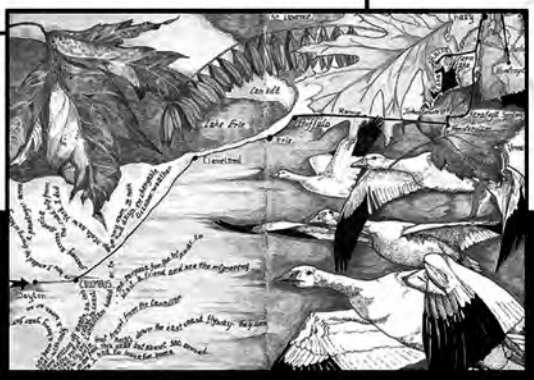
Journal of Natural Science Illustration

GUILD OF NATURAL SCIENCE ILLUSTRATORS

In this issue:



VOLUME 53 • NUMBER 2 • 2021

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A Note From...

Gail Guth, JNSI Managing Editor

I had to suspend my Facebook and Instagram accounts a few weeks ago after they were hacked. I thought perhaps I wouldn't restart them and went along doggedly for two weeks without the benefit of cat videos and memes, but then I realized how much I missed being in touch with everyone, particularly my GNSI family. I've since restarted the Facebook account (with some extra and annoying security measures). Instagram is still on hold—for now.

I have been a GNSI member for 45 years and over those years I have made many warm and close friendships with so many wonderful, exceptional people. Even with those I don't know as well, I know I share a common bond and a common interest. The unwelcomed shutdown reminded me how much I value being a part of this excellent organization, not just for the professional information and education opportunities, but for the wonderful camaraderie as well. We are somewhat unique in the art world, I think: noncompetitive, welcoming to all ages, shapes, sizes, colors, skills, all science-related art disciplines, and even those merely interested in nature-related art. I hope none of you ever get your Facebook accounts hacked, but if fate takes you away from your GNSI family for even a few weeks, I'm sure you'll miss that connection as I did.

Please proudly take up the banner for the GNSI and take time to encourage anyone who might be interested in natural science art to join us. Ours is an amazing organization and an amazing profession.

This issue of the Journal once again highlights the wonderful diversity that is the GNSI, including Galápagos flora and fauna, newly graduated student art, elegant calligraphy-enhanced illustrations, travel journaling, and exciting previews of our upcoming Visual SciComm Conference. Enjoy!

Those of you receiving the print edition will note the new dust jacket. We are trying this approach to help protect the journal through the mailing process and deliver pristine copies to your mailboxes. Let us know what you think!

—Gail Guth
JNSI Managing Editor
journal@gnsi.org

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Cover: Galápagos petrel (*Pterodroma phaeopygia*) and cacaotillo shrub (*Miconia robinsoniana*). © Mary Ellen Taylor

NATURAL SCIENCE ILLUSTRATORS

The Guild of Natural Science Illustrators is a nonprofit organization devoted to providing information about and encouraging high standards of competence in the field of natural science illustration. The Guild offers membership to those employed or genuinely interested in natural scientific illustration.

GNSI GENERAL INFORMATION

MEMBERSHIP

USA Print: $95/year ($180 for two years)
Global: $115/year ($220 for two years)
Digital Delivery: $75/year ($145 for two years)

Other membership options are available; see website. Secure credit card transactions can be made through *www.gnsi.org*. Or send checks made out to "GNSI" at the address below. Please include your mailing address, phone, and email.

CONTACT

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Membership Questions: *membership@gnsi.org*

WEB & SOCIAL:

Stay up-to-date with all GNSI happenings at *www.gnsi.org* and through our monthly newsletter. Here you can update your member information, find announcements about members' accomplishments, information about our annual Visual Science Communication Conference, Education Series workshops, and more. You can also find GNSI on Twitter and Facebook:

Twitter: *@GNSIorg* Facebook: *@GNSIart*

GNSI JOURNAL

Volume 53, Number 2/2021 • © 2021
JOURNAL OF NATURAL SCIENCE ILLUSTRATION (JNSI) (ISSN 01995464) is published at 2201 Wisconsin Ave., NW, Suite 320, Washington, DC 20007, by the Guild of Natural Science Illustrators, Inc.

This paper meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

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JNSI STAFF

A New Name for Our Largest Annual Event

—Kalliopi Monoyios, GNSI President

For those of us who have been in the GNSI for ages, the annual conference is a beloved event. Whether we are able to join annually, or pop in every few years (location and budget depending!), we have learned that the annual conference is where great friendships are forged and immense amounts of knowledge transferred. For those of us in the know, the GNSI is a vibrant, welcoming community of talented and passionate people.

Last year's virtual conference was an interesting, if not entirely intentional, demonstration of how appealing our activities can be as we almost doubled our average conference attendance and attracted attendees from 14 countries around the world! This despite the fact that we did no additional marketing other than our regular announcements in the newsletter, journal, and social media channels. In other words, the extra attendees still came from a pool of people who are already familiar with what we do. But a simple tally of the voices of #sciart on Twitter, Instagram, and the like, show there are so many more professionals like us to reach.

For these folks, the appeal of attending a "GNSI Annual Conference" or a "GNSI Virtual Conference" is not immediately apparent. These names mean nothing if people are not already familiar with our organization. A more descriptive name for our biggest and best introduction to the GNSI is the fastest way to grab like-minded people's attention. It has the potential to instantly explain who we are and what people can expect to gain from attending our conference.

You may have heard people in the organization adopt the term "visual science communicator" in recent years to broadly describe what we all do, regardless of whether we sculpt, animate, or illustrate. This is an appealing choice because another variation of "science communication" is already in widespread use in science circles and online: SciComm. SciComm typically refers to the dissemination of information by scientists and science writers in outlets and/or media that reach far beyond academia. Understanding this backdrop, we are coining the term "Visual Science Communication" or "Visual SciComm" as a logical extension of that trend. By branding our annual conference the "GNSI Visual SciComm Conference" moving forward, we communicate instantly who we are and who might want to attend.

So don't be confused as you see us transition to calling the annual conference the GNSI Visual SciComm Conference. We'll likely swap between GNSI Visual SciComm Conference and the more formal GNSI Visual Science Communication Conference for a while before seeing which one sticks. We hope the change in name will help us project outwardly what we do in a way that doesn't require lengthy explanations. Regardless, it is still the conference you know and love, whether online or in-person. So stay tuned for more information about the GNSI's Visual Science Communication Conference! It's going to be a great event.

Our 2021 conference logo featuring the new term "Visual SciComm." See page 8 for more information about the conference. Art © Fiona Martin

GNSI SYMPOSIA SERIES OFF TO A GREAT START

On March 5th we launched our brand new symposium series with a lecture by GNSI member Amanda DeGrace. Inspired by last year's enthusiasm for the virtual conference, we decided a series of online lectures spread throughout the year might be a great way to engage and connect our members while providing useful tips and tricks in the process.

DeGrace joined us last year with extensive experience in the world of grant writing and community investment. Her talk, titled "An Illustrator's Introduction to the World of Grants," led attendees through the process of applying to grants, but importantly, covered what in her experience makes the strongest applications. She encouraged members to view each application as a bid for a partnership, rather than a list of things you need. Her sound advice really resonated with the 125 attendees. The feedback we got was overwhelmingly positive. Special thanks to Amanda for pioneering this new series with us!

Moving forward, our intention is to offer a wide array of topics that provide practical tips for whatever career stage you find yourself in. We'll be drawing from experts in a number of directly related or parallel fields in search of insights that can be utilized to spur your success on your unique path (aren't they all in this field?!). If you have ideas about presenters or content you'd especially like to see or are interested in helping to shape this exciting new series as a volunteer, please reach out to me at *president@gnsi.org*.

Member Spotlight

MARY ELLEN TAYLOR

When considering my circuitous career path toward botanical and nature art over the past 40 years, I clearly see that apart from quantum leaps, serendipities, and sheer determination along the way, the seed was well and truly planted during my time living in the Galápagos Islands.

Witnessing first-hand the extraordinary forms, colours, and sizes that the flora and fauna evolved into—ensuring survival on these inhospitable islands 600 miles off the coast of Ecuador—engraved on my soul a powerful respect and awe for them. My view of the world we live in and our humble place as human beings was changed forever.

Right: The endemic mangrove finch (*Camarhynchus heliobates*) and red mangrove (*Rhizophora mangle*) on the Galápagos Islands.

Growing up, I was always "arty" and influenced by my father and grandmother, spending creative summers painting or building projects and tasting raw nature in rural Vermont. I went on to pursue Fine Art and a stint of Graphic Art before making my way to London for my semester abroad. I felt I had come home in England's green and pleasant land. After nearly three years, my visa expired and I never finished at the university… but I knew I would return… somehow.

"I would feel more optimistic about a bright future for man if he spent less time proving that he can outwit Nature and more time tasting her sweetness and respecting her seniority."

—E.B. White

Reluctantly back in the USA but armed with determination to leave as soon as possible, I stumbled upon a new concept in travel—*adventure tourism*. I managed to begin working for a tiny, offbeat but fantastic company in this emerging field not three months later in NYC.

My world opened up to the colourful Panamanian San Blas Islands, sailing through the Hebrides' wild seas during summer solstice, cruising up the Nile, tranquil spring flowers, the magic of trekking the Inca Trail, and…the "Islands lost in time," the Galápagos. I was hooked.

QUANTUM LEAP #1
GALÁPAGOS ISLANDS (1982–1987)

I fell in love with this bizarre little archipelago and moved lock, stock, and barrel to Santa Cruz Island, where I was trained and licensed as a Naturalist Guide by the Galápagos National Park and Charles Darwin Research Station.

I began to draw the plants and birds I lived with on a daily basis and guided visitors throughout the archipelago. It was a privilege to call this unique outdoor classroom my home for five years. I lived in a tiny lava-stone house in the mangroves on the edge of Academy Bay and it was here I knew that someday I would study how to properly pay homage to the beauty of plants through botanical painting. I had read of a diploma course in the Chelsea Physic Garden in London, which I never lost sight of and held in a special place somewhere deep in my soul.

The difficulties of living in the islands were many. Having experienced the worst El Niño in 40 years, a failing marriage, and having a 2-year-old daughter to consider, we moved to the capital city, Quito. Straddling the equator at 9,350 ft in the Andes, with a semi-tropical climate and within easy reach of tropical jungle, cloud forest, altiplano, and the lush coast, not to mention 1,600 bird species… I was spoiled for choice and fascinated by the diversity.

However, after two decades of enduring earthquakes, volcanic and political eruptions, a few creative business ventures, extraordinary friendships, and a handful of serendipities—the opportunity to follow my dream of studying botanical art at the Chelsea Physic Garden, London, fell like manna from heaven.

QUANTUM LEAP #2
LONDON (2003)

With my dream leading the way, I packed 21 years of my life into a container and moved across continents and hemispheres. It was quite a contrast from the Avenue of Volcanoes out my kitchen window in Quito, to seeing the whites of the eyes of Eurostar passengers whizz by in London!

With great anticipation, I embarked on the intensive English Gardening School diploma course in botanical painting, nestled within the magic walls of the oldest botanic garden in London: The Chelsea Physic Garden. It was like stepping into Narnia.

I spent two years studying and working within the garden, when I was asked to step in for the Diploma Course Manager at the English Gardening School during their paternity leave. The six-week "job" lasted 12 years! Eighteen years later I am now Chair of the Chelsea Physic Garden Florilegium Society.

PROJECTS

DARWIN INITIATIVE (2009)

In celebration of Charles Darwin's 200th Anniversary and instigated whilst having tea with Sarah Darwin (British botanist and great, great granddaughter of

Left: The endemic Floreana mockingbird (*Mimus trifasciatus*) and cacti (*Opuntia galapageia*) in the Galápagos Islands.

Top Right: The Galápagos flightless cormorant (*Phalacrocorax harrisi*, formerly known as *Nannopterum harrisi*) and brown algae (*Sargassum* sp.).

Bottom Right: Galápagos petrel (*Pterodroma phaeopygia*) and cacaotillo shrub (*Miconia robinsoniana*).

Above: Map of the Galápagos Islands.

Above Right: South Plaza Island, Galápagos.

Right: Albatross specimen at Charles Darwin Research Station.

Charles Darwin), I developed an idea for a series of paintings to help raise awareness and funds for the Galápagos Conservation Trust's (GTC) new project to save the endangered birds of the islands. Few visitors to the islands were aware that nearly a third of the endemic sea and land birds in the archipelago are still listed as severely endangered due to reduced populations and fluctuating reproductive success.

Sponsored by a London-based tour operator, I returned to the islands in February 2008 to collect data and begin painting. Onboard the yacht *Beagle*, I visited the more important islands for habitat illustration references of the birds' nesting and feeding areas. I was given access to the preserved bird and plant specimens housed in the Charles Darwin Research Centre, and had the privilege of consulting with their resident biologists and botanists.

Below: Mary Ellen Taylor onboard the yacht *Beagle*.

The original paintings were sold at a London exhibition as a fundraising effort, with a percentage of the sales dedicated to GCT's project. The sale of notelets and giclées continues to raise funds for the critical Mangrove Finch repatriation program off Floreana Island.

Subsequently, as a Fellow of the Linnean Society in London, I was invited to exhibit the paintings at the annual *Converzacione* meeting. A set of the prints has been donated to the Society's archives as a document to the natural history of endangered endemic birds in the Galápagos Islands today.

BUTTERFLIES IN THE CHELSEA PHYSIC GARDEN (2012)

To celebrate the historical links with the grandfather of British butterflies, James Petiver (1664–1718), and his work with butterflies at the Chelsea Physic Garden, I was commissioned to paint the most common English butterflies found in the Physic Garden. Working closely with the Horticultural Records Manager and gardener, I was given information on the species recorded for the past five years. Fascinated by the relationships between flora and fauna, I decided to record the butterfly's nectar sources as well. My research was furthered through the extensive resources available in the libraries and archives at the nearby Natural History Museum.

TRANSYLVANIA FLORILEGIUM (2016)

I was thrilled to be invited to take part in the final stages of a seven-year project created under the umbrella of the Prince of Wales's Foundation to record in a permanent way the flora of Transylvania, Romania. An abundance of wildflowers found in this central area of Romania have remained untainted by modern agriculture, due to the ancient methods of farming still practiced today.

Working with the Prince of Wales's taxonomist, Dr. John Akeroyd, and under the scrutinising eye of the project manager, renowned botanical artist Helen Allen, we spent two glorious weeks in the foothills of the Carpathian Mountains. We searched the hills and wooded areas for the last remaining species Dr. Akeroyd wished to record, did our colour studies and field sketches, preserved plant parts in the local 'firewater,' and returned to the UK to produce the final works.

The fine art edition of the two-volume series *Transylvania Florilegium* is hand-bound in leather and marbled paper, and finished with gold leaf. The Preface is written by HRH The Prince of Wales, who is a passionate supporter of the conservation of this precious environment.

OTHER WORK

Apart from the projects above, I have been fortunate enough to paint an *Iris* 'Duke of Bedford,' which was only recently discovered and named after the Duke's grandfather. The artwork was commissioned by Her Grace, The Duchess of Bedford, for Woburn Abbey.

I continue to teach in the UK and Europe, and actively contribute to the Chelsea Physic Garden Florilegium archives, documenting the purposeful plants found in the Garden. I have also contributed illustrations to the multilingual field guide *Galápagos: A Guide to the Animals and Plants*, published in 2011 by Nigel Sitwell. My butterflies have been featured in *Resurgence & Ecologist* magazine, and my work is held in private collections.

Thinking back on my journey, I believe that never losing sight of my vision—my passion to get to know the 'spirit' of the flora and fauna I work with through painting and the experiences that influenced and enriched me—have brought me full circle to where I am so very happily ensconced now.

Above Left: Comma butterfly (*Polygonia* sp.) with nettle (*Urtica dioica*).

Above Right: Holly blue butterflies (*Celastrina argiolus*) and English ivy (*Hedera helix*).

Left: HRH The Prince of Wales with Mary Ellen Taylor.

Below: Peacock butterfly (*Aglais io*) with dandelion (*Taraxacum officinale*).

Learn a New Skill, Make New Connections, Renew Your Passion!

Core Conference: July 17–18, 2021; Workshops: July 24–25, 2021

The GNSI's next virtual installment of our annual conference is just around the corner. This year's program will span two weekends: one dedicated to core conference presentations & events, and one to online workshops.

—Christie Newman, Conference Chair

A fabulous lineup of presenters covers such topics as raising public health awareness through data visualization, deconstructing complex topics for any audience, and new ways to attract clients and project funding. Our speakers include: Alice Kitterman of AAAS, Ben Smith of Applied Physics Laboratory, Dino Citraro of Periscopic, Ever Salazar of MinuteEarth, and many more.

Our workshops will focus on business acumen and career tips as well as new digital and traditional techniques. We're excited to have Brandon Holt of St. George's University, Mesa Schumacher of Mesa Studios, and Scott Rawlins of Arcadia University as our instructors.

But, no GNSI conference is complete without social events! You'll have plenty of opportunities to catch up with old friends and meet new ones during the virtual after parties. Expect a fun time socializing and jumping tables in our Remo site gathering. Free events are on the menus as well:

VIRTUAL PORTFOLIO SHARE

Keep an eye out for GNSI's second Virtual Portfolio Share! The Portfolio Share is a time of camaraderie and an opportunity to see the variety and style that each GNSI member brings to the field. This year's sharing will take place online on Facebook and Twitter.

Facebook: Visit our Facebook page (@GNSIart) from June 28th–July 5th to enjoy a gallery of portfolios from GNSI members who submitted work for our virtual portfolio share.

HASHTAGS

This year's official conference hashtags are **#vizscicomm**, **#scicomm**, and **#sciart**. Use them widely on social media when referring to conference events and happenings. Spread the word about what we do and why it's important!

Twitter: The portfolio share takes Twitter by storm! Let's dedicate the week of July 12th–18th to flooding Twitter with science art. Both GNSI members and nonmembers are invited to share their work and connect with Twitter's lively sciart community. To join, simply tweet 3 pieces of your own art with the tag #sciartportfolioweek and retweet 3 works from other people for each day of the event.

Wondering what to submit? Anything #sciart! We encourage you to interpret sciart as broadly as you'd like. Share scientific illustrations, sketchbooks, comics, sculptures, and more. All visual displays of science and nature are welcome.

If you have questions, please contact Jenn Deutscher at *socialmedia@gnsi.org*.

ONLINE EXHIBITION

This year's Members' Juried Exhibition selected works will be displayed on the GNSI Image Gallery to coincide with the conference. We expect lots of amazing art from our members!

VIRTUAL AUCTION

Since the 2020 GNSI Virtual Auction was such a success we are going to do it again. You can participate from anywhere to view and bid on all the items that will be donated towards the auction. There will also be a live auction portion during the actual virtual conference.

The Virtual Auction will be via 32 Auctions site—*www.32auctions.com*. It will be up and running two weeks before the virtual conference.

To donate an item for the auction please contact Tricia Cassady, Virtual Auction Coordinator at tricia@plantsandsoils.com. Instructions and forms for participating in the auction are available on the conference web site. Donations are accepted through June 30th.

Half of the proceeds from the auction go towards the GNSI Education Fund and half goes to the GNSI General Fund.

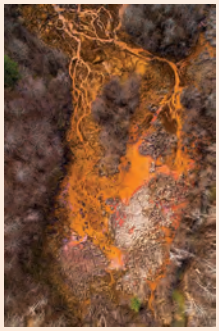
Visit *www.gnsi.org/2021vconf* to see the full schedule and registration details.

Presentations (July 17–18)

Galaxies & Garbage: Data Visualization, A Social Commentary

Dr. Julieta Aguilera

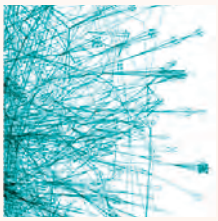
The project presented seeks to make a hidden aspect of reality visible: plastic disposables. The author has lived in the same neighborhood for over 20 years, picking up litter from her front yard, along with almost all her neighbors. Yet the question of behavior change in terms of avoiding disposables has remained hidden in the act of putting litter away without knowing how much is really out there. Enter citizen science data collection and classification projects which may allow neighbors to see what others have found and, in doing so, appreciate the extent of the pollution while emphasizing why data agency is important for decision making. To amplify visibility, photographs of pieces of litter being picked up were compiled into an array and then digitally overexposed into an image of a historical postcard as a mosaic. From a distance, the postcard can be discerned, but up close, it is each piece of litter that can be clearly recognized, inviting viewers to reflect on the amount of trash that adds to its resolution. Several local businesses on the village's main street participated in a mini traveling exhibit, hosting the image at different locations during the Summer and Fall of 2019.



Pollution to Paint; Art Connections & Possible Solutions for a More Sustainable Future

John Sabraw, Ohio University

While our harnessing of nature to produce energy is a wondrous feat of ingenuity and engineering, for Sabraw it's also emblematic of our consumption and hubris. The connections created by this production form a hidden network most people have no idea exists, yet each of us has a part in its formation. Often the only visible evidence is pollution in our waterways and biodiversity decline. This talk will explore the topographies of these connections and possible solutions for a more sustainable future and the critical role artists play their success.



The Unknown: Encoding Data for Impact

Dino Citraro, Wes Bernegger, Rik Ghosh, and Teiler Kwan of Periscopic

Data visualization is not a lump category for graph-making, nor a catch-all phrase for visually intuiting data. This talk will explore the rich complexity of interactive data visualization and emphasize the importance of identifying appropriate communication strategies to reveal insights and create impact.

Illustrating the Invisible: three ways to depict a protein

Ever Salazar, MinuteEarth

Effective and engaging science communication is one of the most important goals for every scientific illustrator, and it can get really challenging when we need to illustrate the molecular world. Since there's a limit to what we can see (with our naked eyes or even with our most advanced microscopes), science illustrators often rely on visual metaphors to picture the molecular world. Some of these metaphors have become common language among scientists and the general public; and while they can be simple and iconic, they can obscure essential aspects of the thing they're trying to portray. For example, the widespread Y-shaped diagram of an antibody does not communicate that an antibody is a molecule! And that seems wrong. This short presentation will discuss this problem and some possible solutions.

Scientific Comic Books: Sci Comm's Next Frontier

Kelly Montgomery, JKX Comics

Storytelling is an essential feature of scientific communication that often gets suppressed in favor of technical detail. Part of the goal of JKX Comics is to emphasize the narratives rooted in scientific research to engage broader populations and encourage others to participate in the scientific process. Using visual and printed storytelling, JKX Comics crafts charming stories that simultaneously captivate and educate readers, thrusting non-scientists into an immersive scientific experience. Here, the JKX co-founders will share their creative process of creating a science comic book–moving from technical research to a reader-friendly narrative.

Botanical Documentation of Prairies & Woods: Project 200

Heeyoung Kim, Heeyoung Kim Botanical Art Academy

When she was first introduced to the botanical art form in her mid-forties, Heeyoung Kim's mind was set to one goal, painting wildflowers. With educating the public about native plants and nature conservation in mind, she has embarked on a lifelong undertaking, Project 200, to document native Midwestern plants at risk, before it's too late. In this presentation, Kim will talk about Project 200, share her drawing/painting progress, and her approach to working on complicated composition with the plant life cycle along with brief demonstrations with her favorite medium: watercolor.

Visual "Breadcrumbs" for Visual Literacy

Alice Kitterman, National Science Foundation

During the four years Alice worked at AAAS/Science, she subconsciously developed a "checklist" for enhancing the visual literacy in her work, that was grounded in the style guidelines and overall branding vision set forth by the Visuals team at Science. In this presentation, she shares these "life hacks" that she employed to each of the over 160 illustrations she created annually.

3D Modeling Animal Anatomy

Mieke Roth

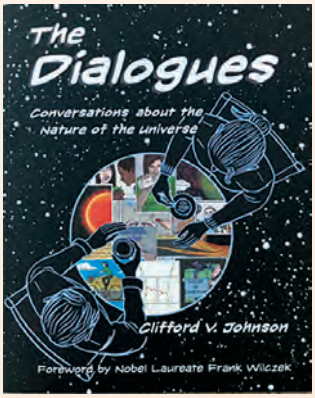
Modeling accurate animal anatomy means you need to get your hands dirty. In this presentation, Mieke will show you part of her workflow by showing how she made a model of a rat neck, including vertebrae and the surrounding tissue. The workshop will demonstrate the creation process from dissection to photogrammetry, modeling in Zbrush, getting it out in Blender, exporting to Sketchfab, and finally making an application from it. Mieke will give her thoughts about the process, what accurate visualization means, and future applications of 3D models.

Panel: Career Pathways in Science Visualization (July 18)

Ben Smith

The Johns Hopkins University Applied Physics Laboratory

For more than 70 years, The Johns Hopkins University Applied Physics Laboratory (APL) has provided significant contributions to critical challenges with systems engineering and integration, technology research and development, and analysis. APL scientists, engineers, and analysts serve as trusted advisors and technical experts to the government, ensuring the reliability of complex technologies that safeguard our nation's security and advance the frontiers of space. APL also maintains independent research and development programs that pioneer and explore emerging technologies and concepts to address future national priorities.



Clifford Johnson

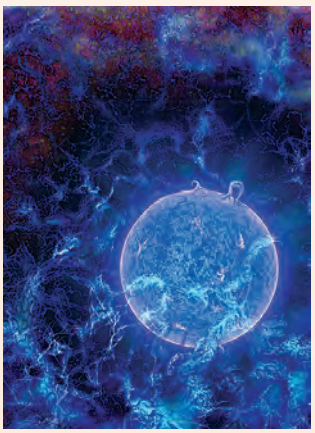
University of Southern California

Clifford V. Johnson is a theoretical physicist passionate about sharing science with the public. He wanted to write a book about physics to a lay audience, but he felt that words on a printed page did not fully convey the dynamic, collaborative nature of fundamental research. What if, he wondered, you could represent multiple voices and points of view? What if one could make the reader feel immersed in scientific discourse, rather than reading the words of an expert sharing a single perspective? He wanted to write a book that would give readers a fly-on-the-wall experience of exploring the ideas themselves, a key process of fundamental science. Johnson realized that graphic novels are the unique narrative medium he was searching for. Through the written word and compelling visuals, graphic novels can immerse the reader in a world of ideas and sensations. This realization led Johnson to write and draw *The Dialogues: Conversations About the Nature of the Universe* (MIT Press), which allows readers to eavesdrop on a series of dialogues, set in locations around the world, about cutting-edge scientific topics. In his talk, Johnson will discuss the process of turning complex scientific topics into compelling visual narratives.

Kelsa Trom

NEW INC

This presentation will explore how the New Museum's incubator instills a spirit of growth, resilience, and empowerment for artists, designers, and technologists.

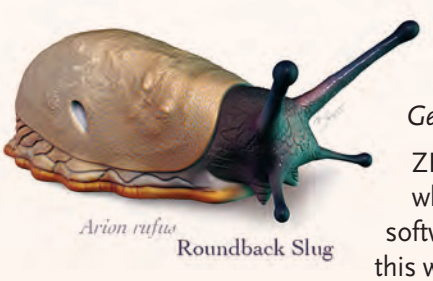


Nicolle R. Fuller

Sayo-Art LLC

This past year I've found myself with more time for self-reflection, AND to do market research. Finally, with hard-numbers of competitors' pricing, I realized that I had been severely under-charging for animation. To do it efficiently, I need a team... and the good news is that I can afford it if I'm charging market rates! So despite my profits currently on track to be 50% less than past years, I'm committed to growing my 1-woman-shop into an agency. I've used this past year to re-focus my business and marketing, and recruit an incredible team to complement my skills.

Workshops (July 24–25, 2021)



Intro to ZBrush

Brandon Holt, St. George's University

ZBrush can be intimidating when you first launch the software, but after taking this workshop, you will be excited to open the program and start sculpting every day. In this workshop, you will be guided through the basic user interface and shown how you can create almost anything starting from a sphere. Once your model has taken its form, you will then be shown how to paint using polypaint and render your final model using BPR and the ZBrush to Photoshop Plugin.

Dry Media for Field Sketching

Scott Rawlins, Arcadia University

A dancer stretching at a barre or a pianist practicing scales and arpeggios are examples of how certain kinds of artists "tune-up" and center themselves. The same is true for visual artists—there are "exercises" that help us to remain loose both physically and mentally. Field sketching is one of these. The act of quickly recording subjects in situ, without the benefit of special materials and equipment not only helps to maintain good hand/eye coordination but also connects us with the tradition of visually recording data at their sources. Ultimately, these sketches represent a combination of many vital skills for scientific artists including accurate observation, attention to composition, and quick rendering. Participants in this workshop will revisit the conditions and processes associated with field sketching, and learn how to combine graphite and pastel dust to quickly achieve fresh line drawings tinted with pastels. Though most of the instruction will take place in a (virtual) classroom setting, participants will also be given an opportunity to engage in a short field trip of their own design.

The Business of Science Art

Mesa Schumacher, Mesa Studios

Want to start a science art business, get your dream job, move forward on your educational journey, or improve your client relationships? Long-time freelance artist Mesa Schumacher will cover the basics of presenting yourself and your work, business, negotiation, contracts, client relationships, and answer your questions about how you can move forward in your business journey.

Illustrator's Guide to Grants: Workshop Edition

Amanda DeGrace, Amapola Studio

As an extension of the GNSI Symposia, GNSI member Amanda DeGrace returns with a full workshop that includes writing prompts and mission-building exercises!

Grant writing may seem outside the realm of your typical independent illustrator. But with guidance and writing prompt exercises, it might just be the opportunity you've been waiting for to jumpstart that creative project you've always wanted to tackle. DeGrace draws on her considerable experience securing grants to revitalize the downtown of her native New Bedford, MA, to offer us insight into where to look, how to present your mission, and consider partnerships that may ultimately land you your dream project. This workshop will be split into parts with lectures and guided prompts. All students will receive a packet to jump-start a full proposal and some may share their responses for in-class feedback.

Above: (*Clockwise from top left*) Caiti Johnson Beck (my first intern, who came as a rising junior from Virginia Commonwealth University in 2011), Mesa Schumacher (2012), Victoria Kulhanik (2015), Adam Labuen Garcia (2015), Lohitha Kethu (2015), Katy Sayers (2019), Taylor Hicks (2017), and Mattias Lanas (2018). Caiti, Mesa and Lohitha all went on to get Masters degrees in Medical Illustration or Biomedical Visualization from programs at John's Hopkins University and University of Illinois at Chicago.

Pandemic Fallout

The Missing Interns

—Taina Litwak

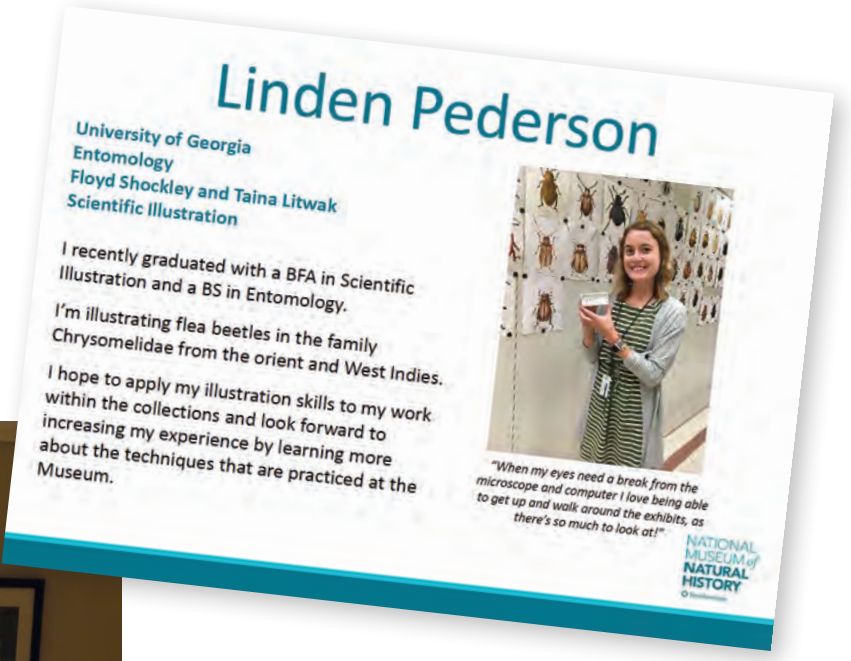
I really miss my interns. When the Smithsonian's Museum of Natural History closed a year ago, I had no idea that March 17, 2020 would be my final day in the office for over a year. As the months went by, I had to cancel the 4 interns who were scheduled to work with me in 2020. As of this writing, April 29, 2021, the Museum is still not open to staff so it will likely be 2022 before I see any new faces.

Since 2011, I have had 37 students working in my office. They came with such a variety of skillsets and backgrounds and they enriched my life so much. Two had PhDs in scientific fields, some were talented undergraduate students, some had Masters degrees in design or illustration already, and quite a few were graduates of the one-year post-graduate Scientific Illustration certificate program at California State University, Monterey Bay. After working with me, a few went on to graduate school in Medical Illustration at John's Hopkins University, University of Illinois at Chicago, University of Georgia, and University of Dundee in Scotland, or to graduate programs in science. I could not be prouder of them.

My interns all produced illustrations for the taxonomists I work with. Most of the work they did with me has been, or will soon be published. I have kept

Above: Misaki Ochida and I, with the Chalk Mural she helped me organize at the 2016 GNSI conference in Santa Cruz, California. Misaki already had a PhD before I met her, and went home to Japan to run a successful freelance scientific illustration business.

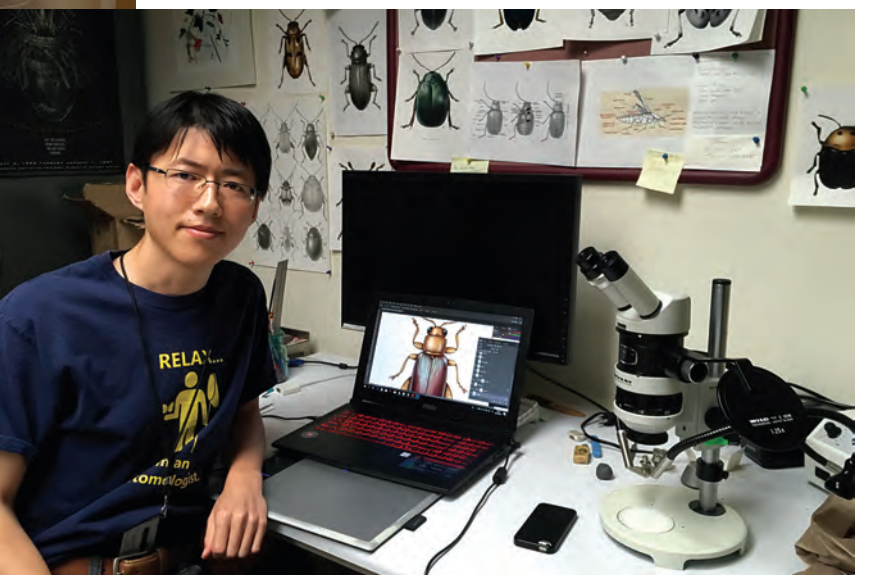
in touch with many of them and they have gone on and are doing great work in our field. I am so happy to have been part of their lives for a short time and I sorely miss the annual flow of new faces, talents, and enthusiasm. I am not doing virtual internships during the museum closure because I feel that it's the on-site experience, with specimens, equipment, and the museum community that make the internship really meaningful.



Above: The Smithsonian had an electronic bulletin board where they featured interns working all over the museum, including Linden. She's posing with a specimen in front of the "Wall of Beetles"—a large book project on flea beetles that many of my interns have worked on. Linden went on to graduate school in Medical Illustration at the University of Georgia.

All photos © Taina Litwak, unless otherwise noted.

Above: Becca Jabs and Jillian Ditner came together out of the CSUMB Science Illustration graduate program in 2016 and finished some seriously complicated weevil illustrations, among other assignments.



Right: Chen Za (2018) is an amazingly tanented painter and already had a PhD in Entomology.

Illustrating Nature

CSUMB Science Illustration Graduate Program: Class of 2021

We are the California State University, Monterey Bay's (CSUMB) scientific illustration class of 2021. Our class has a widespread range of interests from geology and mycology, to entomology, ornithology, and marine biology. We met for the first time during the fall of 2020 via zoom, many of us snuggled in with blankets from our homes scattered between the West and East coasts. In this program we studied numerous types of scientific illustration such as field sketching, digital illustration, micro process illustrations, species identification illustrations, conceptual illustrations, animations, and many others. This program has broadened our horizons in many ways, and was a very beneficial experience.

The pandemic has affected our lives in many ways. Although an online schooling experience was not what we had envisioned or expected, our instructors worked hard to ensure we still received a quality education. We are sad that as a class we have never been able to meet in person; however, we can still show our artwork together! We shared our laughter as well as our struggles with this new virtual world, and we found ways to connect without being together. We drank tea in class together, and planned days to have matching snacks and movie nights.

Our gallery exhibit Illustrating Nature 2021 was 100% virtual and officially opened on June 5, 2021 at *www.illustratingnature.com*. Our exhibit showcases the diversity of passions and interests of our class. We hope that this digital space will allow us to share our artwork with a wider audience. Please enjoy some excerpts from our show in this article!

We want to especially thank our wonderful instructors: Andrea Dingledein, Ann Caudle, Jenny

Students:

Amanda Riley
Avery Williams
Caitlyn Cassidy
Carrie Elleman
Dana Smith
Gillian Marie
Jordan Newman
Josh Overington
Joy Grannis
Keely Davies
Kylene Gilmore
Kylie Kathleen Smith
Michelle Buziak
Nayl A. Gonzalez
Sophie Wood Brinker
Zia Abraham

Above: Belted kingfisher (*Megaceryle alcyon*) and Eurasian Kingfisher (*Alcedo atthis*). Watercolor. © 2021 Josh Overington. Website: *www.clearlyconfuzed.com*

Below: Abalone (*Haliotis* sp.). Prismacolor on Dura-Lene® Film. © 2021 Sophie Wood Brinker. Website: *www.sophiewoodbrinker.com*

Keller, Amadeo Bachar, Justine Lee Hirten, and our program organizer, Gina Garcia. Thank you to our wonderful guest speakers who shared their knowledge and experiences in the field. Topics covered by our guest speakers included art law, copyright, business practices, book publishing, and stories of real-life business experiences. We can confidently begin our careers as science illustrators thanks to the experiences and knowledge they have shared with us.

DID YOU KNOW? CSUMB also offers summer classes in science illustration. These skills enrichment classes are open to all experience levels. Visit *csumb.edu/scienceillustration* to find out more!

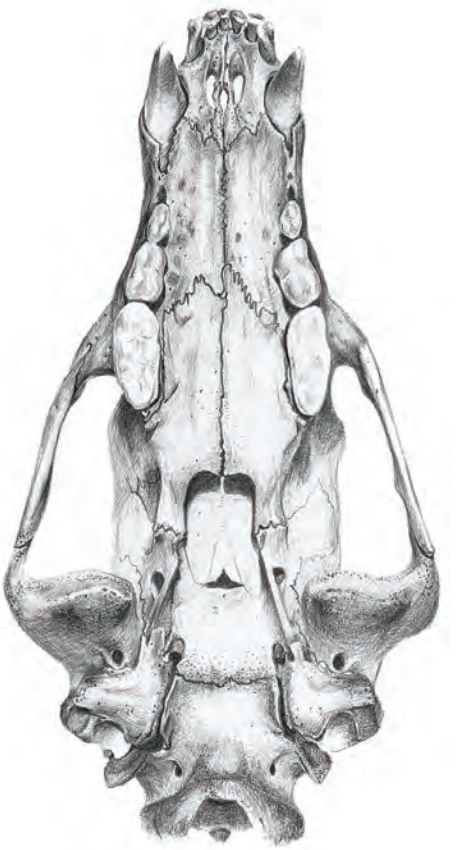
Right: Monarch (*Danaus plexippus*) and mistflower (*Conoclinium coelestinum*). Watercolor. © 2021 Amanda Riley. Website: *amandarileyart.com*

Below: Bull thistle (*Cirsium vulgare*). Prismacolor colored pencil on Dura-Lene film. © 2021 Joy Grannis. Website: *www.joygrannis.com*

Below: Great horned owl (*Bubo virginianus*). Ink on scratchboard. © 2021 Nayl A. Gonzalez. Website: *ngonkrz.com*

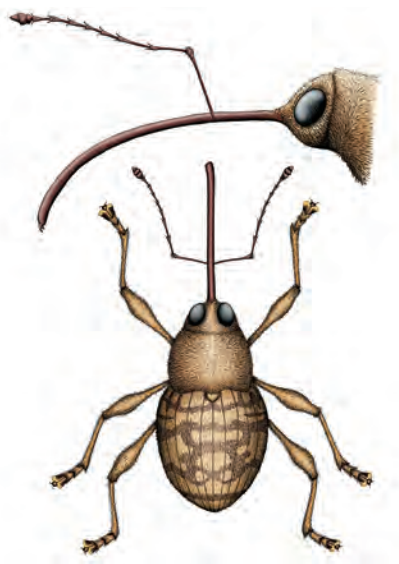
Right: Whales of the Pacific. From top to bottom: humpback whale (*Megaptera novaeangliae*), grey whale (*Eschrichtius robustus*), and Northern Pacific right whale (*Eubalaena japonica*). Gouache on hot press. © 2021 Kylene Gilmore. Website: *kylenegilmoreart.com*

Below: Ventral view of a juvenile black bear skull (*Ursus americanus*). Graphite. © 2021 Carrie Elleman. website: *www.bonesandbrushes.com*



Below: Dew on aspen leaves (*Populus* sp.). Watercolor. © 2021 Gillian Marie. Website: *www.designsbygillian.com*

Below: Female acorn weevil (*Curculio glandium*). Black pencil on coquille, digitally colored in Photoshop.® © 2021 Keely Davies. Instagram: *www.instagram.com/dr_minkensteins_art_lab/*



Above: Puget Sound wildlife. Scratchboard and ink. © 2021 Caitlyn Cassidy. Website: *seapenillustrations.com*

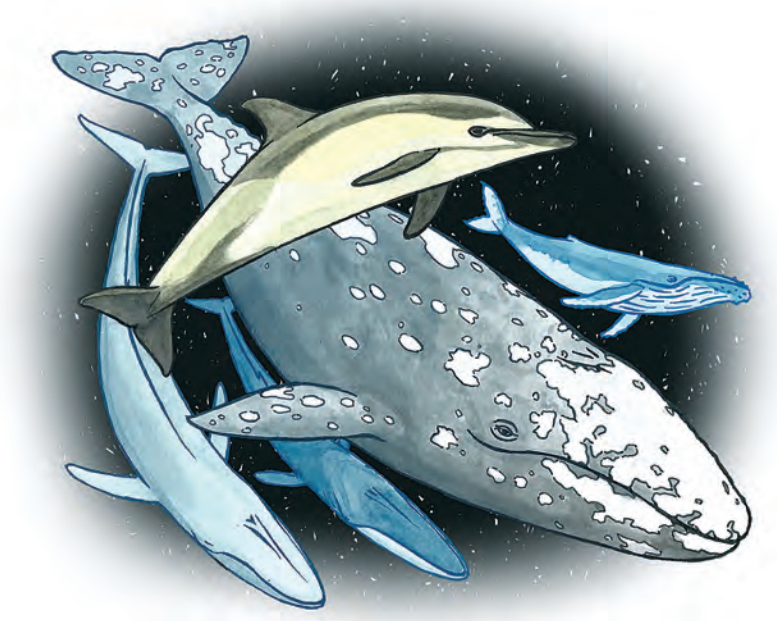
Above: California condors (*Gymnogyps californianus*) through the years. Gouache. © 2021 Kylie Kathleen Smith. Website: *www.kyliekathleenart.com*

Above: Walking iris (*Trimezia steyermarkii*). Colored pencil on Dura-Lar.® © 2021 Avery Williams.

Left: Pair of Gambel's quail (*Callipepla gambelii*). Graphite on coquille paper and coloration in Photoshop. © 2021 Michelle Buziak. Website: *www.michellebuziak.com*

Above: High-five a bat star (*Patiria miniata*). Digital. © 2021 Dana Smith.
Website: *www.thenaturestudio.com*

Above: Wolf Spider Life Cycle. *(Lycosidae)* Ink on Bristol
© 2021 Zia Abraham
Website: *www.xia-art.com*



Above: Cetaceans of the East Pacific. Clockwise from top: common dolphin (*Delphinus delphis*), humpback whale (*Megaptera novaeangliae*), gray whale (*Eschrichtius robustus*), fin whale (*Balaenoptera physalus*), blue whale (*Balaenoptera musculus*). Ink and watercolor, digitally edited. © 2021 Jordan Newman. Instagram: *instagram.com/jordan_bioart/*

Hand-Wrought Calligraphy

—Barbara Holmer

The focus of my sketchbook is primarily of the flora of our area found in our yard and garden and a nearby park. However, I also incorporate hand-wrought calligraphy to keep up my skills with letterforms and to try out compositional ideas. Why hand-wrought? I like the calligraphic styles of letters but prefer using the same medium as the sketch, whether it is graphite, colored pencil, or watercolor.

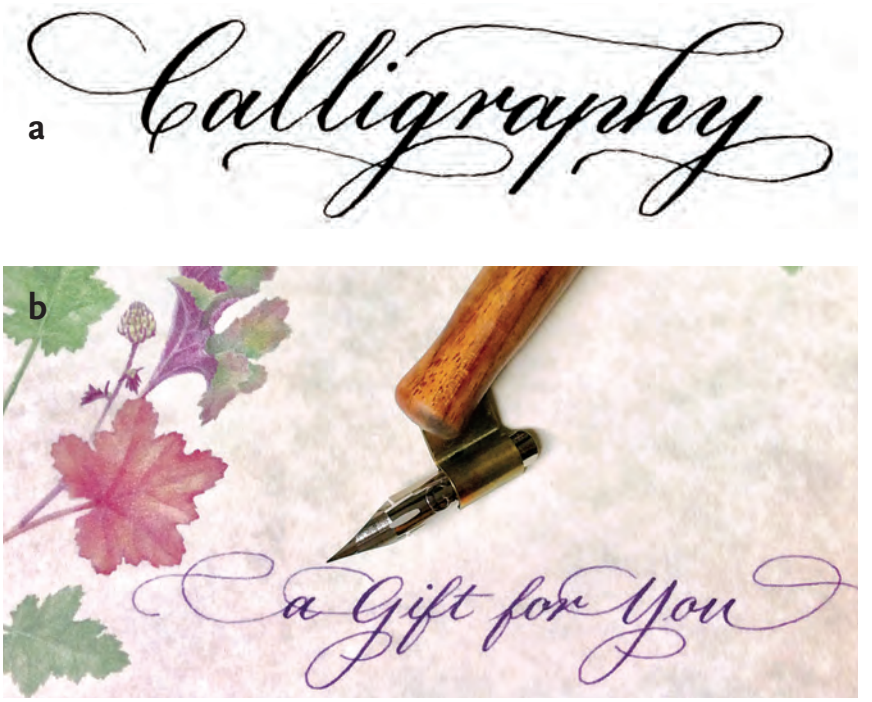
The calligraphy styles, called 'hands', that I use as reference are Copperplate, Italic, and more recently, Uncial.[1] Italic and Uncial calligraphy (*Fig. 1*) are traditionally done with a broad-nib pen which, when held at the proper angle, create the classic thick shades and thin hairlines of a letter. Copperplate calligraphy (*Fig. 2*) is done with a pointed nib in an oblique holder. The shades and hairlines are created by using varied pressure while writing. Copperplate is the style of calligraphy often used for the plant name on a Redouté print[2] and I often used it on my early botanical paintings.

Although broad-nib pens and/or markers are usually what aspiring calligraphers first turn to when learning calligraphy, I personally have difficulty creating the elegant letters that other calligraphers do, especially when using a dip pen. The pointed pen is often more challenging for beginners, but I took to it quite naturally and it has become my preferred calligraphy pen.

For hand-wrought calligraphy, I can create any style of calligraphy I like by following the

Figure 1: Examples of (*a*) Italic and (*b*) Uncial calligraphy along with sketches of *Morchella esculenta* in graphite and in watercolor. (*c*) Italic calligraphy rendered with a broad nib marker.

Figure 2: (*a*) Example of Copperplate calligraphy with pointed nib in oblique holder. (*b*) I often use my drawings and calligraphy for a variety of projects like this gift envelope.



1 Uncial lettering originated from European manuscripts in the 4th–8th centuries.

2 Pierre-Joseph Redouté (1759–1840) is one of the most talented botanical artists in history.

Figure 3: Holly (unknown variety). (*a*) Sketch in graphite and colored pencil, and (*b*) finished work in colored pencil—both with Uncial style calligraphy.

form of each letter and replicating the shades and hairlines using graphite, colored pencil, or watercolor and brush. This works well for field sketching as there is no need to haul (and spill!) ink or damage expensive nibs. Also, by using the same medium as my drawing or painting there is a unifying consistency of artistic touch.

Hand-wrought calligraphy is an equally good choice for finished work and allows for adjustments (i.e., corrections) that would not be possible with a dip pen and ink (*Fig. 3, 4*).

After working this way for many years, I find that my calligraphy has become somewhat hybridized into a combination of several styles so that the letter form and flourishes fit well with the botanical subject. They serve as reminders of particular places and times with beautiful writing keeping company with the plant of the moment.

Figure 4: White pine (*Pinus strobus*). Graphite. "White pine" was written in hand-wrought calligraphy in Italic style. "*Pinus strobus*" was written in hand-wrought block lettering then stretched to size with the aid of Photoshop.

Barbara Holmer
Barbara has been teaching botanical art and natural science illustration, field sketching, colored pencil techniques, and occasional calligraphy classes for many years at the Flint Institute of Arts in Flint, Michigan and the Birmingham Bloomfield Art Center in Birmingham, Michigan.

Sketchbook

Travel Journaling

— *By Marilyn Hailbronner*

Figure 1: Road trip to New Mexico

I have been asked to share my style of travel journaling and how I record my journey. It has taken me many years to find my own style. Over the years I have struggled with keeping a field journal. I have tried sketching in very small sketchbooks, some that had elastic to hold the pages down in katabatic winds in Antarctica, dust devils in the desert, or sea breezes on board ship. I have tried larger sketchbooks, with all that daunting white space. I have even dragged heavy tomes, thinking I would fill the pages over the coming years. It didn't happen.

The question is why could I never come home with a sketch book full of amazing drawings? I have been lucky enough to travel all over the world as both participant and naturalist leader and I have found that on organized trips there is very little time to linger and draw. It is difficult to ask fellow travelers to wait while you stop and whip out something that doesn't resemble just a scribbled suggestion of an amazing animal or a stunning plant. Weeks later I would arrive back home and look at what I had managed to draw, always feeling a little disappointed with what I had accomplished.

I have many artist friends who accomplish on-site art with stunning results, yet I struggle with it. I finally realized it has little to do with the right sketchbook or drawing medium, it is my own comfort level and personal art style that doesn't lend itself to plein air with all its distractions of people and weather.

So, for me, field sketching is a very solitary pursuit. That is, unless you are lucky enough to be traveling with fellow artists who all love to dawdle along sketching. It took me many years before I decided to stop struggling with what I perceived everyone else was doing, and followed my own style and what ultimately works for me. I still drag my journal with me in my backpack along with a bulging bag of pens and colored pencils for on those rare moments alone

Figure 2: Aurora Borealis in Iceland

when I happily sketch, but I create my travel journal pages mostly at home.

I build my illustrations by picking out all the highlights of a trip; the memorable moments that give me the essence of the trip as a whole. I don't usually work with a plan in mind, other than a vague notion of the things I want to incorporate. The page has to have composition and balance.

Figure 1 (*previous page*) is from a recent cross-country road trip to New Mexico; it was fall and the skies out west were vast and colorful. Hues of oranges and blues were the perfect combination. I usually work the edges before considering the center, where I will place maps, words, or in this case: leaves and birds. That might seem like a haphazard approach to the final illustration, but it also affords me a lot of flexibility. Along with my memories, I work from my personal photographs from each trip for reference.

When I think back to Iceland in November, it was filled with images of the Aurora Borealis, ice, snow, stunning sunsets, and frigid cold. For this double page (*Fig. 2, above*), I wanted the flowing green lights of the Aurora to shimmer through the whole illustration of cold, blue, icy days.

The double-page layout (*Fig. 3, above right*) is from an October road trip I took to Lake Champlain, close to the Canadian border. I timed my trip to coincide with the arrival of the first migrating snow geese. I used photographs and field guides to accurately draw the geese in flight. The remainder of the illustration is primarily taken up with the map of my journey.

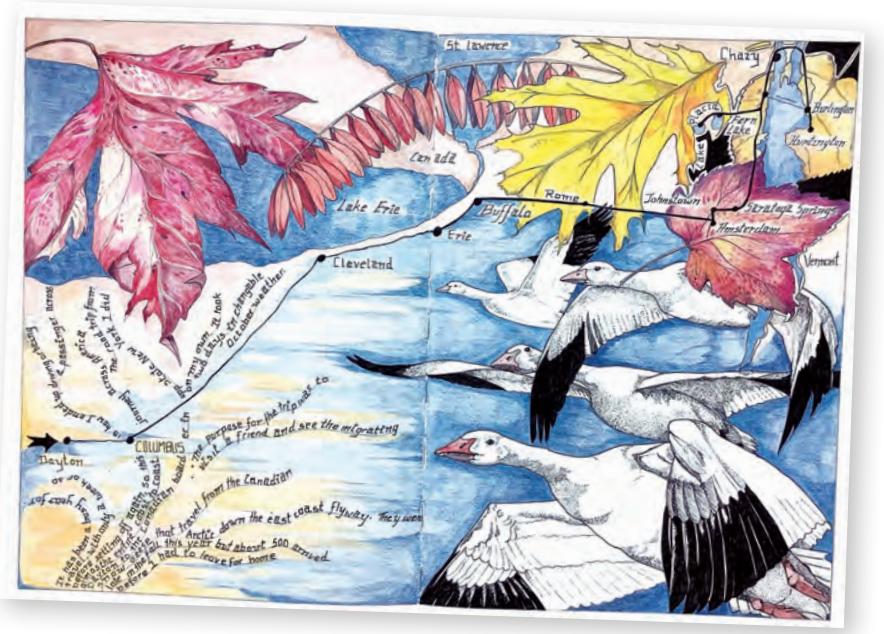


Figure 3: Road trip to Lake Champlain

I use a Moleskine® drawing book, 8.5" × 11.5". The pages are an off-white, with a very smooth surface that works well with both Micron® pens and colored pencils. I use a combination of Prismacolor Premier® and Verithin® and Derwent® studio pencils, The Micron® pen is usually 0.50 mm.

My travel journal pages are a compilation of maps, words, wildlife, and local flora; everything that for me, creates a picture of the whole trip. My travel journal is well-thumbed and I look at it far more frequently than I would photos in an album. It is packed with treasured memories, the essence of the time I spent in another place.

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