Vision Access

A Magazine by, for and about
People with Low Vision

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Vision Access welcomes submissions from people with low vision, from professionals such as ophthalmologists, optometrists, low vision specialists, and everyone with something substantive to contribute to the ongoing discussion of low vision and all of its ramifications. Submissions are best made as attachments to email or may also be made in clear typescript. Vision Access cannot assume responsibility for lost manuscripts. Deadlines for submissions are, May 1, September 1 and December 1. Submissions may be mailed to Mike Keithley, Editor, 191 East El Camino Real #150, Mountain View, CA 94040; 650-386-6286, editor@cclvi.org.

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CCLVI is now on Twitter at twitter.com/CCLVI_Intl and Facebook by searching for "Council of Citizens with Low Vision International." Questions? Email fb@cclvi.org.

Please email membership@cclvi.org to change the format of your Vision Access magazine or update your postal address. Alternatively, you may also make such changes via telephone by calling our office at 800-733-2258.

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From the Editor's Desk
by Mike Keithley

Welcome to the Spring 2016 Vision Access.

Get ready for the CCLVI convention in July! Jim Jirak will tell us about what will happen there, and Leslie Spoon will sketch fundraising events.

We have another delightful and informative profile, this time about Sarita Kimble, written by Sarah Peterson, our profile professional. And we have a mini one from a new kid on the block.

Also, there's a lot more in the Quality of Life and Science and Health sections.

Before closing, let me comment on legislation that ACB is sponsoring, as we haven't heard from the CCLVI legislation chair for a while.
In short, things are moving slowly. You can get a notion of what's going on by listening to the May ACB Report. ACB Reports appear in the audio recording of the Braille Forum and on ACBRadio, and they can be downloaded to the second generation Victor Stream.

Organization News

There's Something for Everyone at This Year's Convention
By Jim Jirak, Convention Chair

It's convention time across this great nation
Bringing joy, excitement and anticipation
Filled with learning, networking and oodles of fun too
There's something for me and there's something for you.

The overall dates are one to nine
Reserve your room; Come have a good time
Minneapolis, Minnesota, the place to be
Register now with CCLV

As you read this article, we are just weeks from the convention and annual membership meeting. If you plan to attend in Minneapolis, Minnesota,
our programming dates run from July 2 to July 6. The host hotel is the Hyatt Regency Minneapolis. Room rates are $89 single or double occupancy and $10 per person per night for triple or quad occupancy. Current taxes are 13.4%. Reservations can be confirmed via telephone by calling Hyatt reservations at 888-421-1442 or online at https://resweb.passkey.com/go/2016ACBMeeting.

For those flying, Minneapolis - St. Paul International Airport (MSP) is served by 15 commercial airlines. Nine are located at terminal 1--Lindbergh and six are located at terminal 2--Humphry. Supershuttle is offering our parent organization, ACB, a discounted fare from the airport of $16.60 one way and $27.20 round trip. To reserve a seat with Supershuttle, call 800-258-3826 or visit http://groups.supershuttle.com/acb.html. A taxi from the airport is approx. $40.

Before sharing details of this year's program, I'd like to take a moment and recognize the plenary committee. Charlie Glaser of Stone Mountain, Georgia; Bianca Knight of Nashville, Tennessee; Dan Smith of San Lorenzo, California; and Lindsey Tilden of Vista, California, have worked tirelessly to ensure the programming is not only diverse, but also entertaining and informative. It is hoped that, should you encounter them during convention week, you take time to express your sincere thanks for their hard work and willingness to serve.

There are a few changes coming this year. First, we have our own suite. Our Sunday afternoon mixer normally held in either the president's or executive director's suite will now take place in our suite. The plenary committee felt that having our own suite opened up more possibilities for us during convention week. If the idea proves a success, look for us to have our own suite at future conventions. Second, the low vision showcase normally held on Sunday morning will now take place Monday

afternoon. The plenary committee felt that more members would be in attendance Monday afternoon than Sunday morning. Third, we are offering a package price ticket which includes admittance to all ticketed events. We have several events for which we are charging to help defray associated costs. Fourth, we're providing audible darts training Sunday afternoon for the first-ever audible darts tournament Tuesday evening with a cash bar. Fifth, we are holding a daily trivia challenge in our suite. The team still standing at week's end receives a fantastic prize. However, old favorites like game night with its cash bar are still slated for Monday evening at 8 p.m. Unlike last year in Dallas, drink tickets will not be included with the ticket. For your registration and planning purposes, the entire program schedule is being published here. When applicable, the first price is the pre-registration amount and the second price is the amount if registering on-site.

CCLVI Convention Program
CCLVI: Something for Everyone!
Charles Glaser, President
Stone Mountain, Georgia

Registration: $20 $25
CCLVI Package Price: $75 $95

Saturday, July 2, 8 p.m. - Special Interest Affiliate Presidents Meeting
All presidents, or their board designees, are invited to discuss concerns unique to special interest affiliates. Refreshments will be provided.
CCLVI suite

Sunday, July 3 - Programming Session
9 a.m.-12 p.m. - Low Vision and Sports
Whether a spectator or a wannabe participant, if you have a love and passion for sports, this presentation is for you. Have you ever wondered how to participate in sports with low vision? Come learn how low vision sports enthusiasts participate in their love of the game.

1:15-3 p.m. - Audible Darts Training
Having heard sports enthusiasts speak about their love and passion for the game, now it's your turn to join in the fun. Come learn how the game of audible darts is played and become a professional, and perhaps win a prize for our first audible darts tournament Tuesday.

3:30-5:30 p.m. - CCLVI Mixer $15 $20 (if not purchased via CCLVI package)
While reacquainting with old friends and making new ones, come meet the 2016 Fred Scheigert Scholarship winners.
CCLVI suite

5:30-6:45 p.m. - Attitude Adjustment Trivia $15 $15 (if not purchased via CCLVI package - ticket good for rounds 1, 2, 3 & 4)
Round 1: Grab a partner and form a team for nightly trivia. Test your knowledge. The team still standing at week's end receives a fantastic prize. Refreshments and snacks are available during our happy hour trivia.
CCLVI suite

Monday, July 4 - Programming

Session $6 $8 (if not purchased via CCLVI package)
1:15-2:30 p.m. - Bioptic Driving Discussion
What is "Bioptic Driving"? Is it for you? Come learn about driving with bioptics and be prepared to ask questions.

Monday, July 4 - Programming Session
2:45-4 p.m. - Low Vision Vendor Showcase
Come see what is new as exhibitors demonstrate the latest in low vision technological advances.

5:45-7 p.m. - Attitude Adjustment Trivia (previous ticket good for rounds 2, 3 and 4)
Round 2: Grab a partner and form a team for nightly trivia. Test your knowledge. The team still standing at week's end receives a fantastic prize. Refreshments and snacks are available during our happy hour trivia.
CCLVI suite

8- 11 p.m. - CCLVI Game Night: $12 $15 (if not purchased via CCLVI package)
After a busy day of information and networking, unwind and have some fun while playing Trivial Pursuit. Perhaps win a prize or two in the process. A cash bar is also available for your enjoyment.

Tuesday, July 5 - Programming Session
1:15-2:30 p.m. - Voting Independence:
Given the pivotal fall elections and the balance of Congressional power could be radically changed, if you are concerned about being able to independently cast a private ballot or have questions about accessible voting, this is for you. Come learn what is new in this arena.

July 5 - Business Meeting
2:45-4 p.m. - CCLVI Annual Membership Meeting including elections, and adoption of proposed constitutional amendments and bylaws

5:45-7 p.m. - Attitude Adjustment Trivia (previous ticket good for rounds 3 and 4)
Round 3: Grab a partner and form a team for nightly trivia. Test your knowledge. The team still standing at week's end receives a fantastic prize. Refreshments and snacks are available during our happy hour trivia.
CCLVI suite

8- 11 p.m. - Audible Darts Tournament: $10 $15 (if not purchased via CCLVI package)
Having received training on how the game is played, now it's your turn. Come have some fun in our first-ever audible darts tournament. Perhaps win a prize or two. A cash bar is also available for your enjoyment.

Wednesday, July 6 - Programming Session: $6 $8 (if not purchased via CCLVI package)
2:45-4 p.m. - Parenting with Low Vision
Are you a new parent or grandparent? Have you ever wondered how to keep track of children or grandchildren as someone with low vision? Do they believe they can fool you because of low vision?

Learn about inexpensive, non-technical solutions and receive a take-home gift.

5:45-7 p.m. - Attitude Adjustment Trivia (previous ticket good for final round)
Round 4: Grab a partner and form a team for nightly trivia. Test your knowledge. The team still standing receives a fantastic prize.
Refreshments and snacks are available during our happy hour trivia.
CCLVI suite

It's convention time across this great nation
Bringing joy, excitement and anticipation
The program agenda promises fun
Sign up now before reservations are done

Fundraising
By Kathy Farina

The CCLVI fundraising team is at it again with a lot of great events for the July convention. We will have a table again at the Market Place on Monday, July 4 and Tuesday, July 5 in the morning. We will have some wonderful items like chocolate, gift cards, jewelry, a blender and a tote bag of goodies. We are having a 50/50 drawing at game night and a 50/50 drawing at the first Dart Tournament night. We will also have a raffle at our Sunday afternoon mixer. Hopefully all of you will come and enjoy all of our events in Minnesota this year.

CCLVI will participate again this year in the Brenda Dillon Memorial Walk, which takes place at the ACB national conference and convention in Minneapolis, Minnesota. Our team is called the CCLVI Firecrackers. The walk will take place on Sunday, July 3. It is a fundraiser for ACB. However, half of the money our team raises will come back to CCLVI! In other words, if we raise $1,000, $500 will come to CCLVI. Our team captain, Kathy Farina, hopes that you'll help her by donating money; getting pledges from your family, friends and co-workers; and by walking with The Firecrackers. It will be a lot of fun! To learn more, go to acb.donorpages.com/2016ACBWalk/Firecrackers. We hope to see you there!

Making Connections, Relearning Life: Meet Sarita Kimble
By Sarah Peterson

At 28, life as she knew it was over.

Fully sighted, expectant mother Sarita Kimble could not wait to joyfully welcome her daughter, Jana, into the world. But instead of a smooth transition into parenthood, Sarita's pregnancy presented an unexpected challenge.

A condition called preeclampsia, through which a blood clot had caused trauma to her brain, resulted in temporary wheelchair confinement and permanent legal blindness.

Life had thrown Sarita a major curveball. While some functional vision remained, she could no longer drive or read unmagnified print. Feeling overwhelmed and devastated, she was suddenly forced to rethink her career, how she would care for her daughter and how she'd learn to live all over again.

"When I became ill, I had no knowledge of available accommodations to permit me to continue working in an intensive print environment," Sarita explained. "I remember sitting there, thinking, 'How will I provide my daughter the same wonderful opportunities other parents give their children?'"

Sarita's hopelessness was confronted with the positive, motivational messages she received while attending her first national CCLVI convention in 1983. She attended a workshop featuring a panel addressing one of her biggest questions: how do we find belonging when we aren't fully sighted or fully blind?

"I started crying because it was like someone had thrown me a life jacket--they were speaking my language!" she remembered. "I thought I was the only person in the world who didn't know where I fit. Attending my first CCLVI convention, I made friends who embraced me and who made me feel like my life wasn't ending, but that it was just beginning differently."

This newfound camaraderie was the perfect catalyst for creating a local support community. That same year, Sarita cofounded a local CCLVI affiliate, the Delaware Valley Council of Citizens with Low Vision, and got involved with ACB on local and state levels. In 1984, the national convention came to Sarita's hometown Philadelphia, and she seized the opportunity to serve as co-chair for the CCLVI Special Interest Affiliate Convention.

"It was the best thing that ever happened to me," she said. "Volunteering to put that convention together helped me regain the confidence I needed to return to competitive employment. I realized, 'I can organize! I can initiate! I can do this!'"

Sarita would continue to actively participate in the low vision community. She was initially elected to the CCLVI board of directors in the late 1980s, and she also serves on the Fred Scheigert Scholarship committee.
She feels these projects came naturally for her because they go hand-in-hand with her career in disability advocacy. She obtained her undergraduate degree from Drexel University and her masters in geriatric counseling from St. Joseph's University. She worked with the Defense Personnel Support Center for 26 years, a role that often took her to Washington D.C. to represent the disability community for the Defense Logistics Agency. She went on to work for nine years in labor relations for the Philadelphia VA Medical Center where she also had responsibilities for hiring, recruiting and accommodating people with severe disabilities. In addition, she served as a human resources technical advisor for a veteran's community living center.

"Advocacy has been a huge part of my career and is something I'm very passionate about," she said. "In fact, I felt like I did my job even better once I acquired my disability."

According to Sarita, employment is one of the biggest obstacles confronting those with disabilities. Hurdles can include training for a different position, acquiring the right assistive technology and finding acceptance in the workplace. The battle doesn't end when someone gets hired. Sarita likes the illustration of a wheelchair user gazing up a long flight of stairs to a building's front doors. Entering the building is only the first challenge.

"Even after you get inside, how are you guaranteed equal opportunity and advancement? And how can you get people to care and accept you as a person, wanting to know about your disability, acknowledging your voice when working out your accommodation?" she asked. "Most of all, can you respect yourself? People need to develop comfort about themselves and their circumstances to equip them to successfully navigate life's many challenges."

Sarita admitted that achieving self acceptance was easier for her due to her great support system and role models from the very beginning. She grew up with an uncle who was totally blind in one eye and had partial vision in the other, but it seemed to her like he could achieve anything. Another inspiration was her late sister, Donna. Although she suffered from multiple disabilities and passed at only 12 years old, her short life made a tremendous impact.

"Reflecting on her struggles when I got sick gave me the strength I needed to persevere," Sarita said. "I think her purpose in life was to show people that, despite her circumstances, she was capable of loving others and giving them hope." Sarita's daughter, Jana, who currently has a photography business in New York City, also played a key role in helping her achieve the right perspective.

"Rather than focusing on things I couldn't do for her, like drive her

around, I realized I could still become a good parent and rehabilitate myself so I could provide opportunities for her success," she said. "Her arrival was what pushed me to get my graduate degree. Even when life throws you curveballs, you can still have what it takes to keep going."

Becoming involved with affiliates on local, state and national levels helped tremendously, as these opportunities provided a community of individuals who supported one another. She encourages people to reach out and get involved with these existing groups, or even create one if organized resources are not readily available. Either way, Sarita's story shows that a support system is key. She also points out that these groups help the low vision community address some of the biggest challenges it currently faces.

"Whether it's assuring funding for assistive technology in our nation's schools or passing legislation that will make a difference, it's good to get involved with a national organization," she said. "It all boils down to our core need for independence." Organizations like CCLVI and ACB also connect people far and wide, using resources like Vision Access to reach people in rural areas.

"Naturally, the goal is having an organization that provides opportunities to meet people who might not otherwise get plugged in," she said. "It's so important to help everyone regardless of where they are, and to educate and enlighten people in an accessible format. Because of CCLVI, I have friends from all over the country--it's given me so much more than I've given it."

Having been retired for five years, Sarita enjoys living in Philadelphia with her husband, George, who serves on the ACB Board of Directors. The walking-friendly city offers fully accessible public transportation and traffic signals, which she appreciated even more after acquiring her visual impairment. Rich in history, culture and arts, Philadelphia boasts fine schools, shopping, museums, hospitals, convention venues and concert opportunities. The latter is of special interest to Sarita, who is an ardent appreciator of classical music. She also enjoys participating in an audible dart club for the third year, which satisfies an interest in competitive sports not fulfilled since losing most of her vision.

"If you're visually impaired and looking for a great place to live, consider Philadelphia," Sarita suggested. "We have an active, interesting community that caters to the needs of many disabilities."

For Leaders and Aspiring Leaders
by Jim Jirak

Smack in the middle of our great nation
Is a state that requires some explanation.
To east and west coasters who'll come right out and ask ya
"Is there anything of interest in the state of Nebraska?"
It's true we don't have mountains all decked out in snow,
But we do have the world's biggest live chicken show.
We're the makers of Spam. We invented Kool-Aid,
And this is where the first Reuben sandwich was made.

Our insect, the Honeybee,
our bird, the Meadowlark.
The strobe light, our creation, works best in the dark.
Governmentally speaking, we're a freak of nature.
Since we have the only one-house legislature.

On Arbor Day, when you plant a tree,
Remember that it started in Nebraska City.
We were once called a desert, but that name didn't take,
Since we have the country's largest underground lake.

We have the world's largest forest planted by hand,
And more miles of rivers than any state in the land.
The College World Series calls Omaha "home,"
And, yes, this is where the buffalo used to roam.

We were the first state in the nation to finish our Interstate section,
And the first to run two women in a gubernatorial election.
We invented 9-1-1 emergency communication,
And we're the number one producer of center pivot irrigation.

Our woolly mammoth fossil is the largest ever found,
And our monumental "Carhenge" is certain to astound.
We have several museums that could be called odd,
Dedicated to Chevy's, fur trading, roller skates and sod.

In Blue Hill, Nebraska, no woman wearing a hat,
Can eat onions in public. Imagine that!
We built the largest porch swing and indoor rain forest,
And anyone who visits is sure to adore us.

It is the backdrop of St. Louis' Gateway Arch that saw the culmination of the collaborative efforts of several Midwestern states to launch the initial Midwest Leadership Training Conference in August 2011. Dubbed the ABC's of ACB Leadership, each agenda item worked around this theme, and provided a cohesive and meaningful conference experience.
Building on the momentum of this

conference, two previously held national leadership training conferences and the 2014 Midwest Leadership Conference again in St. Louis, Missouri, several individuals from the states of Illinois, Iowa, Missouri, Nebraska and Wisconsin have gotten together to discuss having another Midwest Leadership Conference this summer. The host hotel is the Regency Lodge in Omaha, Nebraska, 909 S 107 Ave. Room reservations are now available and can be made online at http://bookings.ihotelier.com/bookings.jsp?groupID=1611410&hotelID=75099 or by calling 1-800-617-8310. The conference dates are Aug. 5-7, and the group rate is $81 plus tax.

This time, we are reaching beyond the Midwest to invite not only those affiliated with ACB and CCLVI, but also those individuals who could possibly benefit. Please begin thinking about who would benefit most from a program such as this. Guidelines for consideration include, but are not limited to, having a scholarship winner who has expressed genuine interest in and follow-through with projects. Perhaps you, or board members, are new and need to share the experiences of others.

In an attempt to reach younger participants, the plenary committee has teamed up with ACB Board Member Sara Conrad who will be facilitating a Young Professionals Seminar. The purpose of this portion of the seminar is to encourage leadership of young professionals in the blindness community and in their personal communities, as well as to facilitate effective leadership across ACB. Young professionals are often uncomfortable with programming that is not specific to their age level. By providing this seminar in conjunction with the Midwest Leadership Conference, young professionals will have the ability not only to strategize and grow with their peers, but also to engage with people of varying ages in leadership.

The festivities begin Friday, Aug. 5 with an icebreaker. Some of the topics being discussed for Saturday, Aug. 6 include Documents for a Successful Affiliate: Best Practices for Creating & Maintaining a Constitution, Bylaws, and More; Becoming a Non-profit: Obtaining 501(c)(3) Status for Your Affiliate; Inclusion of Special Populations: Incorporating Minority Interests; Dollars & Sense: Effective Fund-raising; Power in Numbers: Increasing Membership; and the Age Gap: How to be a Leader in a Diverse Age Group. We will top off the day with a Saturday evening banquet with a potential high profile leader from the past. We will conclude Sunday, Aug. 7 with a mock election.

If you're looking for a singularly effective means of increasing affiliate membership, training tomorrow's leaders, improving the ability of current leaders, and creating a vibrant, active and empowered state or special interest affiliate, look no further than the Midwest Leadership Conference and the Young Professionals Seminar. If you have further questions or need more information about the conference in general, please contact me at

jjirak@inebraska.com or by calling 402-679-8448.
So pack up the kiddies, the pets and the wife,
And see why Nebraska is called "THE GOOD LIFE."

(Oh gosh - I didn't even once mention football! OR that the yellow color of the school buses originated in Franklin, Nebraska.)

Jasmyn Polite: A Mini Profile
By Jasmyn Polite

I am Jasmyn Polite and I'm 21. I was diagnosed with cataracts as a baby and had to get cataracts surgery. As a result, I was diagnosed with glaucoma at 9 years old.

Today I take four eye drops for my condition to control my eye pressure, yea I will have glaucoma for the rest of my life! But I have positive things to look back and forward to.

For example, I graduated from the Florida school for the Deaf and the Blind with my standard diploma, and now I'm in college perusing my career as a private braille anh art teacher for children with vision problems (10 months to 5 year olds). I also plan to be a braille transcriber on the side. I am also engaged to my high school sweetie, who is visually impaired himself. I also have God, a great family, and friends to support me when my eye condition gets me down. I use a CCTV, zoom text for my computer, the victor stream, my cane for mobility, and large print materials. I also wear thick glasses because I'm aphakic. All these things help me in my everyday life. I am also learning braille in case I go blind from glaucoma.

I hope that as a young lady with glaucoma I can help educate young visually impaired and blind children and be their voice.

Quality of Life

Electronic Video Glasses
by Bill Takeshita, O.D., f.A.A.O., F.C.O.V.D.
Center for the Partially Sighted and Braille Institute

People with macular degeneration, diabetic retinopathy, and other causes of low vision have always wished for a pair of glasses that they could wear to allow them to see more clearly. Well, the time has arrived, and electronic video glasses are here! Electronic video glasses resemble a pair of sport sunglasses. They contain a very small camera that is hidden in the front portion of the frame. The image is then displayed on organic LED screens that are located where the lenses of the sunglasses would be. The user is able to see distant, near and objects

at all distances in full color with a range of magnification levels. These glasses can also be customized to incorporate the user's glasses prescription and a tint. Although they do not restore vision for the totally blind nor are these glasses legal for use when operating a motor vehicle, they enable many people with low vision to return to work, read, write, see a computer screen, cook, watch movies, see plays at the theatre, attend sporting events and perform their favorite hobbies again!

eSight Glasses

The eSight electronic video glasses are one of the first glasses produced. The eSight glasses have received extensive validation at various hospitals and clinics, including the Wilmer Eye Institute. They have been able to help people with visual acuity ranging from 20/60 to 20/1200, and have been featured on CNN and the Rachael Ray Show.

They weigh approximately 8 ounces and provide up to 14X magnification. Users simply strap them on with an elastic band, and they can customize background colors and text when reading books, taking photographs, and looking at all objects in vivid color. The eSight glasses are controlled by a remote control that is attached to them by a cord. The battery is located in the remote control, which fits easily in the palm of the hand. "We placed our battery in the remote control to allow us to have a longer battery life," said Brian Mech, president of eSight. The glasses have a four-hour battery life before requiring recharging.

Users of the eSight glasses have found them to be very helpful when attending lectures, as the camera allows them to read information on the board as well as to take photos of it. This eliminates the need for students to take notes during lectures. The eSight glasses also have a fast processor and stabilization system to reduce dizziness when reading books.

The cost of the eSight glasses is $15,000. For a demonstration, please call 855-837-4448 or go to www.esighteyewear.com.

NuEyes
NuEyes Easy are video glasses that were released in 2016. The NuEyes glasses look like a pair of sporting sunglasses, and are sleek and wrap around the face. The front portion of these glasses contains a high-definition camera that communicates to the processor wirelessly through Bluetooth and Wi-Fi. There are no wires hanging from the NuEyes glasses. The NuEyes displays a very sharp color image on the LED screens positioned where the lenses would be. The image can be magnified up to 12 times, and the contrast can be altered from full color, black text on a white background, and white text on a black background. The NuEyes does not allow users to customize the colors of the background and text. Batteries are located in the glasses' ear pieces and last up to two hours before requiring charging. The NuEyes also comes with a 10-hour auxiliary battery for situations where the user requires longer battery life.

In addition to having magnification and contrast enhancement features, NuEyes will soon have optical character recognition. "Our Nu Eyes glasses will soon have OCR that will allow users to take a photo of the book and the NuEyes will read it aloud," said Mark Greget, president of NuEyes. "We will also have streaming videos that will allow users to watch movies." The NuEyes come with ear buds that are easily connected to the glasses by a magnetic cable. Adjusting magnification and contrast are easily performed by pressing easy-to-feel buttons on the ear pieces or by using one's voice to tell the glasses to change magnification and color. The NuEyes contains an Android processor and has the potential of running many applications used on cellphones.

The cost of the NuEyes Easy glasses is $5,995 and demonstrations are available by calling 800-605-4033 or going to www.nueyes.com.

I have been privileged to observe demonstrations of the eSight and NuEyes video glasses on people with many eye diseases. I believe that it is best for each person to receive a demonstration of both systems to determine which one works best for him or her.

{Editor's note: You will enjoy a podcast Dr. Bill did on the NuEyes glasses. It is on iTunes and under "Low Vision Technology for 02/05/2016."}

Choice Magazine Listening

For more than 50 years, Choice Magazine Listening has been sharing its special selections of literature free of charge with people who have visual impairments or physical disabilities. What makes the service unique is that a team of full-time editors reads over 100 magazines every month in order to share the best writing that illuminates the human experience.

The CML editors choose short stories, poems, interviews and articles, which are then recorded by professional narrators--some of the same voices that may be familiar to you from audiobooks. CML compiles the recordings into 12-hour anthologies, which it sends four times a year to all those enjoying a free subscription.

CML is a literary service, not a news service. Listeners are treated to writing on just about anything, if it's good enough for the editors to select for inclusion. Nature, sports, humor, food, fiction, travel, history, the arts--anything goes, just so long as the writing is the finest to be found in America. CML editors select writing from /National Geographic/, /Smithsonian/, /Sports Illustrated/, /The New Yorker/, /Scientific American,/ /Harper's/, /Time/ and many more magazines.

The chosen pieces cover a wide range of subjects, so every listener always hears something compelling. To appreciate the world-class writing in Choice Magazine Listening's quarterly

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I'm a Legally Blind Photographer: Here's how modern technology makes that possible by Tammy Ruggles

I was declared legally blind 14 years ago at the age of 40. I lost my driver's license and my social work position, for which I had earned a bachelor's and master's. It was my chosen profession, and I didn't give it up lightly. When it disappeared, so did some of my confidence and sense of identity. What was I to call myself if not a social worker?
I ended up becoming a photographer.

The words "legally blind photographer" don't sound like they should exist together. Indeed, until recently I didn't think this path was available to me. I'd always loved taking pictures ever since I was a little girl, snapping shots of my family and pets with the Kodak and Polaroid cameras my mother always had around.

Tammy at age five.

But I was born with retinitis pigmentosa, a progressive blinding disease that deteriorates the retinas over time. And with retinitis pigmentosa comes night blindness, which meant I couldn't see in a darkroom to use the chemicals and develop photos, nor could I read the settings on a camera to shoot manually--all major problems in the era before digital photography. So as a teenager I decided, regretfully, to put my love of photography in a box and leave it alone. I didn't feel bitter about it. It was just another adjustment I had to make given the vision problem I had.

The Miracle of the Digital Camera

My condition didn't deter me from enjoying
photography in my mind. I read about photographers like Alfred Stieglitz and Ansel Adams, and daydreamed about the kind of pictures I would make if I could: not family snapshots with a disposable camera, but those on the fine art, creative side of photography. Maybe a mountain, or a snow-covered field, or an unusually shaped tree. Definitely landscapes, because I'd grown up with rural scenery all around me.

Then, in 2013, after I could no longer drive, practice social work or sketch drawings, I decided to turn my dream of being a photographer into a reality. I had heard so much about how easy

point-and-shoot digital cameras were, and I wanted to try one.

I still have some vision. "Legally blind" doesn't mean completely blind. Each person's experience is different, but for me it means that everything I see is extremely blurry--oddly enough, like a camera lens that is turned so far out of focus that you can't distinguish a person from a tree, or see where steps begin and end, or where the restroom door is or what a person's features look like. I see the general blurry shape of things, and the closer I am to something, the better I can determine what it is.

When the camera arrived in the mail, it sat for days unopened. I was afraid of what people might think or say: "A legally blind photographer?" That was the question I asked myself. I lost social work. This would be just another thing to lose. Self-doubt crept in.

But the idea wouldn't leave me alone. And so, with a little nudge from my son--he actually took the first picture--I picked up the camera and walked around my backyard with it, snapping the shutter just to see what I could capture.

When I transferred the images to my 47-inch monitor, I was amazed at what I couldn't see in my own backyard, but what my camera could: purplish blueberries in some brush, wild pumpkins at the edge of the woods, individual brown leaves on a tree (it was fall that year).

Not only could I take the kind of pictures I'd always wanted to take, but I could see things with my camera that I couldn't see without it, like it's a second set of eyes. A double gift!

I didn't need a darkroom, because images are "developed" inside the camera. I didn't need to read the settings, because I had the camera set on auto.

How I Work

I take most of my photos outside, in black and white--I see best in contrast, plus I've always admired the classic black-and-white style. Sometimes I move up close to something of interest while walking, hold the camera about three or four inches away from it, and snap the shutter. Other times, I literally point randomly in the direction of blurry hills and vague shapes of trees, or whatever is out there in the world, and take a picture. With landscapes and nature, my vision doesn't have to be perfect. I can be abstract and make mistakes.
People are more challenging to photograph. I can't tell if someone is looking at the camera, or if I'm cutting off heads, or centering, or if the lighting is right or wrong. I can capture someone in a general way, or a natural way, or in a candid shot, but doing formal portraits in a studio isn't for me. I've tried it, but you need better vision to do it well.

Then comes the heart of my work: I take my camera home to my large monitor to see what I've captured. There's a photography term called

"the decisive moment." It means knowing when to snap the shutter at the perfect second. My decisive moments come after I've taken the pictures, when I make my selections on my big screen. I'm often surprised at the accidental pictures, like a bird perched in a tree, or power lines that make for an abstract composition.

I delete many more photos than I keep, and the ones I keep are the ones I can see best--high contrast, simple composition, and subjects I can make out fairly well. I've never had formal photography classes, but I do use the art education I've had in the past, as well as my years of sketching. I also learn from my favorite photography "mentors" online: Ted Forbes and Ibarionex Perello, who both teach the art of photography.

How My Low Vision Affects My Art for the Better

If my vision condition is an asset to me as a photographer, it's in that it's helped define my style. I don't try to set up a photo or have any preconceived notions about what the picture should look like. I don't fret over how a shot should look beforehand. I don't compare notes with other photographers with full vision, because I already know that their approaches and techniques are different from mine. They use a viewfinder and can see details in the subject, background, and environment they're shooting. They may adjust settings to their taste. I don't worry about how other photographers work; I'm just happy to have found a way to do my own work with a camera.

I don't agonize over my art. I snap pictures, then choose the ones I like. If I don't have any from the day's shooting that I like, it's okay. I can always take another picture. And when the day comes that I can't take pictures this way anymore, because my vision has deteriorated so much, then I will find a way for that to be okay, too, because I have a collection of photos that I'm happy with.

I'd like to think that my photography is pretty or interesting, but I can never really be sure unless someone tells me. I rely on people's reactions. It helps me to know how the photo makes others feel. I've had reactions ranging from "bleak and dreary" to "beautiful." I accept all of them, because I feel honored to be able to take photos. I've learned that it's hard to stifle creativity, and that there is more than one way to express yourself artistically. I've learned that with the right technology and a shift in perspective, people can do things they thought impossible.

Tammy Ruggles is a fine-art photographer in Kentucky. You can find more of her work at tammyruggles.deviantart.com.

Science and Health

Repairing or Replacing the Optic Nerve: New Frontiers in Vision Technology Research by Bill Holton

{This article is available at www.afb.org/afbpress/pub.asp?DocID=aw170307.}

In the September 2013 issue of AccessWorld, we described four groundbreaking advances in low vision enhancement, including the Implantable Miniature Telescope from VisionCare Ophthalmic Technologies, and the Argus II Retinal Prosthesis from Second Sight. The first of these is a pea-sized telescopic lens that increases the useable vision of individuals who have lost central vision due to end-stage age-related onset macular degeneration. The Argus II is aimed toward people with late-stage retinitis pigmentosa (RP). The Argus II uses a wireless signal to stimulate the optic nerve directly via an implanted array of electrodes, bypassing the rods and cones damaged by RP.

As remarkable as these solutions may be, they do have one stumbling block in common: they each assume the recipient possesses a functioning optic nerve that can adequately transmit visual signals to the brain for processing. But what if the optic nerve has been damaged by glaucoma, multiple sclerosis, or trauma? Might there be some way to mend these most complex and fragile of nerve fibers? Or even better, bypass them altogether?

In this article we will describe two recent research breakthroughs--one that shows the potential to help regenerate damaged optic nerves, and the second, a system called Gennaris that may produce vision without the optic nerve, or even the eye itself.

Regenerating an Optic Nerve

The optic nerve is one of the most important nerves in the body, second only to the spinal cord (the spinal cord includes thousands of nerve strands while the optic nerve has but one). So fifteen years ago when Zhigang He, Professor of neurology at the Boston Children's Hospital F.M. Kirby Neurobiology Center, set up a lab to investigate ways to regenerate nerve fibers in people with spinal cord injuries, he decided the best place to start would be to attempt neural regeneration in damaged optic nerves as a proxy.

Others have tried optic nerve regeneration or repair. The first attempts spliced bits of the sciatic nerve to replace damaged optic nerve. Most axons didn't regrow. About eight years ago, Dr. He's group tried gene excision to delete or block tumor-suppressing genes. This prompted some optic nerve regeneration, but it also increased

cancer risks. Their recent work with Dr. Joshua Sanes at Harvard found a gene therapy strategy to enhance growth factor activities, which could mimic the regeneration effects induced by tumor suppressor deletion. Nevertheless, the number of regenerated axons by these approaches was limited.

He and his co-senior-researcher, Boston Children's Hospital Assistant Professor of neurology Michela Fagiolini, took gene therapy a step further. They used a gene therapy virus called AAV to deliver three factors to boost growth factor responses into the retina, which is part of the optic nerve system.

"Over time we were able to regenerate increasingly longer nerve fibers in mice with damaged optic nerves," he reports. "Unfortunately, the new neural fibers did not transmit impulses, known as action potentials, all the way from the eye to the brain, so there was no new vision."

He and Fagiolini traced the problem to the fact that the new nerve fibers were growing without the fatty sheath called Myelin. Myelin insulates nerve fibers and keeps neural signals on track, much as the insulation surrounding a copper wire directs electrical current to the lamp instead of into the wall studs and outlets.

Turning to the medical literature, He and Fagiolini read about a potassium channel blocker called 4-aminopyridine (4-AP) which is known to improve message conduction in nerve fibers that lack sufficient Myelin. Indeed, 4-AP is marketed as AMPYRA to treat MS-related walking difficulties, which also involve a loss of myelin.

"When we administered 4-TP the signals were able to go the distance," says Fagiolini. A separate lab, where they did not know which of the blind mice had been treated, confirmed that the treated mice responded to moving bars of light while the control group did not.
"There is still considerable work to be done before this treatment is ready for human trials," He says. For example, the team used a gene therapy virus to deliver the growth factors that stimulated optic nerve regeneration, but He and Fagiolini believe they can produce an injectable "cocktail" of growth factor proteins that could be equally effective. "We're trying to better understand the mechanisms and how often the proteins would have to be injected," says He.

Also yet to be solved are the potential side effects of using 4-AP to increase optic nerve signal transmission. The medication can cause seizures if given chronically, so He and Fagiolini have begun testing non-FDA approved 4-AP derivatives which would be safer for long-term use. Despite the remaining hurdles, He and Fagiolini remain optimistic. "At least now we have a paradigm we can use to move forward," He says.

The Mind's Eye

Regenerating the optic nerve could help millions, but what if we could bypass the optic nerve altogether and

see without one, or even without physical eyes? That's the goal of Arthur Lowery, Professor of electrical and computer systems engineering at Australia's Monash University.
Lowery and his team are currently working on Gennaris, a system that will stimulate the brain's visual cortex directly, sending a grid of electrical impulses that the brain can interpret as recognizable patterns of light and dark.

Research into "brain" vision goes back to the 1960s. "At that time you needed a room full of equipment to get any results at all," observes Lowery. "Even as little as 10 or 15 years ago, producing a grid of three hundred points of light meant passing a bundle of 300 separate wires from the brain to a large, external video camera." Lowery and his team are building on this previous work, taking advantage of the considerable progress which has been made over the past decade in processing power, component miniaturization, wireless data transmission, and induction power transmission such as that now found on some cell phones, which can be placed atop the charger instead of needing to be plugged in.

In normal vision, light passes through the eye's pupil and lens and stimulates rods and cones, which are the photo-receptive cells covering the retina. These photochemical signals are transformed into neural impulses, which in turn are transmitted along the optic nerve to the visual cortex. There, the brain turns these impulses into recognizable shapes and images, otherwise known as vision.

As it happens, the neurons in the visual cortex can also be stimulated by contact with tiny electrodes. "We know from previous research that we can produce flashes of light that appear in roughly the same spot whenever that same region of the visual cortex is stimulated," states Lowery. "If we can create a number of these flashes more or less simultaneously, we can create a rudimentary grid of light and dark the brain could interpret as an image." Imagine a square of 16 light bulbs creating the letter O by switching on the 12 perimeter bulbs and leaving the four center lights turned off. Or a letter L created by braille dots 1, 2 and 3, with the rest of the cell left blank.
The Gennaris team hopes to create just such a grid using tiny ceramic tiles embedded directly onto a test subject's visual cortex. "Each tile is approximately 9 millimeters square--about a third of an inch--with 43 working electrodes on each tile," Lowery explains. "These electrodes will penetrate 1.5 to 2 millimeters into the visual cortex, reaching what is known as Layer Four, the brain region most directly stimulated by the optic nerve."

A small video camera will transmit real-time imagery to a pocket-size processing unit. There, special algorithms will determine the most essential aspects of each image and break them down into a running series of grids of light and dark. The grids will be streamed wirelessly to a magnetic induction coil placed against the back of the patient's head nearest the visual cortex. The induction coil will be able to remotely spawn a tiny

charge in each of the electrodes as appropriate, which will then stimulate the visual cortex much the same way as the optic nerve would normally do. "We will actually have an advantage over implanted retinal prosthetics," says Lowery. "Most of our sharpest vision takes place in a tiny portion of the retina rich in rods and cones known as the fovea. The fovea is only about a square millimeter in size, so intraocular prosthetics must also make use of retinal tissue more associated with peripheral vision. The brain area that actually processes central vision is 25 times larger than the retinal tissue it services, however, which gives us potentially 25 times the resolution of a retinal implant."

Lowery and his team hope to initiate their first clinical trials by the end of 2016. "We plan to begin with four tiles, but eventually we hope to increase that number to 11," he states. "We also hope to reach 10 frames a second in transmission speed." According to Lowery, the resolution could also potentially be enhanced many times over by coating the electrodes with special hormones called brain-derived neurotropic factors. "Instead of poking the brain neurons with electrodes, these chemicals would actually encourage the neurons to reach out and make contact and new connections, as though the electrodes were other brain cells."

Also according to Lowery, realistic depictions of the world around us are not the be all and end all of Gennaris's potential. "We already have facial recognition that does a great job of identifying people. Imagine a special icon representing your husband or wife, others for each of your children that could include emotional content, smiles, tears, and the like. Direction and distance markers for doors, elevators, and windows would also be possible. We could even generate runway-light-like guidance systems to help navigate a warren of unfamiliar corridors, pointing out obstacles along the way."

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