



BroadSheet

The newsletter of the John Snow Society

Summer 2017

25th Pumphandle Lecture 2017

“Life and Death in 2100: Health, History and Human Contingency” by Richard Horton

Tue 12 September – 5:30 pm

John Snow Lecture Theatre,
London School of Hygiene & Tropical Medicine

Book online via
pumphandle2017.eventbrite.co.uk

Dr Richard Horton is Editor in Chief of The Lancet, one of the world's most prestigious medical journals. He qualified in physiology and medicine in 1986, joined the staff of Lancet in 1990, becoming Editor in 1995. He holds honorary professorships at the London School of Hygiene & Tropical Medicine, University College London and the University of Oslo, has chaired numerous international commissions, was elected Foreign Associate of the US Institute of Medicine (2015), and received the Friendship Award from the Government of China (2016) and the Andrija Stampfer medal from the Association of Schools of Public Health in the European Region (2017). He is well known for his strong interest in global health and in medicine's contribution to our wider culture.

The lecture will be followed by the Society's Annual General Meeting, held in the John Snow Public House (at the corner of Broadwick and Lexington Streets, in Soho) to which all are warmly invited. The lecture will be recorded and placed on the Society's website.



24th Pumphandle lecture and AGM 2016

“The Syrian conflict and its effect on the future of humanitarian response: we need a new pumphandle” by Paul Spiegel

The 24th Annual Pumphandle Lecture was delivered on 8th September 2016, by Dr Paul Spiegel, recently appointed Director of the Center for Refugee and Disaster Response at Johns Hopkins Bloomberg School of Public Health. Previous to this appointment, Dr Spiegel had spent 14 years as Deputy Director of the Division of Programme Support and Management and Chief of Public Health at the United Nations High Commissioner for Refugees (UNHCR) in Geneva.

Dr Spiegel began by referring to the large numbers of refugees and displaced persons in the world today - the largest numbers since the Second World War, with the majority coming from Syria, Afghanistan and Somalia. He commented on the history of such humanitarian crises in recent decades, from Biafra in the 1960s to Cambodia in the 1970s to the many states in crisis today.

Circumstances have changed considerably over the years both in the nature of the crises and countries where they take place, and the various institutional responses. Much of the data come from refugee camps, and it has been difficult to quantify populations affected but not in camps. Crises have become protracted and health problems have shifted from a focus on communicable disease to a wide variety of health problems including those associated with middle income populations such as in Syria. New agencies have arisen, several within the UN but many with other international, national or local bases. Recently several Islamic agencies have become involved, and there is a move for private sector involvement. Coordination of all these agencies has posed problems and it is recognised that decision-making has not always been optimal, having to be made on imperfect data in a complicated political context.

He devoted much of the lecture to expanding details on five recommendations he considered essential for the improvement of responses to such crises. First is the need to “Operationalise the concept of centrality of protection”, recognising the priority to provide a safe environment for people but appreciating the complexity of this challenge. Second is the need to “Integrate affected persons into national health systems” making use of the talent and experience of the displaced persons. Third is a need to “Remake, not simply revise leadership and coordination”. He argued that the WHO has justifiably held a central position on the global stage but that it has failed repeatedly in recent years – it must repair its structures and procedures soon, or lose its central position. Fourth is the need to “Make interventions more efficient, effective and sustainable” which has many implications, including the need to move from annual budgets and short term thinking to recognition of need for long term infrastructure and the importance of education and livelihoods for societies if they are to survive and prosper.

Finally he referred to the need for “Data and research to improve outcomes and impact”. The need for effective evidence-based decision-making is obvious – but this requires systematic collection and critical analysis of data in order that the required evidence can accumulate. He referred in particular to the Wellcome Trust / DfID R2HC initiative (on “Research for Health in Humanitarian Crises”) which is encouraging rigorous research on this group of problems.



Dr Spiegel closed by referring to what he called the “forgotten emergencies” in countries such as South Sudan and Central African Republic, which have been crowded off the global agenda because of the magnitude and urgency of the crises in and around Syria. The world has failed both in allowing these circumstances to arise, and in responding to them. Something new is required to deal with these immense problems– a new pumphandle.

The vote of thanks was proposed by Professor Jimmy Whitworth, and Dr Spiegel was invited to remove the handle of the pump to close the proceedings. Society Members then adjourned to the John Snow Pub in Soho for the Annual General Meeting of the Society. A video of the lecture is available on our website:

johnsnowsociety.org



The saga of the missing pump... continued

There is good news on the missing pump statue in Broadwick Street, as the City of Westminster has informed us that they are now making definite plans for its return. It will be replaced very close to its original site, near the pink granite stone on the kerb that many members have reverently visited. Your committee will be working with the planners and currently a couple of design options are being considered. No restoration date yet, but we shall keep you posted.

Ros Stanwell-Smith, Pump Handle Ambassador

New Manager at the Pub

The John Snow Pub, at the corner of Broadwick and Lexington Streets, has a new Manager, David Hemmings, who welcomes Society members from 'round the world. The Guest Book remains behind the flap of the downstairs bar. If the book is not there, just look around, and you will find it in the hands of a kindred spirit...

Chapters

According to our Constitution (johnsnowsociety.org/the-society/constitution.html) we have not given detailed guidance on Chapter formation, but two statements are particularly relevant: "Eligibility to join the Society is defined as wishing to celebrate the memory of John Snow." And: "Members of the Society are encouraged to establish informal groups, chapters (divisions) and meetings in their own countries and localities. Local groups may levy an additional fee to finance their local activities."

We are aware of at least 10 chapters that have been organised in various places over the years, including in Kampala Uganda, Norway, Iceland, Finland, Auckland New Zealand, Heidelberg Germany,

Bethesda Maryland, San Francisco California, Texas and South Carolina USA, but we have not always been kept informed of their activities or status.

It is useful in this context to acknowledge another principle enshrined in the Society's Constitution: "A John Snow Society meeting can be declared wherever and whenever at least two Members of the Society are present. A photographic record of meetings and events may be sent to the Secretary for inclusion in the Society's archives."

This year brings several contributions related to cholera, water and mapping, in the best John Snow tradition.

Mozambique

Julie Cliff

Mapping water supply in Maputo, Mozambique: cholera in the age of drones

Julie Cliff reports that the Maputo branch of the John Snow Society met on June 12th, 2017, (Figure 1), when members were treated to a fascinating talk by Dr Paolo Paron of the IHE Delft Institute for Water Education (un-ihe.org) on mapping water supply during and after a cholera epidemic. The research is funded by the Dutch government.

Since John Snow drew his maps relating cholera to water supply, maps have continued to be a vital tool for understanding cholera transmission. Recently drones have added another dimension, allowing for very high resolution, timely and low-cost mapping of both urban and rural areas. They provide almost real-time mapping of natural and man-made disasters, a useful tool for epidemiologists.

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Figure 1. Meeting participants (L to R) Francesca De Maria, Angelica Salomão, Ivone Zilhão, Cesar Palha de Sousa, Julie Cliff, Filippo Dibari



In February 2017, an investigation of the water supply in selected Maputo City suburbs was carried out by the IHE, the Faculty of Chemistry, Eduardo Mondlane University, King's College Department of Geography and Environment, and FIPAG (the local water supply authority). The suburbs are supplied by a dense pipe network that starts from a central treatment point.

The investigators drew a map of the water distribution network and tested the water for quality and for the presence of *V cholerae* in both taps and containers. They found *V cholerae* in a wide variety of sources, both taps and containers, with a higher prevalence in containers (Figure 2).

The drones generated high resolution images of housing and sanitary conditions (Figure 3).

The maps were used to identify spatial correlations between water quality and livelihoods across and within suburbs, and also enabled creation of digital terrain models used to understand natural drainage flows (Figure 4). These will be used in a second stage of the research to define contaminant pathways across the suburbs during extreme rainfall events, and will be overlaid with the map of the water distribution network to identify pathways of contamination. The research is still ongoing. The results will help the water supply company to improve the distribution network and find appropriate solutions to prevent contamination.

The meeting generated a fruitful discussion on how to relate the data on water supply to epidemiological findings, following in the tradition of John Snow. (Photos supplied by Paolo Paron.)



Figure 2. *V cholerae* detection in water (red dots are positive samples, green dots are no presence, grey dots are location of samples not analysed for *V cholerae*)



Figure 3. Drone image showing housing and sanitary conditions. In the centre left of the image a red circle highlights the presence of a latrine, without a roof. In this case a WC was installed on top of the open pit latrine.

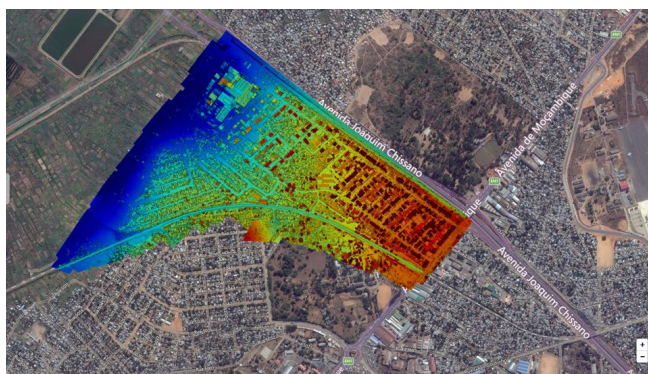


Figure 4. Natural drainage flows. Red colours show higher grounds, while blue colours show lower grounds. The general drainage in this case is from SE to NW, where most of the city orchards are located.



Texas: Drought, Water Shortage, Conservation, & Innovation

Marty Gibson and Betty Bowles report that North Texas has experienced an unprecedented drought beginning with a record hot summer (100 days of temperatures exceeding 100°F), negligible rainfall for several years, and lake levels plummeting to 30% of capacity. With the threat of a city of over 100,000 population running out of water, a graduated water conservation and rationing system was implemented. The positive response of the citizenry cut water consumption more than half.

As the drought continued, in 2012 the city of Wichita Falls proposed the development of a wastewater reuse program. Over the next 2 years the city worked with the Texas Commission on Environmental Quality to develop guidelines to treat and test the wastewater. It designed and built a pipeline to deliver the wastewater effluent (treated by microfiltration and reverse osmosis) to the water treatment plant, and performed rigorous tests to ensure the purity of the water.

The purified water was then mixed 50:50 with untreated raw surface water and put through the usual 8-step purification processes. The city began discharging tap water from the Direct Potable Reuse facility to the public in 2014 with unanimous positive feedback from the public. The Direct

Potable Reuse project has produced a high-quality potable water source for the city. Along with the conservation and drought restrictions, the Direct Potable Reuse project has cut the city's demand on its surface water sources by 80%.

The direct reuse pipeline was not buried so that it could be installed quickly and then ultimately reused in an Indirect Potable Reuse project. After ample rain restored the lakes to full capacity, the city is now moving forward to convert operations into Indirect Potable Reuse, which pumps the treated wastewater to the surface reservoir before re-entering the city's water supply. This pipeline will pump millions of gallons per day of treated wastewater into the lake. Predicted completion of the pipeline is 2018. Other long-term water projects have been initiated, including the building of another reservoir.

Only one other city in Texas has tried this innovative approach to water reuse. Since Wichita Falls began this project, representatives from drought-prone areas all over the world have come to learn from it. The conversion of wastewater into pure drinking water illustrates the tremendous advances in technology and human ingenuity since John Snow recognized the association of cholera with sewage-contaminated water pumped from the Thames in London.

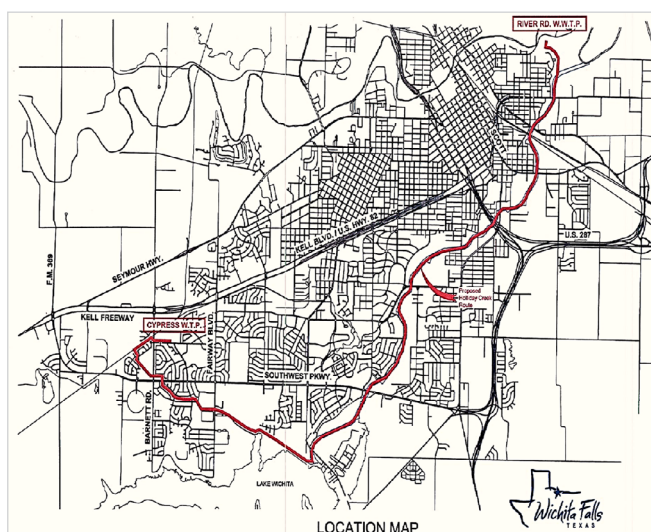


Figure 1: The Direct Potable Reuse pipeline (red) going from the wastewater plant to the water treatment plant

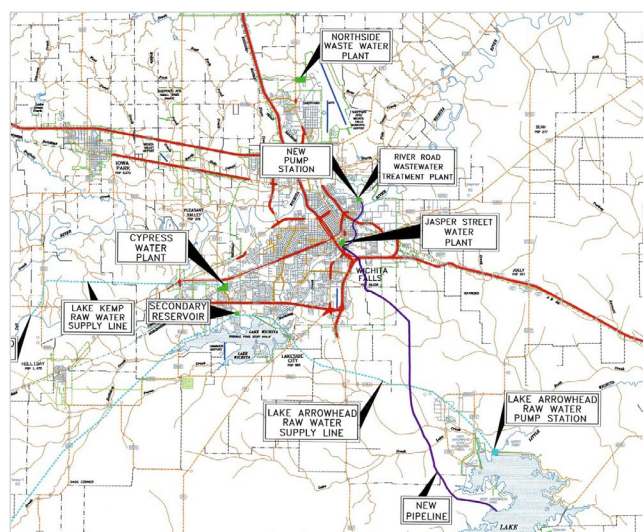


Figure 2: The Indirect Potable Reuse pipeline (purple) going from the wastewater plant to Lake Arrowhead



Scandinavia

Christen Raestad

Christen Raestad informs us that the Norwegian national Drinking Water Conference was held on May 30-31 in Larvik on the south coast, with 149 participants. It will be his last as project leader.

The Scandinavian Pump Handle Ceremony is now firmly linked to the Nordic Drinking Water Conferences. It has been held every second year since 1998, when it was inaugurated with a telephonic conference call from London. People are still talking about this event, and some still believe that the online conversation was a bluff. Not at all!

The next Scandinavian JSS-Pumphandle Award will be in Oslo in 2018, under the firm hand of Asle Aasen as Honorary Secretary General.

South Carolina

Julia Robison

Julia Robison tells us that the South Carolina chapter of the John Snow Society at the University of South Carolina School of Medicine in Greenville (USCSOMG) just wrapped up its second year of incorporation: "With the induction of new members and the introduction of fresh ideas, the new class of medical students aimed to bridge the gap between public health and healthcare by forming strong collaborations among clinicians and public health officials. This year, we hosted a session for medical school students who are interested in pursuing a graduate degree in public health; we had a presentation of results of an ongoing study to assess community residents and their attitudes toward a neighborhood-based mobile health clinic for access to primary care services; we invited emergency medicine physicians and sexual assault nurse examiners to discuss the public health impact of sexual assault as well as discuss how we, as future physicians, can provide a more survivor-centered approach when dealing with these patients; and we cohosted a current events discussion together with Student National Medical Association, covering topics such as gun violence as a public health issue, the Affordable Care Act, and LGBTQ issues in medicine."

San Diego – now Washington DC

Tom Novotny

Tom Novotny retired (again) from his position as co-director of the San Diego State University/University of California San Diego PhD Program in global health. He is still academically connected to SDSU as Professor Emeritus of Epidemiology and Biostatistics, but he is back in Washington, DC since January 2016 as Deputy Assistant Secretary for Health. This was an opportunity to work in two historically important US presidencies, but it turned out not to be quite as planned for the second of these. Nonetheless, he is committed to keeping a focus on the value of science in public health within the Department and thereby carrying on the tradition of John Snow. He also will deliver the Pablo Lucia Lecture in Preventive Medicine at the University of California, San Francisco, entitled, Public Health Challenges in the Pacific Islands, on June 30, 2017. He invites members or potential members in the DC area to be in touch and to think about planning an epidemiological gathering and pub event in honour of John Snow in the near future. (tenovotny@gmail.com)

Finland

Terhi Lohela

Terhi Lohela writes that "Once more it has been shown that joining the JSS correlates with academic success: Dr. Juliana Imgenberg-Kreuz successfully defended her PhD thesis at Uppsala University in Sweden in February, only six months after she joined the Society. The defense was followed by a grand ball and a cannon was fired (we report no casualties). At least two other members of the JSS were present to witness the event and an official JSS meeting was declared. It is possible, even probable, that new members were recruited to the Society during the celebrations. We are looking forward to reuniting at the Pumphandle Lecture!"

Special report:

An outbreak of "acute watery diarrhoea" in Ethiopia

Hilary Bower

In May 2017, I and two colleagues from Public Health England and University of Oxford went under the auspices of WHO's Global Outbreak and Response Network (GOARN) to the Somali Region of Ethiopia to offer help to local authorities trying to control a severe epidemic of 'acute watery diarrhoea'. I was based in Warder, Dollo Zone in the far south-east, two days' drive from the regional centre and a day's drive on red sand roads from the nearest tarmac. The region, like much of the Horn of Africa, has had two failed rainy seasons and is experiencing devastating drought with increasing severe malnutrition, compounded by an 'AWD' epidemic which started in 2016.

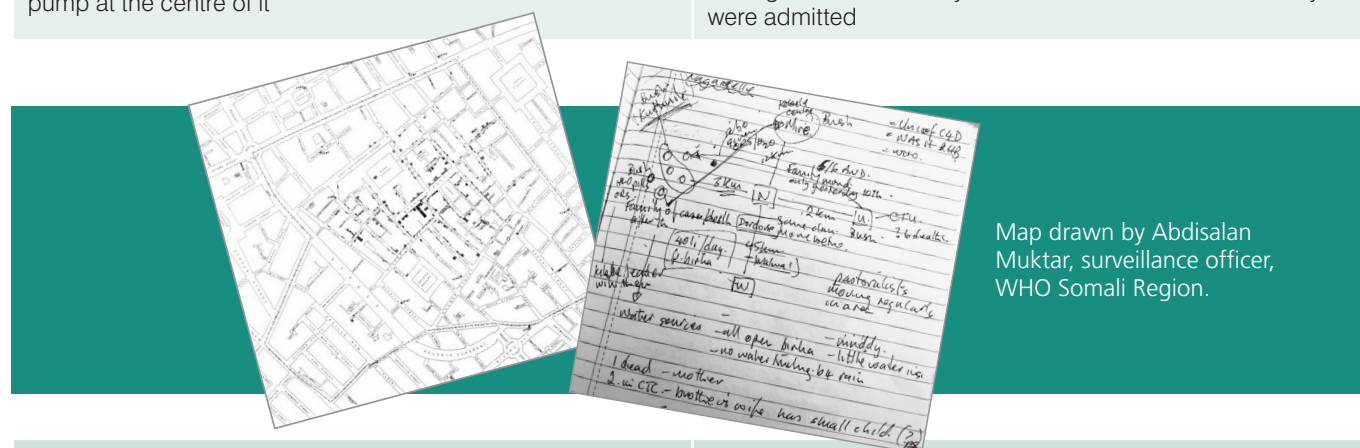
Of the 35,000 cases reported since January 2017, 90% are from the Somali Region. In late March 2017, daily cases increased dramatically, reaching a peak of ~750 new admissions per day by the first week of April.

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On my return, Jimmy Whitworth, honourable co-chair and pub liaison officer of this Society, asked me if I'd seen anything that John Snow would recognise after 163 years. So...

Dr John Snow, Soho, London 1854	Somali Region, Ethiopia 2017
Cholera	"Acute Watery Diarrhoea"
People didn't believe him when he told them it was a 'germ' in the water that was making them sick	Everyone knew it was transmitted by water, but they thought the water was being made safe. Unfortunately, much of it wasn't chlorinated enough to be safe by the time of household use
He was testing the hypothesis that cholera was transmitted by contaminated water, and 'piloted' an intervention to stop transmission	We* were trying to assist interventions now known to stop transmission, including safe water provision, access to care, household protection supplies (eg. water treatment and disinfection materials), oral rehydration salts (ORS) and community education
He mapped individual deaths, not just the houses where deaths occurred to quantify cases in particular areas, and talked to household members to identify their water source	We traced household members of all cases admitted to treatment centres to identify other cases and risk factors and guide responders to populations at risk
He looked for clusters and found one with the Broad Street pump at the centre of it	We spotted that there were clusters of cases whose location of 'origin' was incorrectly recorded and far from where they were admitted



Map drawn by Abdisalan Muktar, surveillance officer, WHO Somali Region.

He looked for outliers: brewery workers in Broad Street who drank beer not water and didn't contract cholera, school children from elsewhere who sickened after drinking at the Broad Street pump on the way to school, and that lady from far Hampstead who died of cholera because she liked the taste of the Broad Street pump water and had it delivered daily	We investigated each case and found ~ 40% during that period were pastoralists, who had not been on the radar for response teams, who lacked not only safe water but information and supplies to protect themselves, and a persistent cluster in an area of IDPs where water was not well supplied or treated
He found the majority of deaths had occurred in households using water from that one pump	We found multiple sources of contaminated water and links with un-or undertreated water from water trucks, tanks and wells
He lobbied the authorities to remove the handle from the Broad Street pump	We gathered information, mapped affected households and their movements and headed out on foot to find them with household treatment kits, ORS and cholera education
He advocated for preventative measures: hygiene, isolation/quarantine, improved waste disposal, drainage, clean water...	We did the same – urging responders to reach all populations in the area, not just those easily accessed
He used a commercially-printed map which included the location of pumps and he showed precisely which households were affected	No street maps existed of our area. Our map was roughly drawn and used to work out how to reach the at risk population and not 'published'
His map changed the epidemiological world	Our map, we hope, helped a small part of the modern world

* 'We' were six Somali national WHO surveillance officers (who did most of the walking!), a UK epidemiologist, and a WHO WASH consultant armed with a pool tester and years of experience. And while John Snow might have been puzzled by the name of the infection, we think he would see much in our work that was familiar, even these many years later, not least how important it remains to map your problem.



Other Things

25th Anniversary of the Society

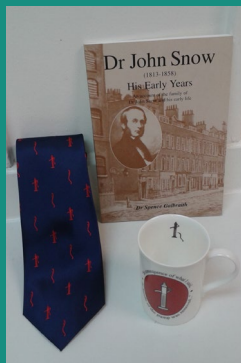


The 2017 Pumphandle Lecture is the Society's 25th and so marks our quarter-century. The first lecture, in 1993 (by Nick Ward on "Global polio eradication, a call for action"), was the result of several months of discussion at the Communicable Disease Surveillance Centre in Colindale and the London School of Hygiene & Tropical Medicine, which generated the ideas underlying what we now are.

We have unearthed a photo taken at one of those meetings, showing the five + founder members, each of whom continues to support the Society (left to right): back row – Jimmy Whitworth, Ros Stanwell-Smith, Dilys Morgan; front row: John Snow (virtual), Paul Fine, Mary O'Mahony.

Exclusive to JSS Members

The 11th edition mugs have proven popular as ever... Free to new members, additional mugs can be purchased if you wish to add to your collection or as insurance policy against breakage (which, according to our constitution, deactivates your membership). Members can purchase up to 3 additional mugs. The elegant pump-design silk ties and the illustrated book by Dr Spence Galbraith (John Snow: his early years) are also available for purchase. See website for details.



Call for nominations to the John Snow Society Steering Committee

The John Snow Society Steering Committee ("J3SC") met on 11 May 2017, continuing its work to make the Society sustainable into the future. The current committee comprises Jimmy Whitworth and Oliver Cumming (Co-Chairs), James Hargreaves and Paul Fine (co-Secretaries), John Watson and Michael Edelstein (co-Treasurers), Sandy Cairncross and Stefan Flasche (co-Historical Liaison and Web Content Officers), Ros Stanwell Smith (Pump Ambassador), Stephen Jeffreys (Anaesthesia Representative), Dilys Morgan, Mary O'Mahoney. Sandy Cairncross and Stephen Jeffreys reach the end of their 3-year term this year, and thus there is a call for applications.

We invite applications from members in good standing (with intact mug and membership card). Following our constitution (johnsnowsociety.org/the-society/constitution.html) a valid application should be received by the Society by first September, and will consist of "a statement of 54 words describing commitment to - and vision for - the Society. Applications will be considered by the J3SC for ratification by Members present at the AGM, unless it is necessary to conduct an email poll if suitable applicants exceed vacancies. Candidates should normally attend the AGM, where each will have the opportunity to speak for a maximum of two minutes, although in unavoidable absence, their statement may be read to the meeting."

Reminder to Members – update your email address

Our cumulative membership total, to whom we will send notice of this Broadsheet, is now over 3500. Unfortunately, more than 20% of emails bounce. We suspect that a few members may have crossed the great divide, but we also suspect that some have changed their email addresses. Or some email addresses may have been illegible or otherwise in error from the start... So – if you are/have been a member, but do not receive one email a year from us – please let us know your appropriate (personal generally better than job-related) email. Or if you know of a member who has not heard from us – encourage them to contact us and update their email address.

Keeping in touch

The John Snow Society contacts all members once per year, via email, with news about the Society and the details of the annual Pumphandle Lecture.

For more interactive participation in the Society, please follow us on [Facebook](https://www.facebook.com/JohnSnowSociety) and [Twitter \(@JohnSnowSociety\)](https://twitter.com/JohnSnowSociety).

