NUTRITION POSTDOCS ARE VITAL TO OUR DEPARTMENT’S RESEARCH!
(By Hilary Farmer)

Currently there are about 300 postdoctoral fellows and research associates at Harvard T.H. Chan School of Public Health, with about 40 of them in the Nutrition Department. You have probably seen them or chatted with them in the hallways or lunchroom, or sat next to them at a Nutrition seminar. Curious, you might wonder more about them.

Who is a postdoc? A postdoctoral researcher is a person who has completed his/her PhD or ScD either here or at another institution, often from another country, and is now conducting professional research here under mentored training. The postdocs’ ultimate goal is to develop an independent career in academia or non-academic organizations. The postdoctoral fellowship will help them acquire novel skills and knowledge about advanced analytic research methods. Postdocs are expected to produce publications in relevant peer-reviewed journals and to participate in academic conferences. Many go on to obtain tenure-track academic positions afterwards and some will obtain research or other position at government agencies, nonprofit organizations, and industries.

Some of our Nutrition postdocs have obtained K99/R00 grants or other sources of funding; almost all of them have published papers in relevant top-tier journals; one has already written a book; a number of them have presented and received major awards at academic conferences—and all of them are performing valuable, cutting-edge research during their term here. Because we have so many highly talented individuals in our Nutrition Department, we are only able to profile a few in this issue. However, we will definitely feature more postdocs in future issues!

Audrey J. Gaskins, ScD

Audrey Gaskins is a research associate studying how environmental and lifestyle factors affect fecundity and fertility in men and women. She is currently working on her K99/R00 grant which will evaluate the impact of maternal exposure to air pollution on early adverse pregnancy outcomes among women undergoing in vitro fertilization in the US. Using validated spatial-temporal regression models of air pollution exposure, validated dietary questionnaires, personal air pollution monitors, and novel metabolomic biomarkers, her research will determine the extent to which air pollution and its specific constituents affect fecundity, the potential for diet to modify these associations, and the possible mechanisms of action. She is primarily working with Drs. Francine Laden (in the Environmental Health department) and Jorge Chavarro (in the Nutrition department) on this project.
Audrey is originally from Charlotte, NC and is the middle child among 7 siblings (ranging in age from 13 to 33 yrs). After attending Duke University for her undergraduate degree in Mechanical Engineering, she worked for 2 years at the National Institute of Child Health and Human Development before coming to the Harvard T.H. Chan School of Public Health for her doctorate in Nutrition and Epidemiology. After graduating in May of 2014 she has been at Harvard ever since.

In her spare time Audrey likes to travel (she has been to 48 of the 50 US states, 6 of the 7 world continents, and over 30 countries worldwide), exercise (her favorites include running, boxing, spinning, hiking, and downhill skiing), reading (she’s on her 13th book this year and counting), and spends time with her family and friends (including her fiancé. Audrey is getting married in January of 2018).

Manja Koch, MSc, PhD

Manja Koch is a nutrition scientist (MSc and PhD) and epidemiologist (MSc) by training. She is particularly interested in the determinants and mechanisms of metabolic diseases. Her recent projects have focused on novel biomarkers and lifestyle factors, including dietary patterns, in the pathogenesis and progression of cardiovascular disease, metabolic syndrome, and fatty liver disease. After joining Dr. Majken Jensen’s working group in 2015, Manja started moving into studies involved in pathways related to Alzheimer’s disease. Her current projects focus on lifestyle factors including dietary biomarkers, alcohol intake and apolipoprotein subtypes in relation to Alzheimer’s disease.

In her free time, Dr. Koch loves to do all outdoor activities, foremost biking, sailing, skiing & BBQs. This coming August she will be participating in a 50-mile charity bike ride to support the Vermont Foodbank. Please follow this link if you would like to make a donation: https://fundraise.vtfoodbank.org/manja

Hazreen Abdul Majid, RD, PhD

Hazreen Abdul Majid is a Visiting Scientist from the University of Malaya, Malaysia. Currently his mentor is Prof Walter Willett. Hazreen’s research area includes dietary intake among Malaysian breast cancer survivors, adolescent cohort and microbiome, and enteral nutrition. While at Harvard, Dr. Majid’s research will be focusing on adolescent eating behaviors and stress (e.g. cortisol levels at final exam and exam-free period), and also possibly developing a new Dietary T2DM microbial risk prediction score using microbiome information.

Recently Hazreen was awarded a grant by MRC UK – Academy of Science Malaysia to work on the metabolite profile of almost 1000 adolescents from the previous Malaysian adolescent cohort which he led. A pilot intervention on behaviour and lifestyle will be designed and evaluated, targeted to improve cardio-metabolic health among Malaysian adolescents. In addition to this study, a recent paper published by Dr. Majid has shown that overweight and obesity were highly prevalent among breast cancer survivors in Malaysia when suboptimal dietary intake was observed. Results indicate that provision of individualised medical nutrition therapy according to ethnicity is crucial as part of comprehensive survivorship care (10.1016/j.jand.2017.05.024, JAND, in press).

In addition to his academic life, Hazreen also enjoys running and sightseeing with his family. He also likes to write. His new book, titled Breast Cancer Survivors Cookbook – Cubalah! will be published soon under the University of Malaya Press. He has been working closely with breast cancer survivors to improve their diet and food recipes.
Sara Raposo, PhD

*Sara Raposo,* Postdoctoral Research Fellow, gave an oral presentation at the Society for Epidemiologic Research (SER) annual meeting in Seattle, WA, June 20-23, where she shared results from her current research on diet quality and risk of coronary heart disease among US men with hypertension. At this year’s SER meeting, the society celebrated its 50th anniversary, and researchers from all fields of epidemiology met to present and discuss their work.

Coming from Sweden, Sara did her PhD in nutritional epidemiology at Karolinska Institutet in Stockholm, and defended her doctoral thesis in 2014. After being on parental leave with her son, she moved to Boston on a 3-year grant from FORTE – The Swedish Research Council for Health, Working Life and Welfare to pursue her postdoctoral training at the department together with Professor Eric Rimm. Alongside her work on coronary heart disease, Sara is also doing research on diet quality and risk of stroke among US men with hypertension and will be presenting this work at the International Epidemiology Association World Congress of Epidemiology in Saitama, Japan, on Aug 19-22.

Fred Tabung, MSPH, PhD

*Fred Tabung* is a Research Associate working with Dr. Ed Giovannucci as his primary mentor. Fred is originally from Cameroon in Central Africa, and joined the Department of Nutrition in 2014 as a Yerby Postdoctoral Research Fellow after completing his MSPH and PhD degrees at the University of South Carolina. During his postdoctoral fellowship, Fred led the development and validation of two empirical dietary indices to use in assessing the potential of diets to influence the body’s systemic inflammation or insulin responses. These indices are the empirical dietary inflammatory pattern (EDIP) score and the empirical dietary index for hyperinsulinemia (EDIH) score.

Before the end of his Yerby postdoctoral fellowship, Fred obtained a K99/R00 pathway to independence grant from the National Cancer Institute in July 2016. The focus of the grant is to integrate biomarker and metabolomics data
with several dietary patterns to identify potential biological mechanisms underlying associations between diet and cancer development. This 5-year grant is split into two phases: a 2-year K99 phase and a 3-year R00 phase. Fred just started the second year of the K99 phase and is also now identifying and applying for tenure-track faculty positions to be ready for the R00 phase in July 2018. In addition to having Ed as his primary mentor, Fred is also supported by an amazing mentoring team that includes Drs. Frank Hu, Teresa Fung, Liming Liang, Eric Tchetgen Tchetgen, Walter Willett, Stephanie Smith-Warner and Jorge Chavarro.

Dong (Daniel) Wang, MD, ScD

Daniel Wang is a postdoctoral fellow in Dr. Frank Hu’s group. Dr. Wang is originally from a city called Bengbu in the east part of China, where his parents are still living. Daniel’s parents are both retired teachers. His mom used to teach mathematics in a primary school, while his dad was a chemistry teacher in a high school. Although they never had any formal training in nutrition, Daniel’s parents raised him with very healthy diets that included very few red meat items and milk; consumption of fish, legumes and tofu every 2-3 days; a huge amount of green leafy vegetable and at least three servings of fruit every day. Daniel became interested in foods and nutrition very early in life. When he was a kid, his dream career was actually to become a chef. About 12 years ago, he read the Chinese edition of Dr. Walter Willett’s Nutritional Epidemiology textbook when he was doing his medical internship in a small city in China. Reading this book actually initiated Dr. Wang’s journey in nutrition epidemiologic research. His story demonstrates that the scientific work conducted by the faculty members in our department not only have a profound impact on diet and population health in US, but also have great global influence. Their wonderful research and inspiring wisdom even reached Daniel Wang in a small city in China more than a decade ago and have managed to change the trajectory of his life.

Daniel came to our department in 2012 as a doctoral student, where he received dual ScD degrees in both nutrition and epidemiology last summer. Before his graduation, Daniel received an American Heart Association postdoctoral fellowship award at the first submission. This fellowship award is supporting his current work and training. Dr. Wang’s current research interests include several different areas. First, he is interested in examining the associations of dietary factors with cardiometabolic diseases. Our cohort studies, the Nurses’ Health Studies and Health Professionals Follow-Up Study, have the best dietary data from all over the world with extremely detailed follow-up information, which provides Daniel with unprecedented resources to conduct a lot of exciting research. For example, last year he published a paper in JAMA Internal Medicine based on our cohort data. This paper identified divergent associations between different types of dietary fat and mortality. Second, working with Dr. Willett, he has been working on a project tracking time trends in dietary quality in the US population and evaluating the impact of the time trends on disease burden and, most recently, on green gas emissions and farm land use. This project has generated a paper in JAMA Internal Medicine in 2014 and a paper in Health Affairs 2015, with more papers to follow. Third, working with Drs. Frank Hu and Miguel Martinez González, Daniel is involved in two metabolomics projects within the PREDIMED Trial in Spain in which he is trying to identify metabolic pathways through which a Mediterranean diet prevents cardiovascular disease. Fourth, Daniel is also collaborating with his former colleagues in China and working on several projects in the Chinese population, including a cohort study, the China Health and Nutrition Survey, a nationally representative nutrition survey. For the future, other than continuing his current projects, Daniel is particularly interested in integrating and applying multiple ‘omics’ data, such as genomics, metabolomics, and metagenomics, to better understand the biological mechanisms underlying the health impacts of dietary intakes.

Besides his research work, Daniel is super interested in gardening, but does not have the luxury to own a real garden now. Although his apartment is tiny, he is taking care of 35 potted plants, which have blossoms almost every day. Daniel divides his plants into 4 mini indoor gardens with different kinds of plants. The 4 gardens are an orchid garden, fragrant flower garden, tropical garden and succulent garden.
We would also like to welcome the following postdocs, who have recently joined the Nutrition Department:

- **Kjetil Lauvland Bjørnevik** (Mentor: Alberto Ascherio)
- **Marianna Cortese** (Mentor: Alberto Ascherio)
- **Dong Hang** (Mentor: Edward Giovannucci)
- **Helena Sandoval Insausti** (Mentor: Jorge Chavarro)
- **Hirotaka Iwaki** (Mentor: Alberto Ascherio)
- **Feiby Nassan** (Mentor: Jorge Chavarro)
- **Leandro Rezende** (Mentor: Edward Giovannucci)

**September Postdoc Meeting Announcement**

As part of our department’s Post-Doc Meeting Series, job talks will be discussed at the September meeting. Although some resources will be shared at the meeting, it is felt that sharing personal experiences would be most beneficial. **Stef Dean**, Academic Coordinator, is looking for volunteers to share their advice and experience with job talks at the September Post-Doc meeting. The meeting will be held on Thursday, September 14th from 11:30 am – 1:00 pm in Building 1, Room 1208. The volunteers can attend for part of the meeting if their schedules do not allow for being present the entire meeting. If you would like to participate, please let Stef know.

**NUTRITION IN THE NEWS!**

**Manar Al Jazzaf** successfully defended her dissertation titled *Child Nutrition: From School Nutrition Policy to Diet Quality* on June 29, 2017.

**Daniel (Dong) Wang, MD, ScD**, Research Fellow, was selected to participate in the American Heart Association's 43rd Ten-Day Seminar on the Epidemiology and Prevention of Cardiovascular Disease and Stroke, and will go to this program from the end of this July to early August in Tahoe City, CA.

**REDUCED RISK OF PREMATURE DEATH NOW LINKED WITH IMPROVING DIET QUALITY OVER TIME**

A new Harvard Chan study, led by **Mercedes Sotos-Prieto**, who worked on the study while a postdoctoral fellow in the Nutrition Department, and who is currently an assistant professor of nutrition at Ohio University, has found that people who improve the quality of their diets over time, eating more whole grains, vegetables, fruits, nuts, and fish and less red and processed meats and sugary beverages, may significantly reduce their risk of premature death. This study is important because it shows that improving the quality of one’s diet over time, even with modest changes, is associated with lower total and cardiovascular mortality. It also supports a focus on overall healthy eating patterns, rather than on individual nutrients. Concomitantly, the study also points out that worsening diet quality over time may increase the risk. Sotos-Prieto and colleagues analyzed the association between changes in diet quality among nearly 74,000 adults from the Nurses’ Health Study and the Health Professionals Follow-up Study over a 12-year period (1986-1998) and their risk of dying over the subsequent 12 years (1998-2010).
“Our results highlight the long-term health benefits of improving diet quality with an emphasis on overall dietary patterns rather than on individual foods or nutrients. A healthy eating pattern can be adopted according to individuals’ food and cultural preferences and health conditions. There is no one-size-fits-all diet,” said Frank Hu, professor and chair of the Harvard Chan School Department of Nutrition and senior author of the study.

Other Nutrition Department authors included Shilpa Bhupathiraju, Josiener Mattei, Teresa Fung, Yanping Li, Walter Willett, and Eric Rimm.


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HEALTH PROBLEMS MAY INCREASE WITH CUMULATIVE WEIGHT GAIN IN EARLY AND MIDDLE ADULTHOOD

A new Harvard Chan School study led by Yan Zheng, who worked on the study during her time as a postdoctoral fellow in the Nutrition Department, and is now professor of epidemiology at Fudan University, China, has found that cumulative weight gain over the course of early and middle adulthood may increase health risks later in life.

Data from participants in the Nurses’ Health Study and the Health Professionals Follow-up Study were analyzed for the study. Compared to those who kept their weight stable (not gaining or losing more than five pounds), those who gained a moderate amount of weight had an increased risk of major chronic diseases and premature death, and were less likely to score well on a “healthy aging” assessment of physical and cognitive health.

According to senior author Frank Hu, professor of nutrition and epidemiology and chair of the Department of Nutrition, “Our study is the first of its kind to systematically examine the association of weight gain from early to middle adulthood with major health risks later in life. The findings indicate that even a modest amount of weight gain may have important health consequences.” Zheng adds, “These findings may help health professionals counsel patients about the health consequences of weight gain. Prevention of weight gain through healthy diets and lifestyle is of paramount importance.”

Other Harvard Chan co-authors of the study included JoAnn Manson, Changzheng Yuan, Matthew Liang, Francine Grodstein, Meir Stampfer, and Walter Willett.
**SOME PLANT-BASED DIETS ARE MUCH BETTER THAN OTHERS**

A recent study led by Ambika Satija, ScD, a postdoctoral fellow in the Department of Nutrition, has found that not all plant-based diets are equal, and that some plant-based diets are healthier and more likely to decrease the risk of heart disease than others. For example, a plant-based diet rich in healthy foods (fruits, vegetables, whole grains, nuts and legumes) substantially lowers the risk of heart disease. On the other hand, those plant-based diets that include unhealthy foods (refined grains, potatoes, and sugar-sweetened foods and beverages) are associated with a higher risk of cardiometabolic disease.

Satija et al. examined the associations with cardiovascular risk of three different types of plant-based diets in their analysis of data from the Nurses’ Health Study, Nurses’ Health Study II, and the Health Professionals Follow-up Study. "When we examined the associations of the three food categories with heart disease risk, we found that healthy plant foods were associated with lower risk, whereas less healthy plant foods and animal foods were associated with higher risk," Satija said. "It's apparent that there is a wide variation in the nutritional quality of plant foods, making it crucial to take into consideration the quality of foods in a plant-based diet."

Further, eliminating meat doesn’t necessarily lead to a healthier diet if the diet includes unhealthy foods such as potatoes, sweets, or fruit juices. In fact, mortality was lower for people who followed a healthful plant-based diet, even if it included some animal foods, than for those who followed an unhealthful plant-based diet that included a lot of processed foods. “The study is encouraging in the sense that you don’t have to completely eliminate animal foods from your diet in order to get a heart benefit,” added Satija.


*For more news, visit the Harvard Chan School website.*

**PROFESSOR ERIC RIMM DISCUSSES NEW MICROBIOME BIOBANK**

By Hilary Farmer

*Eric Rimm, ScD,* is Professor of Epidemiology and Nutrition and the Director of the Program in Cardiovascular Epidemiology at the Harvard T.H. Chan School of Public Health. He is also Professor of Medicine at the Harvard Medical School. Dr. Rimm’s research focuses primarily on diet and physical activity in relation to CVD, as well as the translation of these findings into effective public health interventions. Recently he, along with *Drs. Shelley Tworoger, Wendy Garrett,* and *Curtis Huttenhower* (and other faculty) from HSPH received $4.9 million from the Massachusetts Life Sciences Center to launch Biobank for Microbiome Research in Massachusetts (BIOM-Mass). These researchers will use this grant money to use, collect, and analyze various microbiome-based specimens.
**NN:** Dr. Rimm, congratulations on your award! I understand that this is quite a new undertaking for you. Can you please tell us a little about this new $4.9 million award?

**ER:** The award is through funding from the State of Massachusetts and is part of a 10-year $1B effort to enhance interdisciplinary work and create an infrastructure that will allow future collaborations between Massachusetts-based companies and academia in Massachusetts. We are obviously blessed to be located in Massachusetts where the government has the vision to see how supporting state-based research will lead to a huge payoff in the decades to come. The leadership for this award was mainly through Shelley Tworoger’s effort, working closely with the Dean’s office, to create a competitive grant across multiple departments at the Chan School and multiple organizations across the Longwood Medical Area.

With Shelley’s recent departure for a new position at the Moffitt Cancer Center in Florida, Wendy Garret and I will assume leadership for the project.

**NN:** I understand that microbiome research is a new area for scientists. How might microbiomes pose threats such as cancer, diabetes, heart disease, and obesity to human health?

**ER:** This is a relatively young field that until only recently allowed for careful assessment of microbiome typing through collection of oral and fecal biosamples. Almost everybody has seen advertisements or store shelves with probiotics (microbes) or prebiotics (food components that feed microbes), but how they affect our metabolism or health risk is really not known. We do know that these supplements can change the composition of the microbiome in the gut short-term, but there is just not good human data yet on the long-term health effects of changing or feeding your microbiome.

The results from mouse studies have everybody fascinated since simply changing the microbiome in otherwise sterile mice could induce or eliminate obesity. I don’t think it will be quite that easy in humans, but the potential for altering the microbiome in humans is real and will have many of us exploring this area over the upcoming decades (we hope!).

**NN:** How do you and your collaborators propose to study this?

**ER:** This funding from the Mass Life Sciences Council (MLSC) combined with additional contributions from the Chan School will build a huge robotic freezer in the basement of Building 1 that will become a school-wide resource that will house our soon-to-be-collected stool and oral microbiome samples from 25,000 53-70 year old women in the Nurses’ Health Study 2.

**NN:** How will your team do this? And what will be your role in this endeavor?

**ER:** We have a great staff at the biorepository unit at the Channing Lab that will help execute the collection led by our recently promoted coordinator Christine Everett. As part of this project we also purchased a robotic liquid handler which will take a lot of the physical labor out of the hands of the research assistant and put it in a cutting-edge robot. Naturally, with the computerization of all aspects of sample storage, there will be a lot to learn, but this is an exciting aspect of the project. My role as one of the senior faculty members will be to help out where necessary and to provide scientific oversight to the collection. I am working closely with my colleagues Drs. Qi Sun and Mingyang Song on the collection of the kits and will work with faculty members Drs. Wendy Garrett and Curtis Huttenhower who have dedicated their careers to understanding the effects of the microbiome on human health.

**NN:** How will you collect and analyze these samples (from NHSII and other prospective cohort studies)?

**ER:** The funding for now is just to collect the samples and store them for future NIH grants or collaborations with the fast-growing microbiome diagnostic and treatment industry. We will start in the fall to send out consent forms to NHS2 members. We expect a third or more will give consent which will allow us to send them a comprehensive kit for collection.
**NN:** What kind of personnel will be involved?

**ER:** Naturally we will need to hire a few new research assistants just dedicated to running the liquid handler and robotic freezer. With the pending departure of *Sherry Sawyer*, our senior leader for the whole biorepository, we also will be looking for a senior scientist to oversee this and many other projects that will use this new storage facility.

**NN:** What will you be looking at, both short- and long-term?

**ER:** As noted above, we don’t have funds yet to analyze the samples we will collect, but the possibilities are endless. We can start by looking at cross-sectional studies of diet and the microbiome (and the metabolome of the microbiome), but eventually we hope to conduct nested case-control studies of the microbiome as a predictive marker of subsequent chronic disease. Our colleague at the MGH, *Dr. Andy Chan*, has already submitted proposals to look at the microbiome and colon polyp and colon cancer development and we also know that *Dr. Alberto Ascherio* has an interest in looking at the microbiome at Parkinson’s disease progression.

**NN:** How will your research be used to treat and improve public health?

**ER:** This question could lead to a 20-page white paper on the microbiome and public health, but in short we hope to look at not only the microbiome as a diagnostic marker of disease risk, but also as a lens into how modifying diet and lifestyle habits can change the distribution of the microbes and how that reduces chronic conditions and diseases ranging from obesity and hypertension to cancer, heath disease and age-related cognitive decline.

**NN:** What do you envision for the future with this new area of scientific research?

**ER:** As we did decades ago when we collected plasma and urine in the large Harvard cohorts, this project marks the beginning of a new era where large population studies will now have the technology to collect and assess the microbiome in participants. Only a few studies have started down this road, and our collection will be by far the largest in the United States, so hopefully we can be the beacon for others to follow because clearly all of our future exciting findings will need to be replicated in populations across the globe.

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**RECIPE CORNER**

*(Contributed by Simon Cheng)*

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**Blackberry-Mint Arnold Palmer**

*(makes one drink)*
• 1 tablespoon honey
• 1 cup of strong English Breakfast Tea
• 4 blackberries
• 1 small sprig mint, plus more for garnish
• juice of one lemon, plus a wheel for garnish

Instructions:
1. In a tall glass (approximately 12 ounces), dissolve the honey and tea, let cool

2. Add the blackberries and muddle until they're well crushed. Add the mint and muddle a couple more times.

3. Squeeze in the lemon juice and top it off with a handful of ice.

4. Stir and garnish with a sprig of mint and a lemon slice.

Simon Cheng is the Founder & CEO of Pique - Tea Crystals, the world’s first Premium Instant Tea made purely from organic teas and plants with no added sugar, preservatives or artificial flavoring. Simon is a passionate advocate and practitioner of Far Eastern health systems including Qigong meditation and plant based medicine. He is a member of Harvard School of Public Health Nutrition Round Table.

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**MONDAY NUTRITION SEMINARS**

There will be no Monday Nutrition Seminars during the summer months. Our regular Monday Nutrition Seminar Series will resume in the fall, beginning August 28, 2017. In the meantime, we will still be holding an occasional Special Nutrition Seminar.

The Department of Nutrition is currently seeking candidates for the position of Assistant or Associate Professor in Public Health Nutrition. Please feel free to share this with your colleagues!

For more information: http://academicpositions.harvard.edu/postings/7477

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The Department of Nutrition has posted a call for applications for an Assistant/Associate Professor of Nutrition and Planetary Health. The job posting can be accessed via the link below. Please share this with your colleagues!

http://academicpositions.harvard.edu/postings/7660
SAVE THE DATE ANNOUNCEMENTS!

On November 1, 2017, the Nutrition Department at the Harvard T.H. Chan School of Public Health will be celebrating its 75th year! At the same time we will also be having our 13th Annual Stare-Hegsted Lecture. Dr Lawrence J Appel, of The Johns Hopkins University, will be this year’s speaker. The two events will be combined that afternoon. The Department will be celebrating its 75 years with a symposium starting at 1:00 pm and the Stare-Hegsted Lecture will be at 4:30 pm, with a reception afterwards. Both events will take place at the NRB in the Rotunda Room. More details will follow later.

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