Tzipy Lazar-Shoef

**How Medical Practices are Collectively Forgotten: Stethoscopy as a "Dying Art"**

**Background**

Stethoscopes have been ubiquitous in medicine for more than 200 years, and for good reason. They are cost-effective, resilient, lightweight, and convenient to use (Bank et al., 2016; Knox, 2010). As recently as twenty-five years ago, stethoscopes were the hallmark of cardiology, and mastering the gentle 'art' of hearing heart murmurs (formally, cardiac auscultation) was a *sine qua non* for cardiac examinations (Scarabelli 2014). However, with the advent of advanced, non-invasive, and portable imaging technologies, such as hand-held echocardiography and magnetic resonance imaging, auscultations have effectively disappeared from many clinical settings. Today, most cardiologists rarely (if ever) use a stethoscope in their cardiac examinations, and even very experienced physicians exhibit poor skills in cardiac auscultation (Mangione 2001). The stethoscope – the very symbol of medicine long worn by every doctor like a badge of honor – is vanishing. In the proposed research, I will investigate how and why this process of “collective forgetting” is occurring, and what we can learn from it about how, more generally, once-prized knowledge and skills are “forgotten.”

Collective forgetting is a fundamental feature of modern medicine, which constantly abandons practices as they become "outdated", "ineffective", or "superseded." This feature is no doubt linked to medicine’s ability to quickly adopt novel technologies and to the exponential growth of medical knowledge (Densen 2011). Stethoscopic examination of the heart is one of many low-tech, physical procedures that are considered "lost arts" today (Feddock, 2007; Elder 2018). But the disappearance of stethoscopes comes with costs. Excessive reliance on expensive, high-tech technologies can delay diagnosis and treatment during a medical emergency (Harbison 2017), especially when technological resources are limited (Weiss et al. 2018). In the event of a power blackout or cyberattack, imagine technologies’ dependence on other technological infrastructure (such as electricity and digital platforms) may prove disastrous[[1]](#footnote-1). Furthermore, once a novel technology is adopted and old practices are forgotten, recovering the old practices is difficult and sometimes impossible, even when doubts arise about the safety or efficacy of the new procedures that replaced them (Lazar-Shoef et al., under review). Despite this, medicine is constantly forgetting.

Given the importance and ubiquity of "collective forgetting," it is remarkable that this phenomenon has received so little scholarly attention[[2]](#footnote-2), especially within the context of science and medicine (Bowker & Star 2000). However, several research traditions have at least laid foundations for studying how collectives lose knowledge that was once. Social construction theorists have established principles for understanding how knowledge is constituted. As individuals interact with their environment and each other, they mutually construct knowledge through social learning. This knowledge is passed on to future generations through socialization within groups, thereby establishing it as a shared reality (Berger & Luckmann, 1967; Mannheim, 1970). This perspective has guided many studies that demonstrated how collective memories are socially constructed, focusing particularly on the reshaping of cultural and material artifacts (textbooks, signs, rituals, works of art, etc.) in order to establish and maintain certain memories, while diminishing others (Ram 2009; Zerubavel Y. 1995). The same process occurs when dominant scientific approaches change, and textbooks and curricula are rewritten to support new concepts and methods, eclipsing old approaches and knowledge (Kuhn 1970).

Studies in Science, Technology, and Medicine (ST&M), have focused on knowledge construction in science's everyday activities (Latour 1987), adding insights concerning the importance of preserving local and tacit knowledge for the effective use of technologies (MacKenzie & Spinard 1995) and the importance of establishing and maintaining networks of practitioners, documentation, technologies, and institutions to maintain and support scientific ideas (Latour & Woolgar 2013 [1979]). The deterioration of these resources could result in the decline of certain forms of knowledge and practice, which decline may become steeper with each new generation of practitioners who were unfamiliar with or less experienced with the old knowledge. This is especially true in medical settings, where doctors acquire a wide variety of knowledge and skills through their extensive hands-on training (Lehmann et al. 2018; Densen, 2011).

Linguists and anthropologists have shed light on the intricate, intimate mechanisms by which extinct languages die, emphasizing the set of dispositions accompanying these deaths (e.g., feeling ashamed, anxious, or reluctant to speak the language) (Harrison 2008; Edwards 2010; Kloss 1984). Cognitive sociology studies, firmly rooted in social construction perspective, have highlighted how social taboos and acts of demarcation forge these dispositions, guiding us as to what should be addressed and what needs to be ignored due to its relevance, danger, or forbidden nature (Zerubavel E. 2015; Zerubavel E. 1999). In my doctoral research, I found that one of the most prominent factors influencing the decline in breech births was the growing consensus that breech birth is an exceptional hazard (Lazar-Shoef et al., under review) [[3]](#footnote-3). Such changes in perception often accompany the extinction of knowledge in a community.

These resources offer a foundation for a deeper understanding of how collective forgetting might be construed in the context of the stethoscope. The study will lay the groundwork for an interdisciplinary approach to studying the phenomenon of collective forgetting within one of the most vital, rapidly evolving, and knowledge-laden areas of the humanities.

**Objectives**

The proposed study aims to examine the process of collective forgetting that has, over the past decades, all but ended the long reign of the stethoscope as a fundamental diagnostic tool in American contemporary cardiology. Examining the complex dynamic of collective forgetting, this study focuses on reshaping of learning, practicing, and perceiving cardiac auscultations. The first aspect, learning, concerns whether and how knowledge of cardiac auscultations has or has not been passed on to new generations of cardiologists through reshaping textbooks, training curricula, professional literature, guidelines and more. The second aspect, practicing, concerns whether and how stethoscopes been used in, or excluded from everyday clinical situations, such as diagnosis, bedside rounds, or medical emergencies. The third aspect, perceiving, concerns the ways cardiologists have perceived stethoscopes and their use have changed.

**Methodology**

The proposed research will be “mixed-method,” combining qualitative and computational research, using tools I developed during my doctoral research. The study will begin by mapping medical discourses concerning stethoscopes and cardiac auscultation. Using bibliometric and computational tools, I will survey thousands of medical journals and proceedings indexed by the National Library of Medicine. After gaining a general understanding of the main characteristics of the discourse concerning stethoscopy, how it has changed over time, and major milestones in its development, I will conduct more focused analyses of archival materials (professional publications, guidelines, court decisions, media coverage, etc.). This will be followed by fieldwork at a teaching hospital: observations in clinical and educational settings, and interviews with several generations of practitioners (senior physicians, residents, interns, students), as well as administrative and legal personnel. This inquiry will provide insight into the everyday explicit and tacit dynamics of forgetting in educational settings, in clinical settings, and in the daily routines of hospital staff.

**Significance**

This study has both theoretical and policy-making implications. Resting on theoretical and methodological foundations I established in my doctoral dissertation on the decline of breech deliveries, this research takes steps towards a more general theory of collective forgetting in medicine and beyond. Understanding these processes will shed light on the decline of the use of stethoscopes and, more generally, the decline of a variety of medical technologies and practices. It will explain more generally why some technologies are forgotten while others persist. It will shed light on how collectives forget, a subject that has received little attention compared to the vast literature on collective memory. My research findings may also benefit health policymakers and medical education authorities as they implement strategies to preserve valuable and cost-effective medical knowledge.

**Evaluation and Dissemination**

Considering the interdisciplinary nature of the research and the relevance of collective forgetting across a variety of contexts, I intend to communicate my research findings to a wide audience. This will include publishing in leading public health, ST&M, history, and sociology journals. In addition, I plan to present the results of this study at the annual conference of the Society for Social Studies of Science (4S), the largest event in the field of Science Studies, and to recruit researchers to join an interdisciplinary research network to study the phenomenon of collective forgetting. Upon my return to Israel, I intend to convene (together with Prof. Nadav Davidovich, the head of the Israeli Association of Public Health Physicians and my doctoral supervisor) a major international conference, bringing together clinicians, academics from various fields, medical educators, and policymakers to discuss the implications of collective forgetting in medicine.

On another level, I expect to write a good portion of a book that will offer a theoretical and methodological approach to studying collective forgetting as a broader social and scientific phenomenon. With the set of academic tools and knowledge acquired during my time abroad, I will no doubt be able to contribute to the Israeli Science Studies community.

**Justification for Residence in the United States for the Proposed Project**

The United States is an ideal place to study medical collective forgetting, partly because processes that arise in American clinical settings significantly affect health policies worldwide (as in the case of breech delivery). Additionally, the continent boasts the largest ST&M community. I have been accepted to two institutions that exceptionally fulfill these criteria - Harvard University's Department of History, and the University of California San Diego's (UCSD) Department of History. These places will offer me a rare opportunity to share my ideas and technical skills with top-level and diverse community of scholars. Additionally, we are exploring the possibility of collaborating with the UCSD Computational Social Science Program, where I hope to contribute to the development of effective methods for studying collective forgetting and other forms of social change.

This trip will also enable me to work closely with Prof. Eviatar Zerubavel, a world-renowned expert in the sociology of cognition and memory, to conceptualize the phenomenon of collective forgetting.

**Duration**

This is a two-year project, of which I plan to complete most of the computational, archival, and field work during the first year, as a Fulbright fellow. Prior to departure, together with my host, I will seek collaboration with a university hospital that offers cardiac training. Then, initiate the formal and ethical procedures that may be required for field work in this medical setting. During the first six months of the project, a systematic review of the discourse about stethoscopes and cardiac examinations will be carried out in libraries, hospital archives, and digital academic databases. This will be followed by field work, scheduled to end in September 2024. Additional data retrieval and fieldwork will be conducted as needed during the second year of the study, but the focus will be on analyzing the empirical materials and writing.

1. For example, the hazardous consequences of the 2019 blackout in Venezuela (Valderrama, 2019). [↑](#footnote-ref-1)
2. Based on the Scopus academic index, only 160 papers mentioning "Collective forgetting" in their titles, abstracts, or keywords were found, beginning (Retrieved - October 2022). [↑](#footnote-ref-2)
3. Breech presentation occurs in 3-4% of term babies, when the fetus faces the birth canal with its breech, legs, or knees. Most obstetricians do not possess the exact skill required to deliver a breech baby; most of these babies are delivered via cesarean section (Lazar-Shoef et al., forthcoming) [↑](#footnote-ref-3)