Journal of Astronomical History and Heritage, 26(1), 3–8 (2023).

INTRODUCTION

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Abstract: In this paper I provide a brief introduction to the papers that follow, which are mainly based on oral presentations at the conference "Where Science & Empire Met: Observatories in Asia in the Late 19th to Mid-20th Centuries". This international conference featured invited speakers from the Philippines, Indonesia, Singapore, Thailand, Vietnam, Taiwan and Japan, and was held at the University of the Philippines Diliman, in Manila, in February 2020.

Keywords: colonialism; Asian observatories**;** meteorology; astronomy

1 INTRODUCTORY COMMENTS

Major developments in science took place in colonial Asia in the latter half of the nineteenth century, the period historians consider an era of instrumentation. European inventions and instruments flooded major economic and academic centers in Asia, solidifying the role of science as a primary epistemological framework for achieving progress (Camba, 2010: 120). As Adas (1989) argues, the introduction of key instruments such as the steamship, the telephone, the telegraph, and several laboratory instruments like the aneroid barometer, made it possible for Europeans to imagine and explore the natural world of their colonial territories. Advancements in science and mathematics also heightened the colonial valuation of their political and economic endeavors in terms of better grounded, more accurate estimates. Colonizers, too, applied scientific knowledge to production, communications and military technology in their respective colonial turfs in Asia (*ibid.*).

A fine example of a scientific institution that developed in the era of instrumentation was the observatory. In colonial Asia, meteorological observatories became centers of the numerically calculated approach to understanding the weather, in the process producing valuable scientific information. As MacKeown (2011: 11) notes,

> … the historical importance of all observatories in that part of the world lies most entirely in the advances achieved by their pioneering staff in understanding such meteorological phenomena, and in weather forecasting.

MacKeown (2011: 9) also observes that the "… role of observatories in [the] colonial expansion of Western powers in Asia is not a simple linear history." Here it is worth noting that meteorological studies offered the additional benefit of supporting mercantile shipping and trade, which were crucial to the success of the colonial project in Asia. The genesis of meteorology is in fact traceable to the need of developing colonies to adapt to the vast and, at the time, largely unforeseeable challenges of sea trade.

2 THE RATIONALE FOR A CONFERENCE

In Asia, the pioneers of meteorological institutions were a mix of religious and secular officials. The Jesuit missionaries, for instance, stand out in the Philippines and China, where their pioneering efforts led to the establishment of observatories in Manila and Shanghai. Secular officials such as the British meteorologist, Sir Robert Hart, then the Inspector General of the Chinese Imperial Maritime Customs, initiated a project in which he organized the meteorological observation system of the bureau in 1869 (Zhu, 2012: 20). Observatories were also set up in Hong Kong (Hongkong Observatory, 1882), British Malaya (Meteorological Division of the Malayan Survey Department, 1927), Thailand (Royal Thai Meteorological Service in Bangkok, 1923), Java (Observatory of Batavia, 1866 and Bosscha Observatory in Lembang, 1923), and Japan (Dutch Meteorological Observation Base in Dejima Island, late eighteenth century, and Central Meteorological Observatory in Tokyo, 1875). Some of these observatories, such as the Observatorio Meteorológico de Manila (1865) in the Philippines and the Zikawei Observatory in China (1872), became so popular and well-developed that governments eventually absorbed them, turning the observatories into official state agencies.

This conference seeks to:

(1) examine the role of observatories as scientific institutions—as pioneers in the use of scientific instruments and as production sites of valuable and necessary scientific data and knowledge, and/or as agencies in the administration of Asian colonies, including trade and shipping;

(2) compare the histories and experiences (scientific, bureaucratic, and knowledge politics) of meteorological observatories in Asia during this period, in various aspects such as funding, sustainability, management, hiring and training personnel, the issues colonial administrators faced in running the observatories, as well as the crucial connection with other important scientific inventions and innovations like telegraphy, and;
3) discuss regional and global developments in the first half of the twentieth century, such as the emergence of a trans-colonial meteorol-



Figure 1: Nikolas Ynchausti at the conference, representing the Ynchausti Foundation (photograph: Maria Serena I. Diokno).

ogical community enabled in part by international scientific congresses on meteorology, the standardization of practices in observatories, and closer cooperation among colonial governments in the understanding of weather and climate.

While the focus was on meteorology, it became clear that the program needed to be expanded so as to include Siam (present-day Thailand) which was never subjected to colonialism, and India, where the professional observatories not only addressed meteorology and time-keeping—the common denominators of all Asian 'astronomical' observatories—but sometimes also conducted serious astronomical research, and even tidal, geomagnetic and seismological studies.

3 THE CONFERENCE

The idea of running an international conference on 'Asian Observatories' was developed jointly by the Department of History at the University of the Philippines Diliman and the SEASREP Foundation, with the Ynchausti Foundation as the Principal Sponsor. The SEASREP Foundation was founded in 1994, and from 2015 has concentrated on organizing seminars, workshops, conferences and research collaborations. So, a conference on Asian observatories was an ideal fit. For its part, the long-running Ynchausti Foundation (Figure 1) supports the Ynchausti Family's various philanthropic, developmental and social justice-oriented efforts in the Philippines, with a current focus on heritage and historical investigation, and livelihood and development. A conference about Asian observatories also was a perfect match for them.

The Conference was held on 27 February 2020 at the University of the Philippines Diliman (Figure 2), and attracted an appreciative audience of academics, historians and students. The scheduled program is shown in Table 1, with Zoomed papers presented by Drs Phuong (Vietnam) and Williamson (Singapore). Professor Kochhar from India was a last-minute 'no show'. All other presentations were given in person (see Figures 3 and 4).

4 PUBLICATION OPTIONS

Following the conference the intention was to publish the papers in a book, but this did not eventuate, complicated perhaps by the fact that neither Professor Kochhar nor Dr Nugroho[1] submitted manuscripts and Dr Williamson subsequently withdrew her submitted manuscript.[2]

In the end, the decision was made to publish the remaining papers in this journal (which publishes extensively on Asian and SE Asian astronomical history), and to include a paper about colonial Indian observatories by Kapoor and Orchiston in place of Kochhar's missing paper.[3] Meanwhile, in the interim Professor Kochhar passed away.

Accordingly, the following papers are included in this issue of *JAHH*: Alvarez (2023); Kapoor and Orchiston (2023); Miyagawa (2023); Orchiston and Orchiston (2023); Phuong (2023); and Zhu (2023). Missing are the papers by Nugroho (2020) and Williamson (2020)—and, of course, Kochhar (n.d.).

Figure 2: Here I am welcoming everyone to the conference (photograph: Maria Serena I. Diokno).



Table 1: The Conference Program, 27 February 2020.

08:50 am	Opening Remarks
	Maria Bernadette L. Abrera (Dean, College of Social Sciences and Philosophy, UP Diliman)
	Nikolas Ynchausti (Ynchausti Foundation)
	Maria Serena I. Diokno (UP Professor of History (retired); Executive Director: SEASREP Foundation)
09:15 am	Panel 1. Moderator: Jely A. Galang (UP Department of History)
	"Between Three Empires: The Manila Observatory, 1865–1945" by Kerby C. Alvarez (UP Department of History)
	"Fathers To Be Blamed: Media and the Public Accountability of Zikawei's Typhoon Warnings in Treaty-Port Shanghai" by Marlon Zhu (Institute of Modern History, Academia Sinica, Taiwan)
	Reactor: Ma. Florina Orillos-Juan (DLSU Department of History)
10:30 am	Morning Tea
10:45 am	Panel 2. Moderator: Jely A. Galang (UP Department of History)
	"Centres of Calculation?: Colonial Meteorology in Nineteenth Century Japan" by Takuya Miyagawa (Faculty of Environmental Studies, Hiroshima Shudo University)
	"Batavia and Lembang Observatories: Creation and Circulation of Science in Colonial Indonesia" by Uji Nugroho (Department of History, Universitas Gadjah Madah)
	Reactor: Ruel V. Pagunsan (UP Department of History)
12:00 noon	Lunch
1:30 pm	Panel 3. Moderator: Rhodalyn C. Wani-Obias (UP Department of History)
	"An Ocean Apart: Meteorology and the Elusive Observatories in British Malaya" by Fiona Williamson (School of Social Sciences, Singapore Management University)
	"The Role of Temporary Western Observatories in the Development of Professional Astronomy in Thailand" by Wayne Orchiston (National Astronomical Research Institute of Thailand) and Darunee Lingling Orchiston (independent researcher, Chiang Mai, Thailand)
	Reactor: Ma. Luisa D.L. Bolinao (UP Department of History)
2:45 pm	Afternoon Tea
3:00 pm	Panel 3. Moderator: Rhodalyn C. Wani-Obias (UP Department of History)
	"Servicing Colonial Exploitation: The French Establishment and Management of Phù Liễn Observatory, 1899–1945" by Hoang Anh Tuan and Nguyen Thi Hoai Phuong (University of Social Sciences and Humanities, Vietnam National University, Hanoi)
	"Astronomical Observatories in India in the British Period" by Rajesh Kochhar (Panjab University, Chandigarh)
	Reactor: Benjamin M. Vallejo, Jr. (Institute of Environmental Science and Meteorology, UP College of Science)
4:45 pm	Closing Remarks
	Neil Martial R. Santillan (Chair, UP Department of History)



Figure 3: A group photograph showing Nikolas Ynchausti (second from left), me (second from right), and all of the presenters, moderators and reactors (photograph: Maria Serena I. Diokno).



Figure 4: The speakers who were in Manila (left to right) were Uji Nugroho, Takuya Miyagawa, Kerby Alvarez, Marlon Zhu, Wayne Orchiston and Darunee Lingling Orchiston (photograph: Maria Serena I. Diokno).

5 CONCLUDING REMARKS

I hope that you enjoy reading these conference papers, which not only deal with nineteenth and early twentieth century meteorology in Japan, China, French Indo-China (Vietnam) and the Philippines, but also discuss Indian astronomy from a colonial perspective and explore what happened in Siam (present-day Thailand) in the absence of European colonialism and the presence of strong Royal patronage for astronomy (but not for meteorology). These papers, therefore comprise a valuable addition to the literature on Asian science, and they build on some of the material in books like *The Emergence of Astrophysics in Asia: Opening a New Window on the Universe* (Nakamura and Orchiston, 2017), and the Asian sections of *Searching the Heaven and the Earth: The History of Jesuit Observatories* (Udias, 2003).

6 NOTES

1. Those wishing to read about late nineteenth century and early twentieth century astronomy and meteorology in the Dutch East Indies should consult Braak (1945); Hidayat (2000); Hidayat et al. (2017) and Pyenson (1989).
2. Those missing Williamson's paper, can refer to two earlier papers she published about Straits Settlements and Singapore meteorology (see Williamson, 2015; Williamson and Wilkinson, 2017).
3. This is a particularly pleasing outcome. The original invitation that was accepted by Professor Kochhar was to prepare a joint Indian paper with Wayne Orchiston (drawing freely on the following paper: Kochhar and Orchiston, 2017). However, in the end Kochhar chose to pen the Indian paper alone (for reasons he never divulged to me or to Wayne Orchiston).

7 ACKNOWLEDGEMENTS

I am grateful to the Ynchausti Foundation for funding the Conference, and to my friends and colleagues at the University of The Philippines Diliman, and especially Dr Kerby Alvarez, for their assistance in making the conference a success—just two days before the Philippines COVID lock-down.

Finally, I want to thank Professors Wayne Orchiston and Shi Yunli for offering to publish the Conference papers in this issue of the *Journal of Astronomical History and Heritage*, and Wayne for arranging the Kapoor and Orchiston (Indian) paper and for his assistance in finalizing this short paper.

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