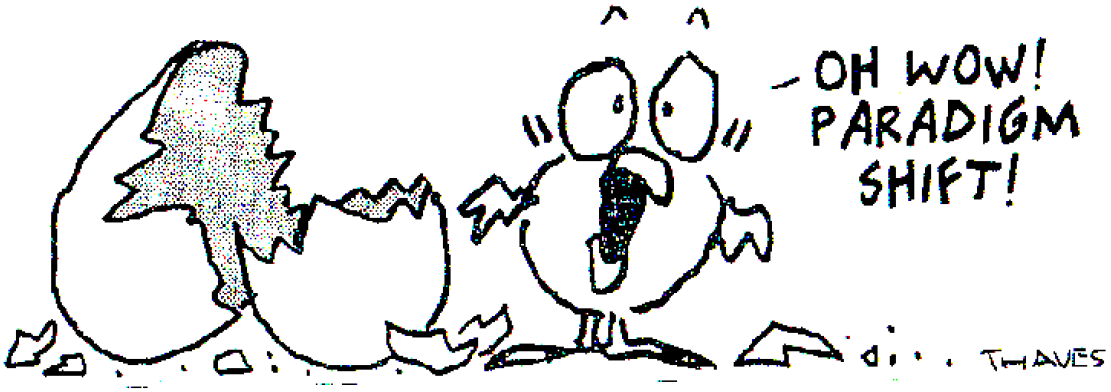


WHAT IS A PARADIGM SHIFT?

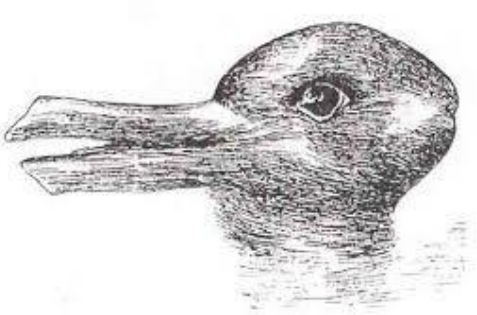
The term "paradigm shift" is often appropriated by observers noting changes in religious beliefs and practices, marketing strategies, ideological orientations, entertainment trends, fashion, economic systems, and many other shared aspects of our lives. Essentially, a paradigm shift is a fundamental change in approach or underlying assumptions. Its popular understanding appears on the chalkboard, which highlights the notion that a paradigm shift is not just a change, but one in our understanding of how things work in the world.

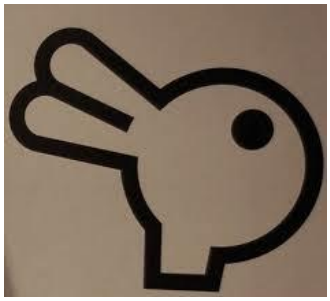
The concept actually has even richer, more specific origins in the work of historian of science Thomas Kuhn. Kuhn adopted the word "paradigm" from the Greek term that meant, simply, "example". According to Kuhn, scientists comprise communities of individuals who model themselves upon the same sets of examples. By adhering to the same basic principles and modes of operation, these community members are able to interact with each other, understand each other, and work on shared projects. In Kuhn's view, paradigms shift whenever the community's understanding of "normal" becomes contested ground. Science offers myriad illustrations of times when fundamental, underlying beliefs and practices were challenged, debated, and, ultimately, changed.

Scientists tend to operate through times of relative peace and stability -- eras when methods, goals, and procedures are more or less agreed upon -- punctuated by periods of dramatic revolution, according to Kuhn. Indeed, as Kuhn reminds us, Enlightenment philosopher Immanual Kant coined the term 'scientific revolution," which we all know, to represent the moments when new ideas displaced old and were then generally accepted as mainstream tenets of scientific thought. One dramatic example of this type of revolution was the transition in cosmology from a Ptolemaic one (geocentric) to Copernican (heliocentric) in 15th century Europe. Though astronomers risked burning at the stake for heresy like Giordano Bruno, for centuries, they still covertly exchanged secret documents positing heliocentrism. This persistent search for scientific truth would eventually displace Earth as the center of the mapped universe."

Finally, the Copernican view became standard (and safe to use!). The transition from Newtonian Physics to Eisenstein's more relativistic view was another point at which scientists found themselves in the midst of tumult.

We can personally experience this sense of a shift in orientation and perceptions coming in a relatively rapid revolution by checking out these drawings (you may have seen some before on social media as they have become quite popular). Notice the time it takes from when you first start looking at the picture to when you become visually disoriented. Then, note the time from when you first start sensing that a different picture may exist as well until the point at which you are able to easily see two images and flip back and forth between them (in most people this is very fast-action).





A major argument that Kuhn posited was that science, like other discourse communities, has a distinct culture and set of practices and ideals to which participants adhere. This challenges the belief that science is stable and unchanging. The above images, similarly challenge the notion that what we perceive with our vision is always an immutable "reality".

To better understand the ingredients that go into a paradigm shift, it might be helpful to introduce a new concept: **world view**. A world view is a particular philosophy of life and conception of the world…and we all have one. Some of it is socially and culturally constructed – developing through our conversations with others and participation in groups. Some parts of our world view may, however, have emerged from internal analysis. Let's take a minute and try to identify some of the components of our own world views. Here are some particularly important areas to assess:

1. An explanation of the world and how it works – mechanical, supernatural, as a series of linked living organisms?
2. A futurology that explains where you think you and others around you are heading.
3. Values and ethics that guide us when we ask questions about what we "should" do.
4. A methodology or theory of action that determines how we should go about attaining goals.
5. An epistemology or theory of knowledge about how we decide what is true or false.
6. An etiology or an account of the building blocks that helped us to form this view and make cohesive sense of it.

Activity: Try answering some of these questions and write up a short paragraph describing your world view. Then discuss it with classmates.

Now that you have a sense of what comprises individual world views – methodologies of practice, ethics, reality checking and future orientation, for example – turn to considering the ways that whole communities often share enough aspects of their world views that they are able to communicate readily with each other. Look for areas of linkage between the individual and their community.

Returning to science, practitioners explicitly strive to create replicable experiments, for example, and strive for objectivity. They take into account the utility of their findings for the future of others. They discuss ethics and describe the order of the world around them using sets of agreed upon terms.

Imagine the upheaval and confusion that erupted when scientists, who had been creating and sharing maps of the stars and planets with the Earth resting at the center, came to realize that the majority of their peers had changed directions. After much drama, they found a "new normal" upon which to base their scientific theories and practices

When Kuhn supported his arguments, he referenced psychologist Jean Piaget who opined that children – like science – tend to have periods when they are developmentally stable, punctuated by more dramatic transformations. Speaking of psychology, that field, like science, has undergone several significant paradigm shifts. When Freud introduced and lobbied for psychoanalysis and talk-therapy, he swayed large groups of psychologists to adopt psychotherapy as a theory and practice. Almost a hundred years later, in the late 20th century, we see another shift – this time away from many practices and towards a system in which psychiatrists often work, primarily, as chemists and medicine providers.

It is interpretations such as this that remind us of ever broadening uses of the concept until many analysts jumped off ship, so to speak, and began identifying paradigm shifts in all sorts of eddies and waves. Fields as diverse as technology, marketing, economics, fashion, and politics, among others, were defined by observers as undergoing paradigm shifts. Economists, for example, point to a paradigm shift unfolding when Adam Smith criticized Mercantilism – the notion that governments should regularly intervene in markets to advance their own nation's interests – and argued that a free market system would more justly set prices and order the economy. The term "paradigm shift" essentially underwent a paradigm shift and came to be applied not only to science, but to many aspects of life. The examples pulled from its roots, however, in science, help us to understand the complexity of this type of analysis.

CHOOSING AND ANALYZING YOUR OWN TOPIC

Paradigm shifts can be inspired by new ideas – Smith's for example, new ways of doing things -- the shift to talk therapy, and new technologies -- the shift to using psychiatric medications. You want to be sure that what you identify is not simply a change, but a paradigm shift that reflects significant transitions in world views. The shift, in the 1920s, for example, from women wearing long skirts to short ones is *not* a paradigm shift. It is, however, a great symbol of a major paradigm shift in the way that femininity, female sexuality, and physicality were being understood during that decade. A great paradigm shift analysis would address some of these changing views and use the fact that short skirts became acceptable as evidence to support the shift's existence and impact on everyday life.

One topic with which we are all familiar is, of course, the shift to smart phone usage, bringing fast messaging, music, games, and the entire internet literally to our fingers. This is such a readily apparent example that it has become a bit hackneyed. This means that you shouldn't choose this type of topic – one that many others have already analyzed – unless you really have some special new insight,

experience, or research to add to the discussion. Have you interviewed, for example, the first person to own a smart phone in your state, or surveyed a large group of late adopters who don't yet have one? Did a smart phone save your life? If not, then you might want to aim for a more innovative topic so that you can add genuinely novel insights into the discussion.

If, indeed, you did do some extensive research into smart phones, then you would want to tie them in to larger understandings of paradigm shifts. Talk about exactly when, how, and why they changed the way we think about and operate in the world. Look at how they are used (practice) and consider how they change the ways we know about the world (epistemology) and think about our role in it (ethics) and how it was constructed (etiology) or where it is headed (futurology), among other aspects. Then think critically about the way that this change happened in the context of communities. One person's world changes when they have a smart phone, but the world entire also shifts when many do. You may focus on an individual's (even your own) transformation in world view, but then need to tie it into larger shifts in a community or communities.

To begin, you will want to clearly identify a change: a revolution. What were conditions before the paradigm shift? What actually changed during the paradigm shift? How can you tell that a shift happened when you look at the conditions after it took place? In your introduction, you will want, *most importantly*, to demonstrate that this shift is interesting and relevant. Bring it to life for readers, get them excited about learning more about this important transformation. You will also want to explain what *you* will be doing that makes your analysis a *new and vital* part of any existing conversations about the shift you find (this means we'll need to identify, through research, any concurrent discourses on the topic...that's coming up soon). That's a lot of pressure for an introduction…but, remember, this is probably the single most important paragraph or two in your essay! It's where you hook readers and persuade them to keep reading.

In subsequent early paragraphs, you will probably want to elaborate on the shift and the topic – provide vivid details and explain how and why you think it happened. Consider returning to our discussion of world views for suggestions on areas that you might explore.

Along the way you will be very reliant on *good examples to illustrate* your shift and the conditions that existed before and after it. You will find these through both observation and *research*.

You want to spend some additional time identifying any other key participants in discussions about your topic and explaining how you add to the conversation: do you agree with certain thinkers, challenge others, or present totally novel views?

Ultimately, you will want to *analyze* your shift. Depending on your topic, there are different areas upon which you might want to focus: the causes that you believe fueled the shift, the way the shift influenced future developments, special qualities of the shift, or a comparison of the shift to another major change, for example.

Because a paradigm shift is a chronological change over time – there is a before, during, and after, even if the shift was recent – it is essentially a **historical argument**. We will now turn our attention to the field of history, meet some historians, and learn about how and why they do what they do. This will better enable you to identify a significant paradigm shift, demonstrate that it happened through *evidence*, come up with *key questions* to ask about it, see what others have said, and analyze the impact.