1. logical positivists’ empiricist view of sci – genuine scientific knowledge is empirically testable/ verifiable in experience – science should be applied in society. – 2 types of view of science – 1. Anti-metaphysical: free of metaphysics 2. Empirical: empirically based, or relatable to experience – science should be free of metaphysics – metaphysics = theory of what exists – theories of existence go beyond the observable (e.g. existence of God) – metaphysical statements are meaningless because they go beyond the empirical. – method of logical analysis that essentially distinguishes recent empiricism and positivism was more biological-psychological in its orientation. – why so? When people assert “there is a God”, we cannot say to him that what he said was wrong, instead we ask them what they mean by their statement. – this then showed a broad difference between 2 kind of statement, first being empirical statement where their statement is determined by logical analysis. Second being statement who they reveal themselves as meaningless, or in the way that metaphysicians intend. – Logical positivism & tech – tech is applied science – broad view of science – includes not only logic and math, but also the ‘new philosophy’ logical analysis – science should be applied for the benefit of society – “The attitudes toward questions of life also showed a noteworthy agreement, although these questions were not in the foreground of themes discussed within the Circle. These attitudes are more clearly related to the scientific world-conception than it might at first glance appear from a purely theoretical point of view. For instance*, endeavors toward a new organization of economic and social relations, toward the unification of mankind, toward a reform of school and education, all show an inner link with the scientific world-conception…* these endeavors are welcomed and regarded with sympathy by members of the Circle” (p. 304) benefits of a non-metaphysical & logical attitude – encourage social change and discourage prejudice – ‘the logical clarification of scientific concepts, statement, and methods liberates one from inhibiting prejudice’ (316) – instrumentalism about Tech – tech is a value-neutral instrument – tech can also be applied to society to facilitate human goals – society should deliberately plan how technologies will be implemented in society.

2. role of tech in sci hasn’t been sufficient recognized – for Greeks, the knowledge obtained through reason unchanging essences (which also known as by nature) is superior – for instance, Pythagoras proved that Pythagorean triple, the whole number solutions to the Pythagorean theorem in purely abstract and math way – the lack of self-contained and self-sufficient causes inconsistency and instability of the proof of lack of being – the lack of inherent natures or essences, which it’s highly dependent on the changes on circumstances and surrounding – knowledge by arts are also known as sense-perception and opinion, sense knowledge and opinion are inferior forms of knowledge – reason they are more inferior is their nature are so mutable and cases itself to be unstable and therefore it is unreliable

Knowledge by nature should be replaced by knowledge by art – knowledge by nature is by theorizing – knowledge by art is by experimenting, based on practical experience. “the arts are concerned with production, with generation, with doing and making.” Dewey p.373 – “moreover, science is assimilated to the conditions defining an art by the fact that, as in the case of any industrial art, production of relevant and effective consequences depends upon the use of artificially designed appliances and apparatus as a means of execution of the plan…” 373 – Dewey thinks that knowledge by art is obtained through experimenting, which is more on practical experiment after lots of trial and error and with helps of tools – dewey thinks that the scientific revolution is a turning point/ transition of knowledge by nature to art. – during the scientific revolution, investigators start to borrow apparatus to obtain dependable scientific data. i.e. use of telescope is proven to revolutionize the sci of astronomy, as we use telescope to observe stars and planet instead of theorizing it. Also application of scientific conclusion and methods liberated production from the state – a state justifying use of the adjective “empirical” in its disparaging sense. Without demonstrated anchorage of this sort, no matter how well the system is organized despite its consistency, it is still “theoretical” in some sense of being hypothetical.

3. The essence of tech

-is by no means anything techy – essence means something that we consider to be what the thing is – modern tech is means to an end

If we inquire, what technology is, then we will eventually arrive at revealing. Tech is a way of revealing, a realm of revealing for example truth. Modern tech is also a revealing. Only when we allow our attention to rest on this fundamental characteristic does that which is new in modern technology show itself to us. The revealing that rules in modern technology is challenging. It puts an unreasonable demand to nature because it supplies energy that can be extracted and stored. This has sets upon it in the sense of challenging it. i.e. agriculture can be considered mechanized food industry. The revealing that rules throughout modern technology has character of a setting-upon, in the sense of challenging-forth. But the revealing never simply comes to an end, nor does it considered indeterminate.

-essence of tech is a basic desire to control nature (enframing) -Mode of perception (revealing) associated with this essence = views nature as resource to be effectively used (challenging) – Nature – a resource to be extracted and stored (standing Reserve) – **revealing** is: 1. A certain way of perceiving the world. 2. Different ‘modes of revealing’ = different way of perceiving and understanding. 3. different modes of revealing (e.g. poiesis versus challenging) are limited in what they can reveal. – there 2 modes of revealing, first one is poeisis – pre-modern i.e. poetry and crafts – reveals the particularity of things – 2nd is challenging, Modern – associated with modern tech – reveals how things can be used as a resource.

**Challenging** – mode of revealing associated with modern tech – views things in terms of how they can be effectively used, or as resource – ‘the revealing that rules in modern technology is a challenging, which puts to nature the unreasonable demand that it supply energy that can be extracted and stored’ p.14 – challenging g= industrialist / capitalist way of viewing nature. **‘Enframing’** – basic mood or attitude characteristic of the techy age – ‘framework’ or ‘value-orientation’ towards the world. – desire for precise, ordered, controllable knowledge of nature