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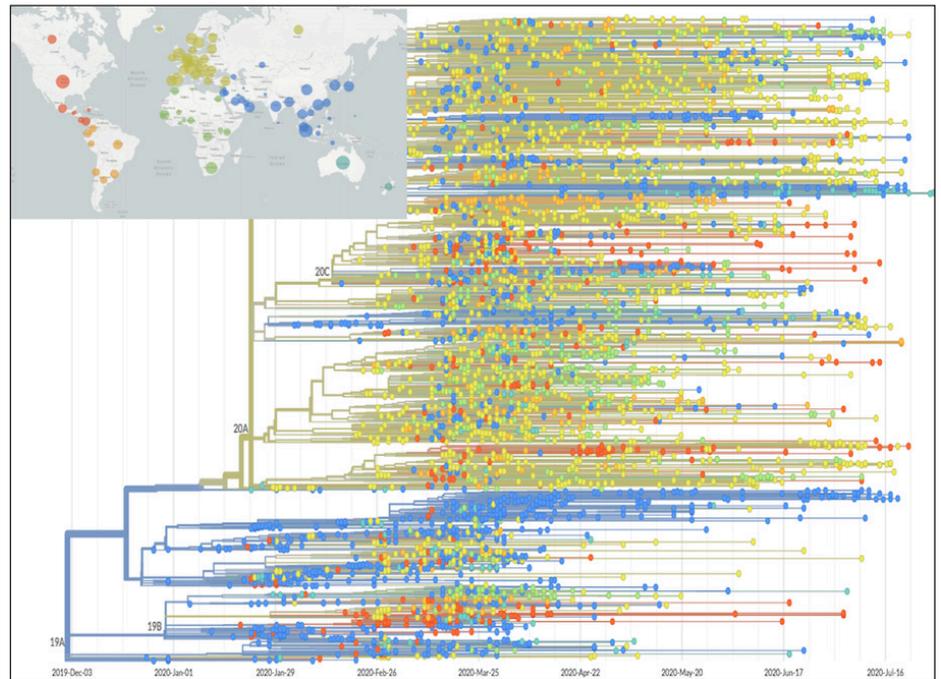
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John Hessler using Nextstrain data

This map shows different genetic strains of the virus that causes COVID-19 that were present around the world from Dec. 2019 to July 2020. The colors represent mutations.

Mapping the Pandemic – and More – Using Data

By visualizing data, cartographers are helping us better understand all kinds of things.

BY WENDI A. MALONEY

A picture is worth a thousand words – or so the saying goes. But in the case of the COVID-19 coronavirus pandemic, images are undeniably helping us grasp things about the virus that words can’t capture.

Already, the Library has collected striking photographs and original artwork that convey the anxiety many people feel as they go about their daily lives. Maps, too, are documenting the moment visually while also serving as an important tool to track and comprehend how the virus has spread worldwide.

“What a map does is take a complex situation, abstracts it from the reality on the ground and presents a simple image to help people try and understand what’s happening,” John Hessler of the Geography and Map Division (G&M) said.

Since March, Hessler has been identifying cartographic content related to the pandemic to add to the Library’s vast map collections. He anticipates large acquisitions.

The cartography he’s looking for, however, is not the kind people of a certain age envision when they hear the word “map.”

GIS, CONTINUED ON 7

DONATED TIME

The following employees have satisfied eligibility requirements to receive leave donations from other staff members. Contact Lisa Davis at (202) 707-0033.

Shayerah Akhtar
Craig Andrews
Sharif Adenan
Lynette Brown
Eric Clark

Laurie Harris
Sharron Jones
Terri Harris-Wandix
Donna Williams

VOLUNTEER OPPORTUNITY: FEDERAL LIBRARIES CHAIR

Keep federal libraries' voices at the table in the American Library Association. ALA's Federal and Armed Forces Libraries Interest Group is seeking a volunteer to serve as federal libraries co-chair for a tentative term of two years. This position involves coordinating programming, fostering connections across federal libraries and steering the group toward a sustainable future. Committee leadership positions are also available. If you are interested, contact Heather Kiger at hkig@loc.gov by Sept. 18.

COVID-19 UPDATE

The Library's Health Services Division (HSD) continues to monitor Library staff members with symptoms, clinical diagnoses or positive test results for COVID-19. On Aug. 28, HSD announced that four employees reported symptoms associated with COVID-19 last week, and two primary contacts in the Library were identified and are being monitored for symptoms. Some employees reporting symptoms are not diagnosed to have COVID-19, but, out of caution, the Library is monitoring all reports of symptoms.

HSD is communicating with all staff members who become ill. In cases in which ill individuals were present in Library buildings, HSD is also notifying their close work contacts and cleaning and disinfecting the areas affected. The same process is followed when contractors in Library buildings become ill.

More information on the Library's pandemic response: <https://go.usa.gov/xdtV5> (intranet) or <https://go.usa.gov/xdtVQ> (public-facing staff web page)

OIG WOULD LIKE TO KNOW

Report suspected illegal activities, waste, fraud, abuse and mismanagement in Library of Congress administration and operations to the Office of the Inspector General (OIG). A link to all Library regulations is available on the staff intranet at <http://staff.loc.gov/sites/rules-and-regulations/>.

To make a report, contact OIG via the online form at www.loc.gov/about/office-of-the-inspector-general/contact-us/ or report anonymously by mail to 101 Independence Ave., S.E., LM 630, Washington, D.C., 20540-1060.

HAVING TECHNICAL ISSUES?

It is important to report any technical issues you experience to the Office of the Chief Information Officer (OCIO). The OCIO service desk is staffed around the clock with technicians ready to help. Contact ocioservicedesk@loc.gov or (202) 707-7727.

OCIO has developed fact sheets and frequently asked questions to help teleworkers accomplish their work. They are available on the Library's public-facing web page (<https://go.usa.gov/xdtVQ>) in the technology resources section.

GAZETTE

LIBRARY OF CONGRESS

loc.gov/staff/gazette

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MISSION OF THE LIBRARY OF CONGRESS

The Library's central mission is to engage, inspire and inform Congress and the American people with a universal and enduring source of knowledge and creativity.

ABOUT THE GAZETTE

An official publication of the Library of Congress, The Gazette encourages Library managers and staff to submit articles and photographs of general interest. Submissions will be edited to convey the most necessary information.

Back issues of The Gazette in print are available in the Communications Office, LM 143. Electronic archived issues and a color PDF file of the current issue are available online at loc.gov/staff/gazette.

GAZETTE WELCOMES LETTERS FROM STAFF

Staff members are invited to use the Gazette for lively and thoughtful debate relevant to Library issues. Letters must be signed by the author, whose place of work and telephone extension should be included so we can verify authorship. If a letter calls for management response, an explanation of a policy or actions or clarification of fact, we will ask for management response.—Ed.

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GAZETTE DEADLINES

The deadline for editorial copy for the Sept. 18 Gazette is Wednesday, Sept. 9.

Email editorial copy and letters to the editor to mhartsell@loc.gov and wmal@loc.gov.

To promote events through the Library's online calendar (www.loc.gov/loc/events) and the Gazette Calendar, email event and contact information to calendar@loc.gov by 9 a.m. Monday of the week of publication.

Boxed announcements should be submitted electronically (text files) by 9 a.m. Monday the week of publication to mhartsell@loc.gov and wmal@loc.gov.

Advances in Machine Learning Promise to Widen Access to Holdings

A new report explores the possibilities.

BY SAHAR KAZMI

As the largest repository of human knowledge assembled in history, the Library of Congress is home to information in virtually every format and touching on nearly every subject ever studied.

In managing that rapidly growing treasure trove, the Library stands at the forefront of a challenge facing the entire cultural heritage community: how to help users discover specific information from within a vast ocean of knowledge.

While traditional solutions to meet that challenge are difficult and costly, recent advances in machine learning – the science of training computers to “learn” from data – are opening exciting new paths for librarianship. Machine-learning algorithms work by building on small samples, known as training data, to predict and discover patterns in larger datasets.

“Human time, attention and labor will always be severely limited in proportion to the enormous collections we might wish to describe and catalog,” Ryan Cordell writes in “Machine Learning + Libraries: A Report on the State of the Field” (<https://go.usa.gov/xGxn2>), which the Library published this summer. “Machine-learning methods are proposed as tools for ... making [collections] more useable for scholars, students and the general public.”

LC Labs commissioned Cordell, an experienced digital humanities practitioner and Northeastern University associate professor, to write the report to explore machine learning’s potential within cultural heritage institutions and possible roadblocks to its use.

The report looks at machine-learning applications like handwriting recognition, metadata extraction and optical character recognition – it simulates human

eye movement to differentiate visual imagery from written language. Such tools have the power to improve browsing, searchability and computational analysis among massive collections.

However, Cordell and the LC Labs team caution that machine learning should not be implemented hastily. Algorithms and datasets are not inherently neutral; because they’re constructed and programmed by people, both conscious and unconscious biases should be taken into account.

“We must carefully consider the ethical, operational and social impacts of machine-learning technology before we can implement it on a wider scale at the Library,” said Kate Zwaard, director of digital strategy (<https://go.usa.gov/xGgBk>). “That includes understanding how training data is created and the human labor and expertise that inform machine-learning models.”

Most important, said Cordell and LC Labs, machine-learning applications must maintain an ethical foundation, from establishing guidelines around the energy impact of such powerful computing to ensuring participant consent for machine-learning applications that include people’s data. Cordell’s report concludes with questions to help institutions design an ethical footing for their own practices.

With a better grasp of machine-learning considerations in hand, LC Labs continues to collaborate with colleagues and outside experts to explore how this emerging technology can sup-



Newspaper Navigator, a project of LC Labs, uses machine-learning techniques to search the pages of historical newspapers for images.

port the Library’s mission. Recent collaborations have included a research partnership with the University of Nebraska-Lincoln (<https://go.usa.gov/xGxQE>), a daylong conference for cultural heritage professionals (<https://go.usa.gov/xGxQp>) and smaller experiments, such as drawing on machine learning to help transcribe audiovisual collection items.

Newspaper Navigator (<https://go.usa.gov/xGxys>) is a good example of how machine learning can enrich the Library’s collections. Ben Lee, a Library innovator in residence, created a machine-learning application that pinpoints photographs, illustrations and other visual images across 16 million pages of digitized historical newspapers in the Chronicling America collection – an improbable feat for a human researcher working alone.

“With the Library holding so much of the world’s heritage in its trust, machine learning has the potential to empower more users than ever in engaging deeply with our collections,” Zwaard said, adding, “Our application of this technology must take care to model an equitable ideal for machine-learning practices in our community.” ■

Ben Lee

Two Libraries Honored for Service to Print-Disabled Readers

The National Library Service for the Blind and Print Disabled (NLS) announced in August that it is honoring two of its cooperating libraries – the Oklahoma Library for the Blind and Physically Handicapped and the San Francisco Public Library – for outstanding service.

Each prize comes with a \$1,000 award and a commemorative plaque. The two libraries will be honored this November at NLS’ biennial meeting, which will be held virtually, and at a luncheon at the Library planned for spring 2021.

“Each year the Library of Congress recognizes the work of state and local libraries that provide braille and talking-book services to people who cannot use print materials,” NLS director Karen Keninger said. “The programs and services these two libraries offer are outstanding examples of innovation and outreach and demonstrate their commitment to ensuring that all may read.”

The Oklahoma Library for the Blind and Physically Handicapped in Oklahoma City is receiving the Regional Library of the Year Award. Last year, it circulated more than 150,000 braille and audio books, magazines and other collection items.

Among the library’s innovative programs, it manages the Oklahoma Telephone Reader, an on-demand, dial-up information service staffed by volunteers that features local articles of interest from Oklahoma newspapers. The library’s Accessible Instructional Materials Center provides textbooks and other instructional materials in braille, large print and assistive technology to 1,258 children and teens in 523 public, private, charter and home schools.

In addition, the library’s recording studio has contributed more than 100 items to BARD, the NLS Braille and Audio Reading Download website, including 56 issues of *Cowboys and Indians* magazine, 28 issues of *Oklahoma Today* and 21

books of regional interest.

Melinda Fruendt, executive director of the Oklahoma Department of Rehabilitation Services, called the library “a treasure” in her nomination letter. And one patron perfectly captured the library’s role in the lives of those it serves: “I live by myself, and over the years I have spent hundreds of hours listening to your books. Please don’t ever stop.”

San Francisco’s Talking Books and Braille Center is receiving the Sub-Regional Library/Advisory and Outreach Center of the Year Award. Last year, it circulated 31,290 braille and audio books, magazines and other items – two-thirds of them via BARD.

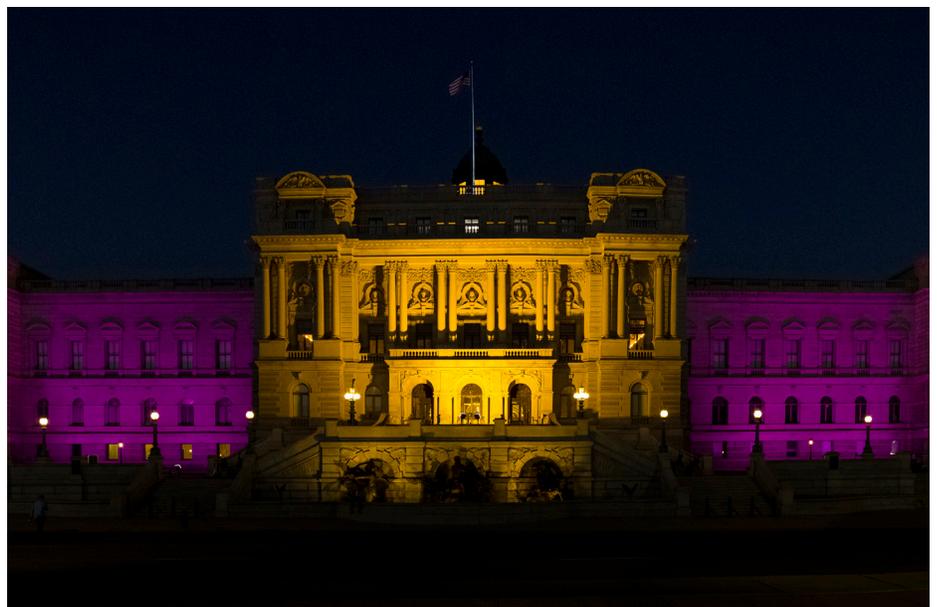
The center’s monthly programs include its Talking Book Club, a large-print book club called *Easy on the Eyes* and audio-described movies that are shown in the main library’s auditorium. It hosts frequent musical jams, with patrons

bringing their own instruments or using the library’s drums and keyboard; quarterly braille story times for children; and the annual Hooray for Braille! celebration with the San Francisco chapter of the California Council of the Blind.

The library’s outreach efforts include supporting families of children with disabilities and partnering with the San Francisco Public Library’s Jail and Reentry Service to help prisoners with print disabilities. It also works with the San Francisco Department of Elections to provide voter information in accessible formats.

“Our library represents community and a joy in reading,” Jane Glasby, program manager of the Talking Books and Braille Center, said in her nomination letter. Confirming her perspective, one patron wrote, “I have been bedridden and this past week I have traveled all over the world through the books you sent me.” ■

WOMEN’S SUFFRAGE ANNIVERSARY



The Jefferson Building was lit up in purple and gold – colors of the women’s suffrage movement – on Aug. 26 to mark the 100th anniversary of the date the 19th Amendment took effect, giving women across the country the right to vote.

Shawn Miller

QUESTION & ANSWER



Shawn Miller

Jarrold MacNeil

Jarrold MacNeil is director of signature programs in the Center for Learning, Literacy and Engagement.

Tell us a little about your background.

Growing up, I lived in the Midwest, the South and in New England. Outside of the D.C. area, I claim New England as home, including the sports teams (for better or worse). I have family there and love to visit.

In my career prior to the Library of Congress, I worked for universities – I planned and executed campuswide programming and large-scale events. I learned a great deal about balancing expectations and a budget and have been using it ever since.

While doing that, I pursued degrees in communication, marketing and organizational leadership. I've built on that education at every stage of my career.

What brought you to the Library, and what do you do?

After working for years in higher education, I decided to branch out and seek new challenges. Knowing

I wanted to keep the nature of my work similar, I focused my search on educational and cultural institutions. Like most of us here at the Library, I saw a posting on the USA Jobs site and decided to give it a chance. When I applied, I honestly did not know a lot about the Library; by the time of my interview, after weeks of studying (I laugh now), I felt confident I could hold my own. Almost 10 years later, I am still learning thanks to the depth of what the Library has to offer.

My first position was as a coordinator in the Special Events Office. On any given day, I could be working with the Congressional Relations Office to host a morning meeting with a member of Congress; have an afternoon Kluge Center lecture to support with the foremost authority on astrophysics; and in the evening host a 1,000-person gala in the Great Hall. After a few years, I advanced to a senior coordinator position.

Later, I was selected for my current position as director of signature programs in the Center for Learning Literacy and Engagement (CLLE). I assist in the collaborative work of producing some of the Library's large programmatic initiatives, including the Gerswhin Prize for Popular Song and the National Book Festival.

What does organizing the festival involve during a typical year?

It involves countless hours of work from staff all over the Library, culminating in D.C.'s largest single-day event. It starts with CLLE and the Librarian's Office and branches out from there. It takes hundreds of face-to-face meetings, ranging from one-on-one dialogues to staff trainings in the Coolidge Auditorium.

Following months of behind-the-scenes preparation, the week of the festival begins with building stages, establishing crowd walking patterns and setting up screens, audiovisual equipment and much more at the Washington Convention Center. The three or four days leading up to the festival demand

thousands of labor hours. Hundreds of thousands of people attend the festival itself, with more than 2,000 Library staff members and volunteers supporting the effort.

How is putting together this year's virtual format different?

Organizing the festival this year is very similar to past years ... and very different. My CLLE colleagues on the literary initiatives team started early by building a wonderful lineup of authors and interviews, not knowing how the festival would play out.

Once it was determined that the festival would be fully virtual and take place on Sept. 25-27, CLLE jumped into action, with the Librarian setting the direction. As in past years, we are aiming to ensure that "we" collectively will be successful. Although we can't have face-to-face meetings this year, staff from across the Library have connected using Webex and Skype for Business. In many ways, they have allowed us to collaborate on a level that was not possible before.

While in the past, we would have spent thousands of labor hours building an in-person festival in a week, we needed months to produce a similar experience in the virtual realm. We recorded authors presenting live during past festivals, but now we needed to seek out all recordings in advance. Staff from multiple service units – the Events Office, Literary Initiatives, the Multimedia Group – recorded over a hundred videos with support from a contractor. They will be presented during the festival on YouTube, the Library's website and a new National Book Festival platform. PBS stations will also broadcast a two-hour festival special on Sept. 27.

What are some of the benefits of a virtual festival?

One of the greatest benefits is the potential for the festival to reach individuals who have never engaged with the Library before. The versatility of the virtual realm

Q&A, CONTINUED ON 6

Q&A, CONTINUED FROM 5

also allows us to connect Library content to festival programming.

The festival will have a mix of videos on demand and live sessions in which participants can engage with authors – in the past, only those physically present in the D.C. convention center could engage in that way.

To encourage people to dig deeper into Library content, we are working to take moments from each of the author interviews and connect them to Library resources. Through hyperlinks, pop-up, chats and conversation sessions, we can share the wonderful collections at the Library with audiences at home.

Yet another benefit is that the festival content will reside on the Library’s website for continued learning and enjoyment.

What do you enjoy doing outside work?

I really enjoy spending time with my wife and family – although “outside work” has become a relative term during the pandemic. I have twin boy toddlers, and my wife and I often work early or late to get needed things done. Thank you to all my Librarywide teammates (particularly in CLLE) for your support!

What is something your co-workers may not know about you?

I moved to D.C. on a whim. I had visited once as a child on a three-day family trip. Years later, I was offered a job after flying into D.C. for just a day to interview. I took the job not knowing anyone and not having anywhere to live. I packed a U-Haul, towing my car, and arrived during the week of President Obama’s first inauguration. The housing market was tight, and places were being rented weekly and nightly. A rental agent wished me good luck. Although it took me a month, I did find housing.

That luck would eventually lead me to work at the Library of Congress! ■

New and Updated Workplace Policies Announced

In response to feedback the Human Capital Directorate received during its listening tours in August, the Library has implemented new policies to give staff greater flexibility in carrying out their duties. They include:

- Expanded hours for on-site work. Staff can now work on-site from Monday through Saturday from 6:30 a.m. to 8 p.m.
- Garage parking. During phase two of operations restoration, staff who need to come in for brief, unscheduled periods should inform their supervisors a day in advance so they can work with Integrated Support Services to determine if parking is available.
- Extended telework. An extension of the enhanced telework policy has been granted through Dec. 31 for those who have the required equipment and who are approved to perform their work while teleworking. For many positions, there may be a mixture of telework and on-site work to fulfill job requirements.

- Notice about changes to work schedules. Staff will receive at least two weeks’ notice when needed before they are assigned to work on-site. In addition, staff who returned to Library buildings during phase one will receive at least two weeks’ notice, if needed, before changes are made to their work schedules.

The Leave Bank Program has also been modified to make it easier for employees with extra leave to donate it and for those who need leave to cover medical emergencies to request it. Effective immediately, a special enrollment period is open through Dec. 31. Staff whose membership applications are approved can draw from the leave bank this year in accordance with program guidelines, and Library staff can contribute an unlimited amount of annual leave to the program through Dec. 31. More information is available on the HCD intranet site (<https://staff.loc.gov/sites/hcd/leave/>).

Questions? Contact AskHCD via the HCD Portal: <https://bit.ly/31fqIKw> ■

KEEP YOUR DISTANCE



The Prints and Photographs Division has developed its own unique signage to remind staff of the need to social distance within Library buildings. Digitization specialist Chris Masciangelo created this sign from a 1940 photo (<https://go.usa.gov/xGgRy>) in an online Farm Security Administration/Office of War Information collection.

GIS, CONTINUED FROM 1

“If someone is asking for modern cartography at this point, they’re not asking for a flat map. They’re asking for data,” Hessler said. “In the last 20 years, the field of cartography has gone through a revolution, an absolute revolution.”

The Library’s collection policies and expertise have evolved alongside. While many people are familiar with stellar Library holdings such as the 1507 Waldseemüller world map, the 1783 Abel Buell U.S. map, Civil War battle maps and even more recent Sanborn fire insurance maps, the Library is also known by cartographers for its geographic information system (GIS) capabilities.

The Library’s system includes cutting-edge software that enables users to manipulate and analyze digital geospatial data to create visualizations, or maps, offering new insights into patterns and relationships.

GIS got off the ground at the Library two decades ago with a single software system license and an office in the Madison Building’s basement. The program expanded slowly but steadily at first; as recently as a few years ago, it consisted of just a handful of single system licenses used by G&M and Congressional Research Service (CRS) cartographers to help answer questions from Congress.

Now, the system has multiple portals, terabytes of data and hundreds of users, including staff from the Senate and the House. The Office of the Chief Information Officer supports the system’s smooth operation.

G&M acquires geospatial data for use in the system mostly through purchase and downloads from government agencies producing information of probable historical interest. The division also acquires digital maps others create.

A few years ago, for example, G&M bought a database consisting of tens of thousands of maps created by Iran’s national mapping

service. The division also has a unique database mapping out businesses in China – the Library is the only U.S. institution that has it. Clicking on a business name leads to details about what the business manufactures, how many employees it has and the kinds of infrastructure that support the surrounding area.

“They’re basically the modern equivalent of what’s in the drawers in G&M,” Hessler said of such interactive but self-contained maps.

Other acquisitions, however, bring in massive amounts of geospatial data consisting of layers of thematic, temporal and geospatial information cartographers can manipulate to build their own maps using GIS. How exactly they can use the data depends on the terms of Library licensing agreements and subscriptions governing the acquisitions. But cartographic work with GIS and geospatial data is uncovering new knowledge and helping people better understand the world around them.

“Floods, rivers, hurricanes, pandemics – they all change in ways we can’t necessarily predict,” Hessler said. “Cartographers can take data and visualize it to help scientists really understand the dynamics of the situation.”

For the COVID-19 pandemic, Hessler is reaching out to organizations collecting virus-related data linked to particular times and places. The data originates from testing labs around the world. One such organization, Nextstrain, is tracking and visualizing how the virus has mutated and spread.

“This is the way the epidemiologists were able to discover early on, for example, that the strain that was in Washington State came directly from Wuhan, China, whereas the one that was in New York City came through a European source,” Hessler said.

Hessler has also contacted the nonprofit GISAIID, which is aggregating global COVID-19 data on its website for GIS use, and a company called Unacast, which has created a “social distancing score-

board” by tracking movement of cell phones. Johns Hopkins University’s important and extensive mapping of the pandemic is another acquisitions goal.

“At this point, what we’ve done is basically contacted each of these sources and talked to them about the data, making sure they’re saving their data and that we’ll have permission to actually get the data,” Hessler said.

The Library is collecting not only with the interests of today’s researchers in mind, he added, but also with an eye toward the future. “The data will be mined for years and years, because it’s so complex and so difficult to get a handle on. ... Definite new discoveries about the viral dynamics will be found without a question.”

Hessler is himself advancing that goal. This fall, he will teach a Johns Hopkins University graduate seminar titled “Geo-Informatics and Genomic Mapping from Smallpox to COVID-19.” He will also present a virtual lecture through the university on the geospatial transmission of pandemics in the Americas, and he will speak to the Washington Map Society on mapping COVID-19.

Next on his geospatial collecting agenda: the 2020 U.S. census. The Census Bureau will make the data it is collecting this year available on its website after it’s processed, along with sophisticated new mapping resources and tools for cartographers to use.

Once that happens, Hessler said, the manner and speed by which cartographers will be able to analyze large quantities of new demographic data will differ substantially from the past, and he anticipates important acquisitions.

“I don’t think I can even imagine all of the ways that data is going to be used,” Hessler said. “It’s going to be a truly amazing moment in the history of cartography.”

But that’s a story for another day. ■