**Small Group Discussion Questions FYS 178**

15, 20 Oct. 2020 (Wks#10 & 11) Society, Technology & Weather

Questions for **Chapter 8** of “Appropriating the Weather…”

[1] After the war, Vilhelm attempted to “lay down a stable foundation…on which he could develop a school of meteorology.” For what organization was Vilhelm working during the “summer of 1918” weather experiment? What happened to the “Oceanographic Institute” and “Bergen Observatory” plans during the war? Did the establishment of a university in Bergen seem like a likely outcome to Vilhelm? Why or why not?

[2] What was Stang’s plan for improving the study of geophysics in Norway? Was his plan in line with Vilhelm’s goals? Why was Stang’s plan doomed to failure? What were some reasons that the time was right in 1919 for the national government to support a permanent weather service in West Norway?

[3] Vilhelm’s attempt to establish a permanent weather service at his Geophysics Institute in West Norway came in direct conflict with Birkeland’s plans at what institution? What changes to the “summer of 1918” weather experiment procedures did Vilhelm propose for the upcoming “summer of 1919” weather experiment? Why do you think Birkeland opposed these proposals? Who won the battle?

[4] Note two reasons that balloon observations of the upper atmosphere were still impractical in 1919. What did Vilhelm’s group use instead of balloon observations to get information about the conditions of the upper atmosphere?

[5] “By 1919 the technological possibility of creating a practice that focused on finer grained atmospheric structures arose as a consequence of \_\_\_\_\_\_\_\_.” Fill in the blank. Why did society need to have observations made of “finer grained atmospheric structures” in 1919?

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Questions for **Chapter 8** of “Appropriating the Weather…” (cont.)

[6] “Vilhelm Bjerknes and his assistants began in 1919 to focus instead on \_\_\_\_\_\_\_\_ and to comprehend them with models of \_\_\_\_\_\_\_\_ responsible for the observed weather.” {Fill in the blanks.} In a 1918 lecture, VB talked about “how numerous \_\_\_\_\_\_\_\_ had swept across the coast.” In 1919, he described how “a great number of \_\_\_\_\_\_\_\_...swept over our country.” {Fill in the blanks.} Why did VB and his assistants make these conceptual changes?

[7] In the modified cyclone model of VB and his assistants (Fig. 15), \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_ surfaces signified the physical boundaries between differing air masses (“surfaces of discontinuity”). Which surface corresponds to today’s warm front and which corresponds to today’s cold front? VB made an analogy between one of these surfaces and the Norwegian mountains. To which surface did the analogy apply and what kind of weather is observed along this surface?

[8] What were the technological limits to identifying the full 3D aspect of the surfaces of discontinuity (see Question [4] above)? In “The Sky as a System of Signs” section, what could help compensate for the missing [upper-air] data? What “characteristic signs” from folklore were incorporated into the weather observation code [p. 165]?

[9] How was Shaw’s cyclone model (Fig 19, 1906, 1911) similar to VB’s modified cyclone model (Fig 15, 1919)? What was a major difference between Shaw’s and VB’s models? Abercromby and Shaw noted surfaces of discontinuity (fronts) but treated them differently as scientists than did VB. How were they different?

[10] “Practice, to a very large extent, regulated the \_\_\_\_\_\_\_\_ of concepts and the \_\_\_\_\_\_\_\_ of observations.” {Fill in the blanks.} What “extraordinary talent” did Vilhelm possess that allowed the theory and practice of his disciples to lead the way in weather forecasting [p. 177]?