Gilhooley	David G. Daenzer
M. Howe Smith	Barry W. Lafler
† Billie E. Pahl	Doni J. Hatz
Theodore W. Bolan	Gary S. Coyne
Earl R. Nagle	Edwin A. Powell
† Werner H. Haak	Michael J. Souza
† Gordon Good	Scott Bankroff
Robert G. Campbell	Ronald A. Bihler
† Helmut E. Drechsel	James R. Hodgson
Lawrence W. Ryan, Jr.	Robert B. Singer
† Joseph W. Baum	Jack Korfhage
Andre W. Spann	Gene Nelson
Donald E. Lillie	Curt Sexton
† Wilbur C. Mateyka	Patrick DeFlorio
Jerry A. Cloninger	Frank Meints
† David Chandler	James C. Cornell
† Owen J. Kingsbury, Jr	Steven D. Moder
Raymond L. Carew	Skip Huckaby
James K. Merritt	

† Deceased \* President Emeritus

## TABLE OF CONTENTS

President's Message .....	2
ASGS 2016-2017 Officers & Committee Chairs ...	6
Editor's Desk & Email Addresses .....	8
Calendar of Events .....	9
<i>Fusion</i> Adv. Rates & Deadline Dates .....	9
ASGS 2017 Symposium .....	11, 12, 25, 28, 41, 53
Committee Reports .....	13
"A Novel Use of Anodic Bonding for Low Temperature Optical Seals" .....	19
"How to Keep a One-person Shop Productive When 'Stuff Happens!'" .....	27
"Scientific Glassblowing Program Addresses Urban Youth Unemployment" .....	30
Informational Article .....	36
2016 Annual Symposium .....	43
2016 Symposium Exhibitors .....	54
Section Reports .....	56
Classified Ads .....	60-61
Index to Advertisers .....	63

## EDITOR

Marylin Brown, Ph.D.  
30 Leighton Ave. N • Laconia, NH 03246  
Telephone and Fax: 603-527-0466  
brownam@metrocast.net

## FUSION PRODUCTION CHAIR

Dave Smart 561-383-6057  
Printed by Phase 3 Communications

## EXECUTIVE SECRETARY

Jerry Cloninger

## NATIONAL OFFICE

P.O. Box 453 • Machias, NY 14101  
Phone: 716-353-8062 • Fax: 866-880-3216  
natl-office@asgs-glass.org

## OFFICE MANAGERS

Bob and Lynn Ponton

©The American Scientific Glassblowers Society, 2016

*Fusion* is an information journal and assumes no responsibility for the accuracy, validity, or originality of any contributed article or opinion expressed herein. Subscriptions rates: \$70.00 per year (includes postage within the US and Canada), plus \$30.00 for outside the US and Canada. Subscriptions are sold by the calendar year only. Subscriptions are free to members of the ASGS Single copies are available at \$15.00 per copy plus \$3.00 postage for the US and Canada or \$7.50 for international. Published quarterly: February, May, August and November.

---

# Scientific Glassblowing Program Addresses Urban Youth Unemployment

by  
Barbara Heisler\*

## Abstract

*In a unique program, Newark, NJ-based GlassRoots is training disconnected and underserved young adults for entry-level jobs in scientific glass. Their approach aims to rethink career training for youth by catalyzing the integration of an employer-focus and relationship-building with industry and higher education partners as well as with ASGS members, while transforming the lives of their participants.*

Josh had never heard about scientific glassblowing. Having completed training and having been attracted by the fire and heat along with the ability to create something from it, he envisioned himself a welder. A graduate of a vocational high school, Josh had to leave college due to financial challenges. Disappointed in himself, he wanted

to be a success for his family, but felt that he could not rise above the financial challenges he and his family faced. As a final straw, Josh lost his job at Dunkin Donuts which provided income he counted on to provide support for his family and to build a reserve to continue his education. He did not see a way out until he visited GlassRoots in Newark.

Driven by long term shifts in the labor market and on-going poverty and inequality, youth employment challenges have mounted steadily over the last decade and reached a crisis point in the wake of the Great Recession. Youth unemployment in 2010 reached its highest level since World War II. The short and long term consequences of



*Instructor Bob Suplicki (center)*

youth unemployment are severe. Individuals who fail to transition to stable jobs by their early 20s are at risk of experiencing more frequent and prolonged spells of joblessness, permanently lower earnings, and greater difficulty building a secure financial future for themselves and their families. Ultimately, youth unemployment and associated challenges threaten to perpetuate cycles of inter-generational poverty for individuals and communities.

Overall, 14 million youth – more than one third of all 16 to 24 year olds in the US – face employment challenges. Of these, nearly seven million young people who lack a college degree are out of school and out

---

\* Executive Director, GlassRoots, 10 Bleeker St., Newark NJ 07102. Email: [bheisler@glassroots.org](mailto:bheisler@glassroots.org)

of work; five million are only able to work or study part time; and almost two million are employed in positions that do not draw on their formal education. Youth unemployment has ratcheted up in the last several decades, making it a chronic feature of the US economy. Youth from low income families, young black males, and young Hispanic females have especially bad labor market outcomes. Racial disparities persist regardless of educational achievement.



*Varis Scientific Glass Program participants*

Youth face increasingly scarce career on-ramps and heightened competition for jobs: companies have automated or outsourced jobs, cut back on formal training, and have increased their reliance on temporary and part time labor. The concurrent rise of online recruiting systems has triggered a deluge in job applications, disadvantaging youth who are often screened out for having limited work experience or academic credentials.

To counter this, Newark NJ-based GlassRoots developed the Varis Scientific Glass Apprentice Training Program (Varis Program) to train five to eight inner city youth to become scientific glassblowers annually. Having completed formal training with a credential to show, these individuals can then walk into a job position. The Varis Program is thus an intensive 12-week program designed to provide select participants who have a high school degree with the knowledge, skills, and experience to move from training to work quickly and to springboard their careers in a niche sector.

Fifteen years old, GlassRoots aims to ignite and build the creative and economic vitality of greater Newark, with a focus on underserved youth and young adults, through the transformative power of the glass art experi-

ence. Among its core values are a belief in the transformative power of the arts to develop youth and adults alike; the importance of personal integrity and self-respect as well as teamwork, collective action and trust; responsiveness to community needs, openness to new ideas, and encouragement of entrepreneurship and innovation; and sustained investments in local talent and the young people who are the future of its city and state.

GlassRoots' approach meets Newark youth where they are. It provides hands-on training, job site experience, academic classes, and a finished portfolio allowing them to walk into well-paying jobs with a path to the middle class.

Understanding the constituency is important. The social and economic consequences of youth disconnection are severe:

- Depressed future earnings. Consider two males with the same education, IQ, places of residence and family background – if one spends a year unemployed before the age of 23, he can expect to earn 23% less than the other ten years later. For females, the gap ten years out is 16%.
- Risk of perpetuating poverty. About two



thirds of Americans born into the bottom fifth of earners remain permanently among the poorest 40%.

- Increased crime. Multiple data sources suggest that disconnected youth are more likely than the rest of the population to commit a crime. In 2011, about 375,000 16 to 24 year olds were either detained or serving time in prison. A criminal record presents an additional barrier to employment.
- Poor mental and physical health. Compared to peers connected to school or work, disconnected youth tend to have lower self confidence, reduced ambition, lower life satisfaction, and higher rates of suicide.

Youth unemployment tends to affect youth who are already poor and vulnerable, exacerbating the challenges they already face and reinforcing inter-generational poverty. Knowing this drove the design of the Glass-Roots program. Students needed not only hard skills, but also support in creating a shift in attitudes and approaches toward work as well as investment in their own successes.

GlassRoots' five-part training program includes:

1. Hands-on glassblowing skills development through a combination of instruction in scientific glassblowing (80 hours) and hours of studio practice time (40 hours) for a total of 120 hours.
2. Academic preparation through two college-level courses, which provide a combined 90 hours of classroom instruction and lab experience: Geometric Concepts for Scientific Glassblowers and Computer Aided Design. These courses are offered through Essex County College and New



*Instructor Mike Souza (center)*

Jersey Institute of Technology which are also potential employers and clients of our graduates.

3. Internships and personalized instruction include 40 hours of hands-on work experience in the final weeks of the program at NJ-based scientific glassware companies and customized one-on-one training with ASGS professional master glassblowers in their workshops.
4. Workplace readiness and soft skills training led by staff and guest educators in topics such as Ethics and Professionalism, Workplace Communication, Judgment and Problem Solving, 21st Century Skills, and Financial Literacy.
5. A partnership with Rising Tide Capital provides our fellows access to their acclaimed entrepreneurship program that not only teaches the students entrepreneurial thinking but also introduces them to entrepreneurs in their community and exposes them to capital for their own potential future endeavors.

In general, efforts to counter youth unemployment have focused narrowly on skill development without commitment to or large-scale success in improving ultimate employment outcomes for young people.



*Flame class*

GlassRoots directly addresses these criticisms by working with industry and employers to commit to help solve the problem. We believe our program could prove to be a powerful way to incrementally improve job opportunities for local youth.

Through this holistic approach, GlassRoots' goal is the placement of graduates into continued education or directly into scientific glassblowing jobs in exciting fields such as biomedical manufacturing, photovoltaics, and nanotechnology.

Upon completion of the program, students have the hard skills and are able to:

- Interpret a schematic of an apparatus
- Communicate with appropriate scientific glassblowing terminology
- Perform entry-level scientific glassblowing
- Demonstrate shop sense and responsible behavior regarding co-workers and safety

And, just as important, they have the understanding of what makes a valuable em-

ployee and how to manage their successful careers.

Luckily, comprehensive place-based efforts focused on youth are attracting broad interest and support. Funding to underwrite participation in our program is essential. While every student must contribute financially to their enrollment, to promote their buy-in, the amount is extremely flexible and never acts as a disincentive or barrier. Additionally, the inclusion of a small training stipend, to cover travel and incidental expenses, has proven essential to students. GlassRoots hopes, in the future, to be able to provide higher stipends to allow our students some financial security while training.

GlassRoots is hedging its bets on job growth through the next decade which we expect will result from both industry growth and replacement jobs due to retirement, with the latter providing the largest source. Young people, prepared to fill these jobs, can change their futures and the futures of their communities. Josh's parents, brothers, sisters and aunts came out for his graduation. With enthusiasm as bright as his lampworking flame and determination as solid as welded iron as well as support from the scientific glass community, we are confident he is on the path to success.

*Barbara Heisler has served as the Executive Director of GlassRoots ([www.glassroots.org](http://www.glassroots.org)) in Newark, NJ since July 1, 2014. Her professional background includes more than 20 years of experience in non-profit, education and government management focusing on strategic planning, organization and board development, program design, communications strategy, fiscal oversight, resource development, and grant procurement. Under Barbara's leadership, GlassRoots has introduced three post-high school programs focusing on Newark's underserved young adult population.*