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Instrumental Instruments

The idea that studying the scientific tools throughout history is not as obvious as it may seem on the surface. The need for understanding such artifacts is apparent, but there are many layers to the study of the history of scientific instruments. Most historical instruments are housed within museums or collected by wealthy private collectors. Many of those within museums are collected and catalogued by archaeologist and not historians. However once historians make their way into the collections they can begin to construct the history surrounding the object.

Studying scientific instruments can lead to new interpretations within the canon of the history of science. Improvements in later model mathematical or astronomical devices could show, or at least support the idea, that the study of mathematics or astronomy was growing more sophisticated. If certain objects have survived in large number an indication of popularity might be revealed. Comparing similar devices from geographical distinct areas may allow a comparison of science between cultures where the literature remains silent.

Having historical scientific devices that still function or at least can be used as models to build functioning replicas can allow historians to see what manner of problems and solutions that historical figures were dealing with. Experimenting with movements and calibrations may allow for the tracing of instruments across trade routes. Is a particular gradation endemic to a certain area? Does it appear in another later? These are

all questions that could definitely be asked and possibly be answered by the study of scientific instruments.

Studying scientific instruments is not an exercise without pitfalls. The nature of instrument survival leads to a bias in the sources. Everyday tools are generally used until they break, or become obsolete and are thrown away or recycled into something new. Only the very ornate pieces of many scientific instruments have survived to modern day. While these artifacts take the guise of a practical instrument, it is obvious from their decoration that they were intended to be on exhibit not in the field.

Can studying surviving decorative instruments give researchers the same amount of information, or confidence as the study of a well worn or worn out piece? If one views the interpretation of the history of scientific instrumentation as a purely practical function then the answer is probably not. At least, when studied from a practicality standpoint, the results may be a more narrow than is probably warranted. The same can be said for ascribing purely ornamental provenience onto an historical instrument. Stating that a particular historical figure possessed a golden compass or decorative astrolabe as a sign of status or position does not reveal the entire story either.

Do the advantages of studying the history of scientific instruments outweigh the disadvantages? The short answer is yes. However, scientific instrumentation cannot be the sole defining argumentative position for any hypothesis. Just as one source, or type or source can be used to build a complete historical picture, the study of instruments alone will not provide a convincing case. The benefits of scientific instrumentation studies come when many sources are available and several of the artifacts can be studied. The

survival of astronomical instruments, mathematical tools, and other tools add another facet to the history of science, but falls short of standing along as a subsection of it.

The fact that certain instruments have survived and can be studied adds more data to certain historical interpretations, but the absence of instruments does not necessarily hinder historical research. If scientific instruments are available for study, they can only add to the body of historical knowledge and that is the greatest benefit of studying them. Since most scientific instruments do not survive to present day, or only a biased sample has, they are not useful in all cases. Scientific instruments should be studied when they are present, but the lack of scientific instruments should not negate or profane an historical account.