Cobb Research Lab News

A quarterly newsletter of the W. Montague Cobb Research Laboratory, Howard University

VOL 5 ISSUE 4 EDITOR: Dr. Fatimah Jackson, Editorial Assistant Jelani Richards-Cantave SUMMER 2019

IN MEMORIAL TO OUR DR. LASALLE LEFFALL

In this issue of the *Cobb Research Lab News* we reprint on earlier, Fall 2016, Cobb Corner report on Dr. LaSalle LeFall, (pictured to the right). Dr. LeFall was an international luminary who recently joined the ancestors in June 2019. Dr. LeFall was a founder of surgical techniques on African Americans and a pioneer among our Renaissance Men. He will be greatly missed. — Editor

From *CRL News*, Fall 2016:

In this edition of Cobb Corner, we are very pleased to highlight the life and insights of Dr. LaSalle Leffall, senior Howard University faculty member, outstanding surgeon, and renowned scholar. Dr. Leffall came to Howard University in 1948 for medical school. His first class in gross anatomy was taught by Dr. W. Montague Cobb who was a Professor of Anatomy at Howard University's College of Medicine. The course was to become Dr. Leffall's favorite. Dr. Leffall participated in Dr. Cobb "bust-out sessions" which were challenges designed by Dr. Cobb as teaching tools for his anatomy students. Dr. Leffall excelled in such sessions and soon became a favorite student of Dr. Cobb. With his mentor, Dr. Cobb, and Dr. Ruth Smith Lloyd (the first African American woman to earn a Ph.D. in Anatomy) Dr. Leffall would take walks among the cadavers to develop a solid background in human anatomy and post-mortem diagnosis. After a residency at Sloan-Kettering Cancer Institute, Dr. Leffall returned and in 1962 he joined the Howard University faculty.

Additionally, Dr. Leffall assisted Dr. Cobb in editing the Journal of the National Medical Association, where Dr. Cobb was editor-in-chief. Dr. Leffall recalls that Dr. Cobb was a most learned individual with broad based knowledge in many areas. In 1952 Dr. Cobb ask Dr. Leffall to become the co-editor of the journal along with Dr. Epps.

The Washington DC of the mid-20th century was still quite racially segregated. Dr. Leffall reported that in 1948 Gallinger Muniicipal Hospital, the city's main public hospital, was integrated to bring in African American medical doctors. Later Gallinger became DC General Hospital. Dr. Cobb had played a role in pushing for desegregation of the public hospitals and increasing opportunities for Black physicians to practice their craft.

Dr. Leffall recalls that Dr. Cobb was not a provincial man; rather he was a person who was interested in the big picture. For Dr. Cobb, the *Journal of the National Medical Association* was a forum for integration and civil rights efforts. Dr. Cobb addressed both national and international issues through its publications, speeches, and public leadership.

The primary purpose of the Cobb Collection developed by Dr. Cobb was to provide an anthropological perspective on human anatomy. Dr. Cobb wanted the collection of human skeletal and dental remains to provide evidence that there were no significant differences between Black and White peoples and that assessment of individuals should be based on their merits. In this way, this unique collection became a vehicle for promoting civil rights.

Dr. Cobb was certainly among this nation's finest intellectuals. He had followed in the tradition set by Dr. Numa P.G. Adams which was to send Howard's best students to places where they could learn more and then bring that knowledge back to Howard. Dr. Cobb and Dr. Leffall have followed this legacy and we have collectively benefitted. ****

CRL News 5(4): 1

IN THIS ISSUE ….

THE RESULTS ARE OUT! COBB RESEARCH LABORATORY FACT SHEETS SHOW OUTSTANDING PROGRESS OVER 5.5 YEARS!

FACT SHEET

W. Montague Cobb Research Laboratory

July 2013 – June 2019

Largest, oldest, most comprehensive African American skeletal collection in the world
Founded by the first African American to receive his PhD in Biological Anthropology
Resource with over 400 years of African American biological history

FUNDING

$6,225,000

Total grants and contributions

- National Park Service Cooperative Agreements (2)
- Marie Curie Actions EUROTAST, EU ITN (University of Copenhagen)
- National Geographic Society
- Helix

SCIENTIFIC PUBLICATIONS 15

Including the high-impact journals *Nature, Science, American Journal of Public Health, Frontiers in Oncology, Frontiers in Big Data, American Journal of Human Biology, Journal of Clinical Epigenetics, Clinical Practice*

STUDENTS TRAINED 1023

Including six Ph.D. students completing their dissertations and 35 professional students from medicine and dentistry

AFFILIATED FACULTY 30

These include faculty from every college at Howard University and non-Howard faculty

COMMUNITY SERVICE 5 YEARS

- Open Houses
- K-12 tutorials
- Free genomic testing
- Tours of CRL
- Science to the People Presentations
- *Backbones to Life* children's book series
- Free boot camps

HONORS AND AWARDS 27

Including

- Woman STEM Researcher of the Year
- Rhodes Scholar
- National Geographic Explorers (5)
- Sigma Xi (2)
- Cosmos Club Foundation
- National Park Service
- AAAS-DoSER Award

NEW COLLECTIONS 2

- 5000 bone samples from 325 Liberated African individuals from 1820-1840, Saint Helena Island, South Atlantic
- 95 grave soil samples from 59 New York African Burial Ground sites, 17th and 18th centuries.

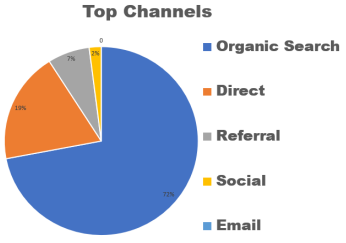
CURRENT RESEARCH PROJECTS

- African DNA Databases:
  - Atlantic African Diasporic DNA Database
  - Continental African DNA Database
  - Red Sea African Diasporic DNA Database
- Molecular identification of tuberculosis in the Cobb Collection
- Elemental analysis of NYABG grave soils
- Reconstruction of Gullah-Geechee population affinities among other African Americans
- Geospatial reconstruction of NYABG graves
- Oral microbiome analysis of African American populations
- Microbial analysis of NYABG grave soil and identification of pathologies
- DNA sequencing from Cobb Collection petrous bones and correlation with clinical cause of death
- Digitization of skeletal and dental remains; facial reconstruction of Cobb Collection individuals

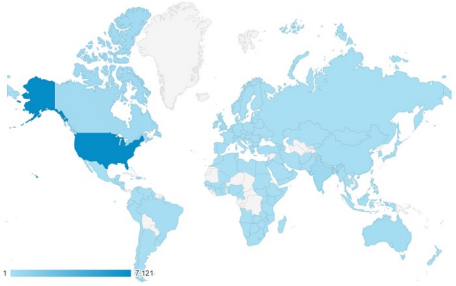
BRAVO TO NICHOLAS GUTHRIE, CRL WEBMASTER. OUR WEBPAGE STATISTICS JUST CAME IN!

The data just came in on the CRL website and we had a wonderful 2018 with over 13,700 unique users entering the site over 15,000 times, cobbresearchlab.com had its best year since its creation in 2016. The level of increase is 15%, year after year. That being said, 2019 is on track to overtake last year, with over 6000 unique users already. Our audience base is an international one, with over 150 countries represented in our 2018 user profile. The top 10 countries viewing us, after the United States, include India, Canada, UK, Australia, Kenya, South Africa, Brazil, Germany, and the Philippines. The CRL is acquiring users from many different sources including referrals from other sites, social media, direct clicks, and we do especially well with the major search engines. Over 70 percent of users navigate to the CRL website using engines like Google, Yahoo, Bing, and DuckDuckGo. For this reason, with the Provost's permission and the cooperation of the Vice President of Development, we plan to approach Google, Yahoo, and Amazon for funding contributions to the CRL in the future. Also, we are contemplating how we can extend the website to speakers of French, Spanish, and Portuguese. We think that if we can partner with Howard's Modern Language department, we make 2-3 of our webpages accessible in these languages, thereby broadening the awareness of the collection and the work of the CRL internationally. *****

TOP WAYS TO REACH OUR SITE



MAJOR COUNTRIES OF SITE VIEWERS



		Top 10 Website Visits (by Country)	Sessions
	1	United States	8,388
	2	India	550
	3	Canada	453
	4	United Kingdom	445
	5	Australia	302
	6	Kenya	246
	7	South Africa	140
	8	Brazil	136
	9	Germany	109
	10	Philipines	109
		Total	10,878

CRL Researchers give presentations at NYU-CSAAD/ASWAD Symposium on "Black Internationalism and New York City"

On May 2, 2019 researchers of the W. Montague Cobb Research Laboratory (CRL) attended a conference at NYU co-hosted by The Center for the Study of Africa and the African Diaspora (CSAAD) and The Association for the Study of the Worldwide African Diaspora (ASWAD). This conference titled, "Black Internationalism and New York City" featured panel-style presentations and discussions on topics ranging from radical activism in New York City to transnational black issues of Islam.

Our CRL group led a discussion about contemporary and historical identities of Africans and African Americans in New York City. Dr. Hasan Jackson and graduate student Carter Clinton led the section presenting new updates on the historical New York African Burial Ground (NYABG) population. Dr. Jackson shared geospatial distributions of individuals by sex and age and Carter reported on the environment and diet, while briefly touching on preliminary data on infectious disease (possible cause of death) of the NYABG individuals. Dr. Latifa Jackson engaged the audience by showing genomic variation research that they could directly relate to. The data told the story of how New Yorkers and DC-MD natives are more closely related than assumed based on language ties. Finally, our CRL director Dr. Fatimah Jackson wrapped up the session with her presentation on the 1000 African Genome, Continental African and Red Sea databases. This sparked in-depth discussion about the need for African descended representation in GWAS studies and future possibilities for empowerment with this inclusion.

Although this conference was humanities heavy, with an emphasis on nationalist principles and major historical events, the CRL held it down for hard scientists. The audience was so captivated by the delivery of info that questions spilled over into the time allotted for lunch. It seems that other researchers were just as interested sparking ideas and offers for collaborations.

Many thanks to Dr. Michael Gomez for putting together a successful conference and extending a special invite to the CRL **Stay tuned for new projects featuring the CRL & NYU teams!******

Left to right: Dr. Latifa Jackson, Dr. Hasan Jackson, Carter Clinton, and Dr. Fatimah Jackson

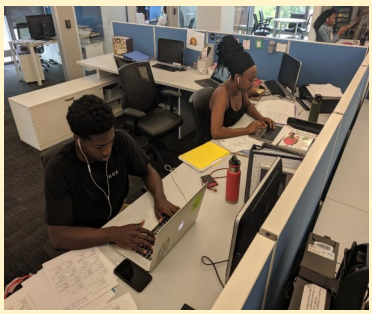
Carter Clinton is accepted into the AAAS Program for Excellence in Science

Congratulations to graduate student Carter Clinton for being accepted into the AAAS/ Science-Program for Excellence in Science. This award is a sponsored membership which recognizes the achievements of selected students and young researchers. Students must be nominated by senior investigators. If selected, they receive full AAAS benefits at no cost to them including weekly issues of *Science* and access to full-text *Science* articles, discounts from AAAS partners and access to networking opportunities. This program enhances students' educational and laboratory performance by providing them with links to leading scientific resources and connections.

Many thanks to Dr. Edna Medford, Interim Dean of COAS, for the nomination. Carter will take full advantage of this opportunity and its resources! ****

Data Entry continues for African Genome Projects — one step closer to analyses!

Over the past month, Megan Job and Desai Oula have been encoding data for the 1,000 African American Genome Projects. In this project, participants were asked to give a DNA sample and complete a survey that consisted of questions on paternal and maternal lineage, familial medical history, and current lifestyle habits.

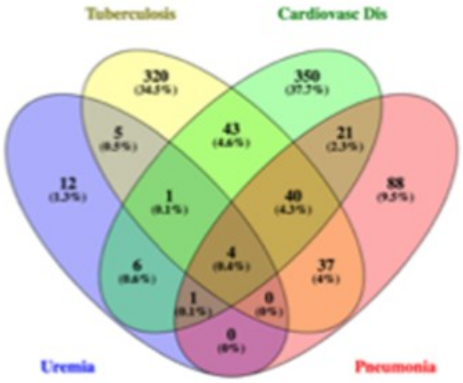


Megan and Desai hard at work.

Megan and Desai efforts build on the earlier coding efforts of Taiye Winful and Christopher Dudala. Over the past month, the main focus of this new effort was encoding the familial data such as place of birth, ethnicity, and nationality. Each was assigned a number and charted into an excel file which will then be imported into R Studio where we hope to find correlations and/or trends. We are hypothesizing that there will be evidence of the Great Northward Migration of Blacks during the early 1900s to the 1970s and/or proof of gentrification that made African Americans leave the destinations that they initially moved to during the migration. As for the genetic component of the project, different characteristics will be analyzed such as disease susceptibility within the African American population and the identification of signatures of selection in allele frequencies in the African American genome. Megan and Desai will work with bioinformatician, Dr. Latifa Jackson in the R-Suite analyses of these data. ****

Making Headway in Identifying Disease Susceptibility Genes

By Dr. Latifa Jackson



Integrative data mining highlights the degree of overlap between candidate genes for tuberculosis, uremia, cardiovascular disease, and pneumonia, all diseases disproportionately represented in the Cobb Collection. Our efforts to identify candidate disease susceptibility genes has been a major focus of research this summer. This venn diagram is the gene set for each of the complex phenotypes identified by our initial anatomical analyses. These gene sets were identified using NCBI Gene for selected phenotypes present in individuals from the W. Montague Cobb Research Lab. We can then take these and use MatLab scripts to identify genomic clusters that are functionally relevant. The 1000 genomes browser can be used to test ethnic specific hypotheses by downloading snps from particular ethnic populations and comparing them to each other. ****

Learning from the Expert! DC's CME instructs CRL Researchers

Washington DC Chief Medical Examiner, Dr. Roger Mitchell (pictured below) instructs CRL researchers on correct procedures for petrous bone removal. These instructions greatly enhanced our competence in this procedure. Petrous bones in bags on right.

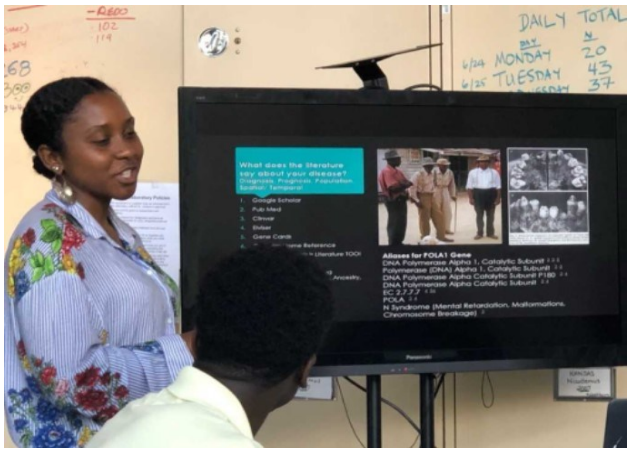
It's a record! More than 200 petrous bones extracted in groundbreaking genomics project

By Shuhab Elhag

We have done it! The W. Montague Cobb Research Laboratory has successfully extracted 201 petrous bone samples for ancient DNA (aDNA) analysis and genomic correlation studies. Three weeks ago, we set out to find a correlation between known genes associated with increased susceptibility to common diseases in African and African American individuals and actual presence of such diseases as the cause of death. The diseases of interest include cardiovascular diseases, tuberculosis, syphilis pneumonia, diabetes, and uremia. On Friday, July 5th, we successfully removed one of two petrous bones from our 201 individuals and are now prepared to move on to the next phases of our research. These phases include identifying the specific genes currently associated with these diseases in African Americans in the scientific literature and then extracting the aDNA from these samples and looking for these specific genes for comparative analyses. This research sets an important precedent by uncovering the exact genetic mutations that may give African and African American individuals a predisposition to these common diseases. Interestingly, these diseases still maintain a significant health disparity among African Americans, as we suspect they did in our historical past. The Cobb Research Laboratory aims to be at the forefront of genomic and biomedical research to improve the health of the community and introduce precision medicine to a population that has often been ignored and understudied in research. The 202 individual petrous bones extracted represent approximately 1/4 of the Cobb Collection and should be adequate for the kinds of correlational genomic studies we have proposed. This petrous bone is particularly dense and hence an excellent source of DNA. We will collaborate with the University of Copenhagen's Centre for GeoGenetics to complete ancient DNA extractions from these bones, build genomic libraries, and then sequence the resulting genes. The bioinformatics assessments and final interpretations will be done here at Howard University. We are hoping to secure adequate external funding in support of these assessments. Howard University Provost Anthony Wutoh has agreed to accompany Dr. Fatimah Jackson to NIH for meetings with specific institute directors to make these funding inquiries. ****

GRADUATE STUDENT JENNIFER CALDWELL GIVES SUMMER SEMINAR ON HOW TO IDENTIFY DISEASE CANDIDATE GENES FROM THE SCIENTIFIC LITERATURE

By Chris Dudala



Jennifer Caldwell giving a PowerPoint on human genetics

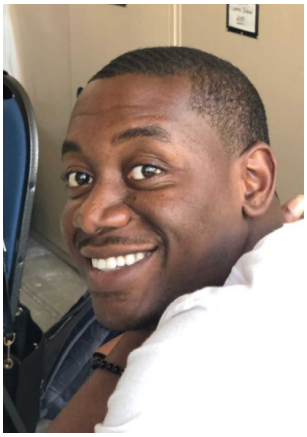
The CRL has been working over the summer to identify susceptibility genes in African Americans that account for the health disparities evident in the Cobb Collection. Graduate student Jennifer Caldwell gave a seminar to the summer researchers on how to do this identify candidate genes from the scientific literature.

The first step involves gathering information of each specific disease's major risk factors and past treatments. Then, in a Google document, we begin to list the results of our literature search. In the first row we document the gene, its function, the proteins it codes for, its chromosome location, physiology, rs annotation, variants, and allele frequencies for each major geographic region. The geographic regions include the broad designations African, (Finnish) European, (non-Finnish) European, East Asian, South Asian, and Latino. Sites like Google Scholar, PubMed, ExAC Browser, ClinVar, Genetics Home Reference, and UCSC Genome Browser are consulted to gather information on susceptibility genes. In Google Scholar or PubMed, a phrase that can give the most relevant information is, for example, "CVD susceptibility genes African American". We then comb through the listed articles to find relevant information on possible genes of interest. We must filter articles for whatever range of years is relevant to our search. While we search for susceptibility genes, we must note the citation source. . Google Scholar and PubMed have a citation button that can help. If you can view the articles' references, you can find great sources of additional information. PubMed and Google scholar can filter your search by the range of years.

Once you find the genes or SNP's you can use sites like ExAC browser to list out multiple variants of the gene and filter by allele frequency to find the most common variant in the general populace. Some of these variants have functional consequences which then can be recorded. ClinVar gives variation, genes, protein change, conditions, clinical significance. We used Genetics Home Reference to give gene function, chromosomal location, and diseases correlated with the gene. Alternatively, you can write the disease name like cardiovascular disease and filter it by health condition or disease to get relevant results. UCSC Genome Browser is a great resource to view the chromosome and gene expression if that proves necessary.

These strategies will allow us to identify a core set of disease susceptibility genes that we can then look for in the DNA extracted from the petrous bones of the Cobb Collection. ****

(from Left to Right) CRL Researchers Shuhab Elhag, Desai, Oula, Megan Job



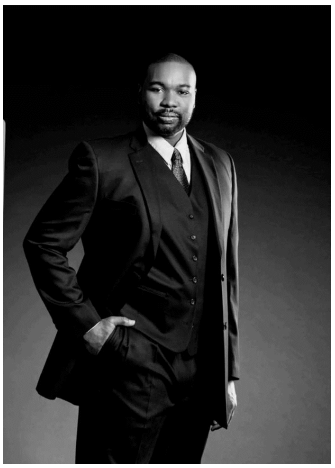
CRL Researcher Gary Harris

CRL Researcher Chris Dudala

(from Left to Right) CRL Researchers Carter Clinton, Nicholas Guthrie, and Chinara Ume

The Science of Dance Bodies - The Choreography of Prevention

Dr. Royce Zackery



Royce Zackery courtesy of Rachel Neville Photography

Well-informed professors, teachers, trainers and coaches enable athletes to have longer, stronger, injury-free careers. I am an Assistant Professor in the College of Arts and Sciences, Department of Theatre Arts and Dance. As one of several master teachers in the department with over 20 years of professional performing and teaching experience in Dance Arts, I understand the imperative to possess a heightened grasp of practical application combined with scientific principle. This knowledge aids to reduce injury, enhance athletic performance and mental capabilities, and promote overall health. The W. Montague Cobb Research Laboratory is important, among several facilities at Howard University, in providing an outlet dedicated to medical research and application through genetic and genomic testing.

Sports Medicine is a well-known key component to the longevity of an athlete's career in sports. Because efforts towards a focused end goal for dance differ those of other physically challenging disciplines, professional dance is not considered a "sport." Though this may be true, and art (not just competition) is the cornerstone of dance practice, professional dancers are—by sports industry definitions and standards—athletes.

Let's first unpack the definition of athlete: a person who is proficient in sports and other forms of physical exercise; a male or female trained to proficiency in exercises involving physical agility, stamina, or strength; acquiring an elite level of physical skill. Professional dancers must achieve an elite level of agility, stamina and strength in their profession in order to master physical skills requisite to work. This is in addition to total body control, unwavering balance, bilateral coordination through three-dimensional space and impeccable musicality. Daily training involves repetition of exercises in a two-hour warm-up class designed to prepare the body for an additional four to six hours of training that follow in order to achieve the physical attributes necessary to execute movements required in professional dancer.

Royce Zackrey courtesy of Ajkun Ballet Theatre

Through on-going discoveries being made in Sports Medicine, the field of Dance Medicine and Science has been born. It is an area of both qualitative and quantitative research study combining scientific disciplines and practical application of a dancer. Dance medicine/science theory and research apply to practical problems in education, training, performance, and nutrition. Dance Medicine and Science has a centered focus on advancements in injury prevention, mental well-being, and overall health. Investigative findings continue to enhance performance, which in turn improves the longevity in one career.

Royce Zackery and Khiara Bridges courtesy of John Healy Photography

Discovery in medical research and application is constantly chipping away at anatomical dysfunctions such as joint disease, biomechanics, areas of bilateralization in neuroscience and internal disease. Because of dedicated medical research and application facilities on the Howard University campus such as The W. Montague Cobb Research Laboratory, I am provided with opportunities in gene/DNA testing to further understand anatomical response in athletic activity. The aim of clinical genetic testing is to optimize activity, and then use evidence-based clinical application, consequently providing insight for movement efficiency. The potential for acquired advancements in injury and joint disease prevention is thus accessible with dancer bodies as well as other sports men and women. Howard University dancers not only benefit from the progress on a ground level, they can help inform it as well.

Participation in elite level athletic activity can lead to acute and chronic musculoskeletal injuries. The recovery time (pending on the severity of the injury) can be detrimental to peak performance due to time lost from training. My collaboration with the Cobb Research Laboratory in genetic testing will identify risks associated with selected athletic activities, allowing me to stay up-to-date with the best medical and scientific information the field of study has to offer.****

Socio-political injustices of Freedmen ignites discussion at Genetics and History Conference

By Jennifer Caldwell

This past Juneteenth weekend, I traveled to Indian Territory in Oklahoma City, Oklahoma to participate in a genetics and history conference with Ms. Rhonda Grayson, President of the Muscogee Creek Indian Freedmen Band Inc (MCFIB). This interdisciplinary conference brought academic experts, genealogist, local governmental officials, cultural conservationist, MCFIB civil rights attorney, and the public together for one common goal: preserving Freedman culture. One notable attendee was Independent Filmmaker, Professor Halie Gerima of Howard University. We are honored he documented the conference for his upcoming film on Maroon migration, culture and history. Director of the MD/PhD and Chair of the Genetics and Human Genetics Department, Dr. Kareem Washington, delivered a clarifying lecture on environmental and genetic contributions to health outcomes; and how African American participation in clinical studies is essential to improving precision medicine. In addition to becoming a successful public engagement effort, this conference highlighted the Cobb Research Lab (CRL)'s commitment to creating unique methods for engaging citizens in science.

At Seminole Whipping Tree with informants and Director/ Producer Halie Gerima

One of the main goals of the conference was to learn more about the socio-political certainties surrounding Freedmen or Black Native Tribes. In 1866, the US government signed a treated with Muscogee Creek Nation and Seminole Nation permitting their sovereignty. Freedmen were included in this treaty with the same privileges as any other nation citizen, regardless of (skin) color or creed (Article 2). Today Freedmen are collectively and individually fighting within nations and at Congress to be justly included on tribal rolls, or for Black Tribes to be given their own tribal designations. Injustices experienced by Freedmen directly affects the preservation of their culture and history, while also diminishes necessities like access to national health care systems. Understanding nuances of socio-political culture increases our capacity to understand their identities and complexities that contribute to disease. For more information regarding the African Bloodlines project updates, please subscribe to our website and visit our Blog Post at www.africanbloodlines.com. ****

L to R: CRL graduate student Jennifer Caldwell, Historian and conference speaker Joe O'pala, President of MCFIB Ms. Rhonda Grayson

Two Bioinformatics/Computational Biology Workshops held this Summer!

A summer bioinformatics workshop was held June 6 and 7, 2019 at the Cobb Research Laboratory. the Bioinformatics workshop was taught collaboratively by Dr. Shaolei Teng and Dr. Latifa Jackson. This workshop featured programming tutorial and statistical analysis implementation in R language including data manipulation, supervised machine learning approaches such as K means and hierarchical clustering, and principal component analyses. Approximately 8 students participated in the workshop including undergraduate and graduate students from Biology, graduate students from Human Genetics and from the medical school. The next workshop will be held on July 22-23, 2019 and will focus on ancestry assessments including using ADMIXture, understanding GWAS analyses and imputing SNPS to variant call files. ****

BIOINFORMATICS AND COMPUTATIONAL BIOLOGY WORKSHOPS

Computational approaches will dominate the life sciences analyses of the 21st century. Come learn about the latest techniques and applications

- Data forms and codebooks
- Basic statistical inference including R and biostatistics
- Admixture and other ancestry assessments
- Data visualization
- GWAS analysis (PLINK for case-control association analysis)
- SCIKIT Learn (Python)
- GIS (Introduction)
- Version Control (Tracking Techniques in Research)
- Perl for data manipulation
- Machine learning and protein bioinformatics
- UCSC Genome Browser

- Emphasis will be on open source software (e.g., Python, R)
- Each student will have access to a practice dataset
- Each student will be given an instruction sheet (so as to know what programs to download in advance of the workshop).
- Each student is expected to pre-install on their own computer the following programs: R, R Studio, Jupiter Notebook, Anaconda Navigator (to launch R and R Studio). They should have adequate RAM for workshop computations.

June 4-5, 2019 and July 22-23, 2019

116 HUIRB 2201 Georgia Avenue, NW Howard University, Washington, DC 20059

Esohe Irabor, doctoral student in biology and CRL graduate researcher has just won the AAAS-DoSER Public Engagement Award! Her project will be on Science and Salaat. Congratulations Esohe!

St. Helena Project Educational Outreach with National Geographic

Gretchen Johnson is collaborating with Educators in National Geographic's Human Journey Challenge. This challenge is designed to inspire students and educators to think deeply about culture, migration, or anthropology through the work of explorers such as Gretchen's research on the Liberated Africans of St. Helena Island.

Gretchen Johnson and Fay Gore with teachers and administrators during site visit at the Hebrew Academy of Tidewater in Virginia Beach, VA

As part of National Geographic's Human Journey Challenge, students at the Hebrew Academy of Tidewater in Virginia Beach, VA were paired with National Geographic Explorer, Gretchen Johnson. Students at the Academy enthusiastically connected with Gretchen's research on the Liberated Africans of St. Helena Island and worked hard to pioneer a unique fundraising campaign, which involved an interdisciplinary approach, connecting science, geography, and economics. Students successfully raised funds to help support Gretchen's research efforts for genetic analyses of samples and created a remarkable presentation! Alicia Pahl-Cornelius, 5th grade Teacher and Coordinator, reflected on the collaboration with Gretchen and National Geographic and reported, "It was a highlight of my year and teaching career, honestly. I was so proud to be able to provide my students with such a rich learning experience. Thank you for giving me the opportunity to do so! I truly believe that they will remember this experience for the rest of their lives. I just can't thank you enough!" (continued next column)

GJ with students who conducted successful fundraising in support of GJ's research efforts on the Liberated Africans of St. Helena Island!

Gretchen is grateful for the generous donation and the students' diligent hard work in fundraising to help support her research efforts on the Liberated Africans of St. Helena Island and to preserve their legacy. Moving forward, Gretchen plans to continue to collaborate with this school as genetic analysis of samples from St. Helena Island are in progress and possibilities for the students at this Academy to have international pen pal associations with students on St. Helena Island are underway.

Gretchen Johnson and Alicia Pahl-Cornelius, 5th grade Teacher & Coordinator with students!

GJ with Fay Gore, Regional Director – Educator Network from National Geographic during site visit at the Hebrew Academy of Tidewater in Virginia Beach, VA

Additionally, recently Gretchen was accepted into National Geographic's Early Career Leadership Program, a year-long program that boosts up the potentials of early career National Geographic Explorers in their working together with National Geographic to push the boundaries of exploration and help to further understand our world and generate solutions for a more sustainable future. The program's goal is to help support Gretchen in her current research enhancing leadership training, mentorship, educational outreach, media training, and more! Gretchen is thrilled to be selected for this program! ****

27 Excellent CRL Undergraduate Researchers Celebrated May 7, 2019

In May, the following undergraduates were honored for their research efforts in 2018-2019.

Olivia McDowell
Gabrielle Davis
Jaelen Hysaw
Temi Salu
Tah-jai Sharp
Nina Wallace
Jakayla Folarin-Hines
Alexandria Williams
Elixabeth Ekpe
Ugonna Ezeanya
Nancy Varice
Shyan Organ
Babajide Owosela
Daina Potter
Maya Mayfield
Madison Keller
Aman Efrem
Nasra Ahmed
Taylor Estes
Deanndra Jean-Baptise
Nina Brown
Shemar Thompson
Rhyan King
Rachel Oyebade
Imade Ojo
Ugonna Nwannunu
Jade Dickenson

Cobb's Corner

Cobb's Corner is a recurring feature of the *CRL News* where a researcher is interviewed about their experience with the lab. In addition to learning more about their research, we learn how Dr. Cobb's vision and mission is carried on through our efforts in the CRL today.

Our featured researcher is Megan Job, who is joining us from Middlebury College in Vermont. She is originally from Brooklyn, New York, and is majoring in Neuroscience with aspirations to attend Medical School. She was interviewed by Nicholas Guthrie, Clinical Science Coordinator of the CRL.

Nicholas Guthrie (NG): What made you want to spend your summer here at the CRL?

Megan Job (MJ): My professor, Dr. Jeremy Ward, actually read one of Dr. Latifa Jackson's papers about the 1000 African Genome Projects, and it really opened my eyes to different research projects relating to African Americans. There were no projects like this being conducted in the STEM departments at Middlebury College and he encouraged me to reach out for a summer internship. I'm so happy it all fell into place!

NG: Well we are happy to have you! Your project is already featured in this edition of the *CRL News,* but can you tell me what it means to you and why it's so special to you?

MJ: I think it's very important to introduce diversity in the various databases on the human genome. Many of the original genome projects centered on European-descended populations, and this project is one of the first steps to unlocking questions like "Why are Black women 243% more likely to die in childbirth (compared to White women)?" or "Why are African Americans prone to hypertensions, diabetes, etc.?"

CRL Researcher, Megan Job

I know many others are researching these topics but Dr. Jackson and the CRL are at the forefront of this effort. I just think this is the start of moving from a Eurocentric to a broader and more inclusive and complete perspective.

NG: This is your first experience at Howard University and in Washington DC. How has this been for you?

MJ: It's amazing! It was very rare to have people who look like me and think like me in a collegiate setting. I felt isolated from my core group in Vermont, but here I feel like I am included and contributing to science. I really didn't think any Black mentors in science were around, but Howard University and the CRL really opened my eyes to the abundance of Black Excellence. I feel more comfortable sharing my ideas to receptive ears in a safe space. Middlebury is a great school and I will forever be grateful to be a student at Midd, but coming to Howard was necessary for me so I can see people who are going down the path that had once seemed extremely foreign to me. You're a perfect example -- an African American in medical school!

NG: What do you think will be the most memorable part of your summer?

MJ: It may sound ignorant, but seeing people in positions of power in STEM that are Black is what I will cherish the most. Carter [Clinton, Assistant Curator] is a great example as well, with both of us being from Brooklyn. I'm reading a book by Elaine Wentworth called *More Than Enough* where she mentions that it is "important to leave signposts along the journey of success for those that come behind you." I believe there will be another young girl like me who is obsessed with science like me but needs a role model to show her that women and people of color can succeed. I really want to be that guiding light just like this experience has illuminated my journey. ****

CRL Represented at ESHG (Sweden) and BigData Conference in Germany

On June 10-19, 2019, Dr. Latifa Jackson traveled to two conferences to present research developed in part as part of the Cobb Research Lab. At the International Conference on the Web and Social Media (ICWSM) in Munich Germany, Dr. Jackson (pictured to left) and Caitlin Kuhlman co-presented work on the need to include vulnerable populations on the analysis of data from vulnerable populations. This recently published work was also authored by Dr. Fatimah Jackson and Dr. Keolu Fox in the most recent issue of *Frontiers in Big Data*.

The second research presentation was at the European Society for Human Genetics (ESHG) in Gothenburg, Sweden. At this annual meeting of human geneticists Dr Jackson presented work on computational approaches to identifying drug binding site side effects for drug repurposing as well as ensuring that Dr. Fatimah Jackson's research on African Genomics projects was represented.

Dr. Latifa Jackson and Caitlin Khulman in Germany

Dr.Latifa Jackson in front of her poster presentation at the ESHG meetings in Sweden

The international significance of these scientific presentations cannot be underestimated. Through Dr. Latifa Jackson's exposure, the innovative research of the Cobb Research Laboratory is revealed to a broad audience and the potential for future, multicultural collaborations is expanded. We appreciate the international outreach Dr. Latifa Jackson has extended and the high quality of her projects in the CRL. ****

Coming Fall 2019: CRL OPEN HOUSE

Please watch our webpage for more news on this event.

www.cobbresearchlab.com

Mass photography of skulls yields unique digital database to begin facial reconstructions

By Chiderah Uzoukwu

One of the main projects of the summer 2019 has been the digital documentation of the skulls of the Cobb Collection. In this project, I assist 3rd year Howard University medical student Nicholas Guthrie in the photographing of each skull. The camera used for is a Nikon D3200 with an 18-55mm lens. The lights used for photography is the LED Studio Lights and a LED Ring Light, with an attached stand. The photography of these skulls is essential for inventory purposes and also for future facial reconstruction studies of the Cobb Collection. Accurate photographs will allow us to correctly reconstruct the faces of the people of the Cobb Collection using advanced software. Scientifically, accurate facial reconstruction of these individuals could lead to refining the model of African Americans.

In the Cobb Research Lab, we photographed 201 skulls, each in the anterior, temporal, posterior, rostral, and caudal positions. The different photos of each skull are significant because when combined they will permit a 3-D reconstruction of the face. Matching the face to each skull makes the research on the Cobb Collection more realistic for the undergraduate and graduate student studying this collection. It's also a reminder that the Cobb Collection is comprised of real people, mothers, fathers, sons, and daughters who once walked the early. The facial reconstructions will help us better visualize the as-lived lives of the people in this historic collection.****

HU Anatomy Department donates fossil casts to CRL for teaching purposes

Professor Daryl P. Domning (left) and Dr. Shomarka Keita (right) examine fossil hominid skulls recently donated to the CRL by the Anatomy Department. These casts will be used for comparative and reference purposes with the human materials in the Cobb Collection. We are grateful for this generous gift. ****