Great Experiments in Psychology
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Module 1
Lecture No 1
History and Origin of Psychology

Hello everybody, welcome to the course on Great Experiments in Psychology. In the first week of this course we shall cover the history and genesis of psychology as a science and today in the first lecture of the first week we are going to cover the history and origin of psychology. Now why is it important to study history? History tells us a lot about how we have developed and why we are, what we are.

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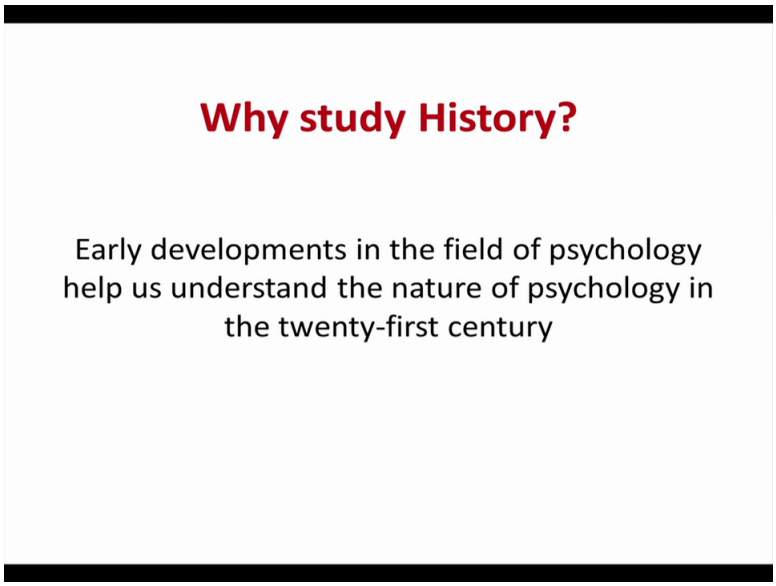

So the early developments in the field of psychology help us understand the nature of psychology in the 21st century as we see it today. How psychology has developed as a science from different roots, we will try and explore them in this lecture today. So to consider the development of modern psychology, if we go back to its roots, then we see that psychology is covered in this within a span of more than 200, 2000 years apart.

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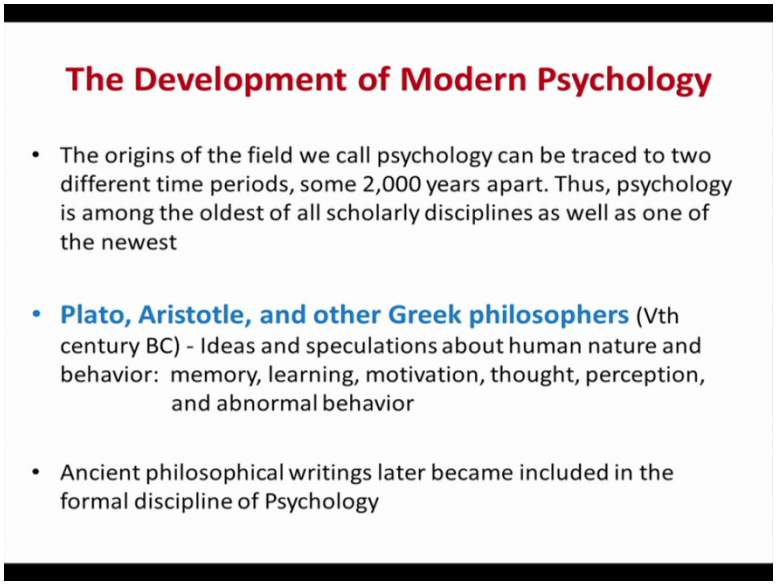

So the origin of the field can be traced in two different periods, so one would be it around the time of Plato, Aristotle and other Greek philosophers and then we come to the modern philosophers in the 18th and 19th centuries. So Plato and Aristotle and other Greek philosophers that is during the 5 century BC, they had ideas and speculations about human nature and behaviour and their discussions and discourses covered areas of memory, learning motivation, thoughts, perception and even abnormal behaviour, and all these philosophical writings have become the roots of the formal discipline of psychology that we know today, so we can always say that psychology is one the oldest discipline as well as one of the newest sciences, so since its spans over so many years apart.

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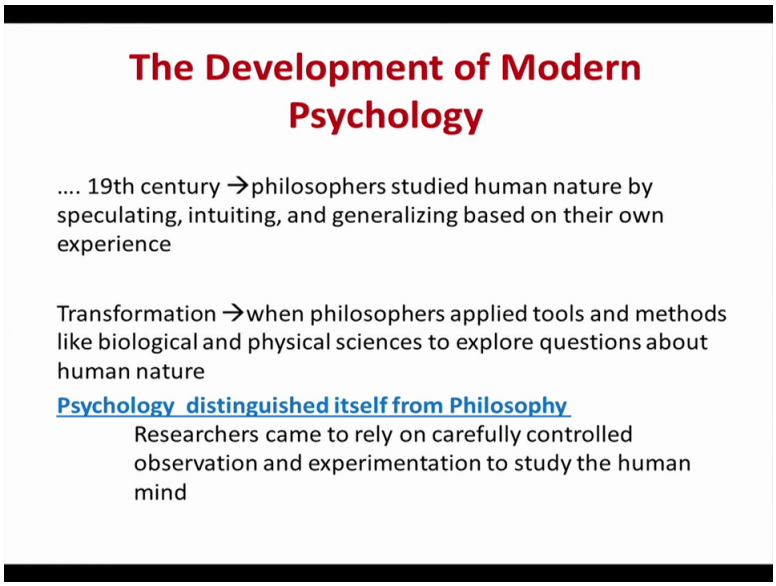

What happened during the 19th century is philosophers started studying human nature by speculating, intuiting and generalizing based on their own experience. Now we will get to understand that how this transformation came about. This is because primarily when the philosophers started using different tools and methods that were already being used in the biological and physical sciences and to explore questions related to human nature. So in this way psychology distinguished itself from the field of philosophy. Now researchers came to rely more on carefully control observation and experimentation for the study of human nature. We will explore this genesis over time and we will see how the most of the philosophers actually address such questions.

So Kurt Danziger, who is one of the famous historians who covered this spectrum of psychology says that the early philosophical questions or early philosophical conjectures and discourses during the 5th century BC and onwards can be considered the prehistory of modern psychology and to quote him he says that, "history of psychology is limited to the period when psychology recognizably emerges as a disciplinary subject matter and that it is extremely problematical to talk about psychology as having a history before that".

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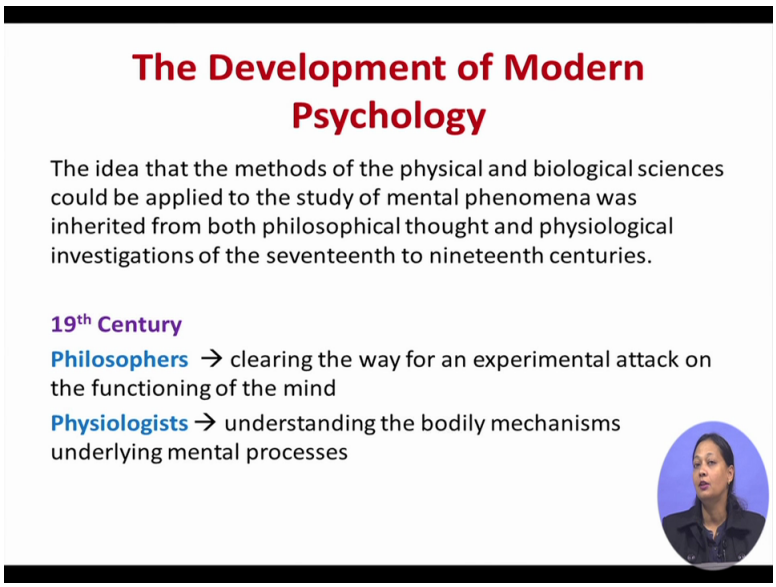

And that is why he says of psychology having a prehistory, so then we talk about the history of psychology, so coming back to the development of modern psychology we see that the idea that the methods of that are being used by the physical and biological sciences being applied on mental phenomenon and these thoughts along with the philosophical thoughts were inculcated to this new branch of science in the 19th century. Now, how did that happen? The philosophers were clearly looking towards an experimental way of approaching the

mind. So far it was what is mind now it became where is the mind, so how do we tap the mind, what are the areas the we need to experiment on to understand that mind exists and physiologists were already tapping on the bodily mechanisms underlying the mental processes.

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So there was a lot of experimentation that was going on with the brain and with different parts of the body who understand the behaviour mechanisms as well as to understand other mental processes. So, now to understand the philosophical influences on psychology we start with the mind-body problem and that brings us to Rene Descartes who was there between 1596 and 1650.

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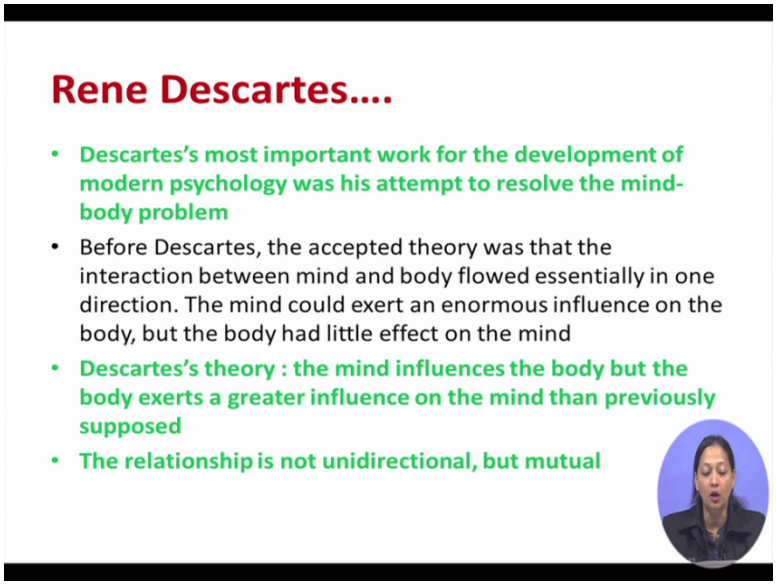

Now Descartes most important work was for the development of the modern psychology which is tempted to resolve the mind-body problem. So before Descartes so did we not discuss about the mind-body problem, of course we did, but the accepted theory was that the interaction between the mind and body is essentially from one direction. So it was from the mind the information was passed on to the body and the body acted on it. The mind could exert an enormous influence on the body, but the body have little effect on the mind and that is how the people before Descartes thought. Descartes theory contradicted this and he said that the mind influences the body, but the body also exerts a greater influence on the mind than it was previously supposed and that the relationship thus is not unidirectional, but it is a mutual interaction between the mind and the body.

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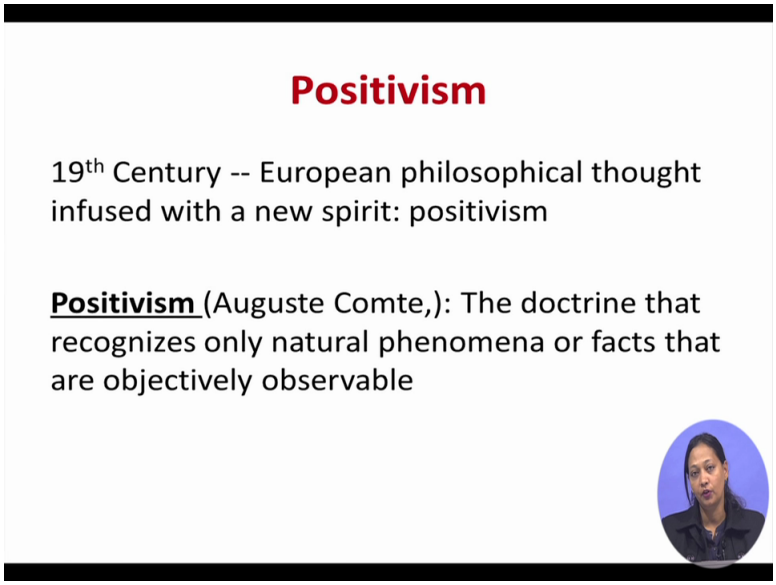

Now, this brought about another famous philosopher of the 19th century called Auguste Comte and Auguste Comte brought in with him the theory of positivism, what is positivism say positivism suggest that this doctrine recognises the only natural phenomenon or facts that are objectively observable. So we can actually see that how the development of science is influencing the philosophers, so people are looking towards expressing their thoughts on a more objective way and positivism showed infused this new spirit in society.

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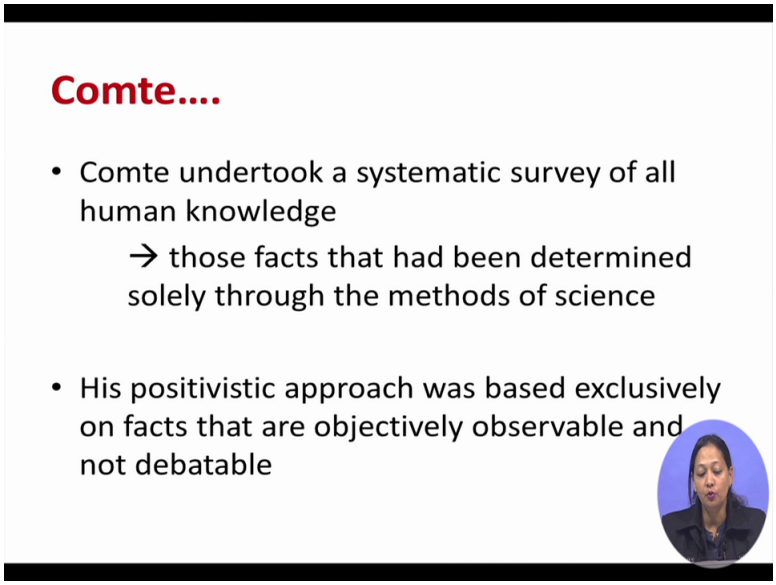

Now Auguste Comte was there between 1798 and 1857 and Comte undertook a systematic survey of all human knowledge, so he said that the facts that had been determined solely through the methods of science can be considered as facts, rests are all illusions. So this was so what is objectively seen what is how do we understand facts, it has to be objectively observed and it is not debatable.

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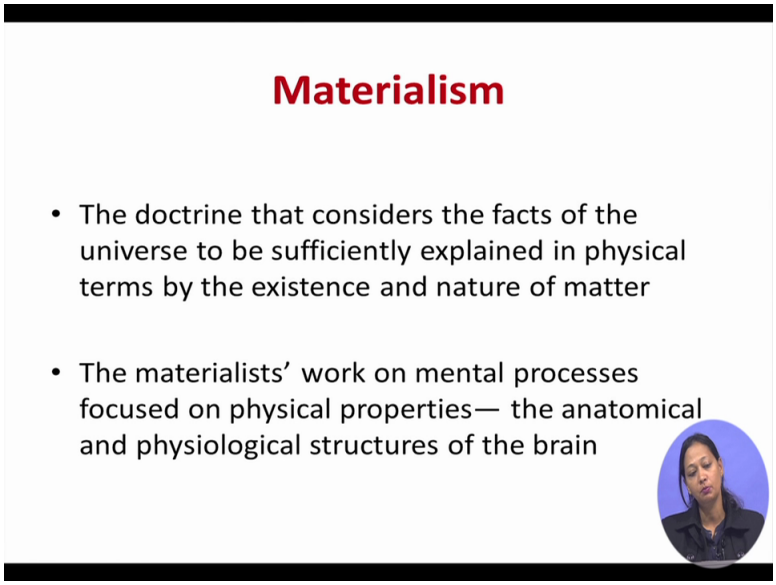

So, this is what was Comte's idea about understanding the human processes and human knowledge. Thereafter, came about another major principle that influenced the philosophers of 19th century, and this is termed as materialism. The doctrine of materialism considers the facts of the universe to be sufficiently explained in physical terms that is by the existence and

nature of matter, so what exists is tangible, it can be seen and it can it should have physical properties and so we can actually experiment on them.

So as you can well understand the materialists work on mental processes focused on the physical properties. So the question of what is mind was being converted to the areas where we tap the mind, so we were starting to construct ideas about the brain having an importance role to play in human processes and mental processes and behaviour human behaviour, so the anatomical and physiological structures of the brain and the functions of the brain also became an important part to study during the 19th centuries, so basically during the 18th and 19th century and this also had a major role in the development of psychology.

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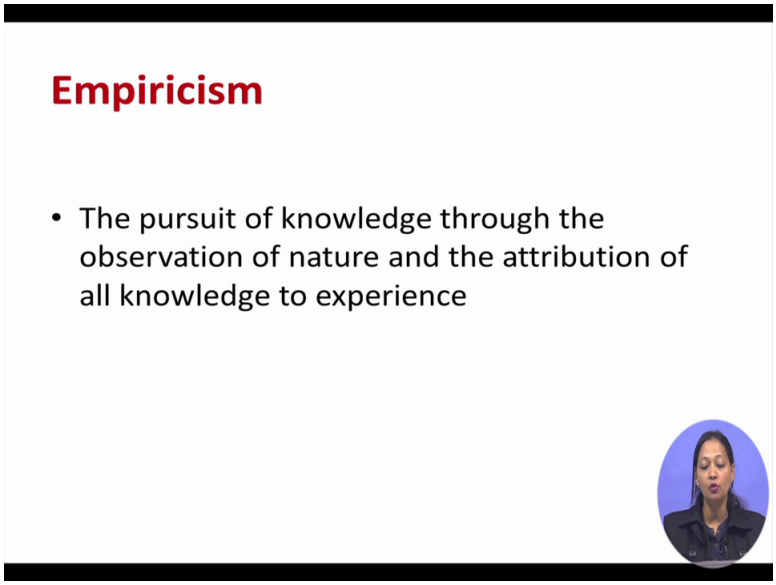

Now, that brought about another doctrine known as Empiricism, now empiricism states that the pursuit of knowledge through the observation of nature and the attribution of all knowledge to experience. So as you understand, comparison has a major influence of psychology primarily in experimental psychology where we focus on survey of observation and recording their different experiences by observation. So this is where this is how this theory or the history of psychology had begun to develop, so we see that it came in the thoughts and ideas were already present from centuries ago, but it was taken a formal shape during the 18 and 19th century where the philosophers and the psychologists and the physicists were coming together.

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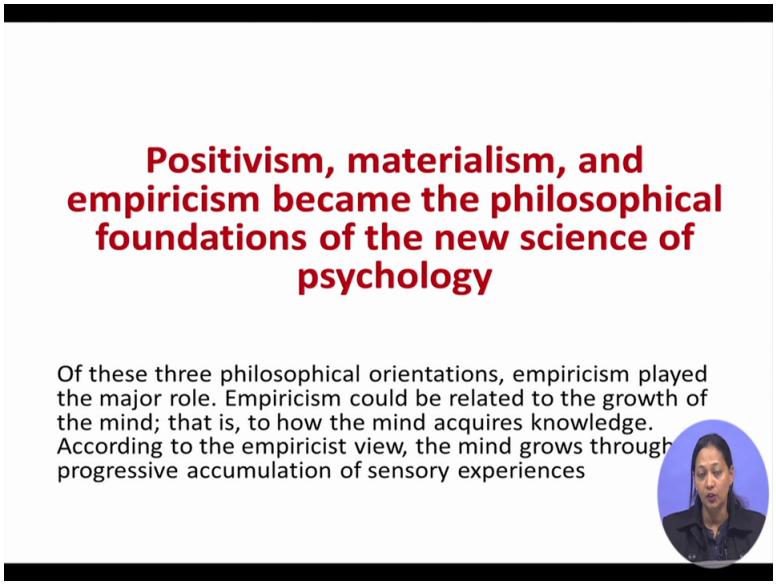

So it is not about an individual group of science but it is about everybody coming together to form the new science who understand human behaviour and that is how psychology emerged. Now getting back to the different domains, so positivism, materialism and empiricism became the new philosophical foundations and as we understand they brought about the domain of new domain and new science of psychology.

So of these as I mentioned, empiricism played major role especially because it could be related to the growth of the mind and that is how mind could acquire knowledge, so according to the empiricism the mind goes through the progressive accumulation of sensory experience as you can understand again the word sensory experience would be taped by experimentalists who actually identify the specific areas in the human body that could tangible, that could you measure and that could be addressed in an experimental In a scientific way.

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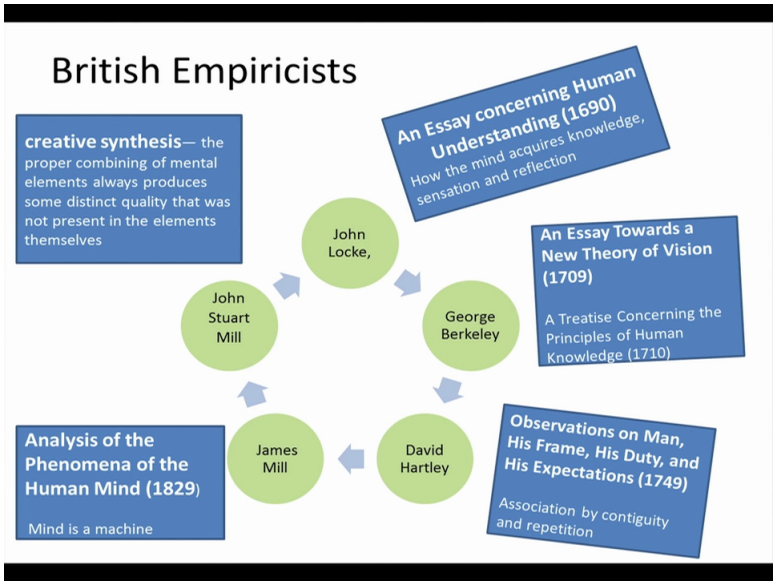

So this is the era of experimental psychology, this is the era of development of psychology as a science with an entity of its own, development on psychology as a new discipline of science. And this you know we got to see several British empiricists in this time who were really concerned about the human brain, human mind and its problems and of the most famous one that we can talk of is John Locke and his and he has one of the his infamous essays, which was an essay concerning human understanding and its named an essay concerning human understanding, it was written in 1690 and this spoke about mind, how the mind acquires knowledge, sensation and reflection. So we come into principle terms in psychology where we will see in the later classes how these h different factors have been addressed.

Then came in Berkeley George Berkeley who wrote an essay towards new Theory of Vision and this actually see its some of the biologists coming into the picture, some of the physiologists so also who started writing on identifying that what we actually see is not only a part of the perception process, but it requires some of the major mechanisms of the brain. So how so we started linking perception with different experimental different structures and functions of the brain. So it was becoming more tangible and his work Berkeley's work was more on principles of concerning principles of human knowledge. Now next came in Hartley whose observations on man, his frame, his duty, and his expectations is very famous and his work showed so this is also the beginning of the theory of behaviouralism where he his work focused on reputation.

So he worked primarily on the associations of contiguity and reputation and later when we study Watson and Skinner, we will see the important role of this played in the theory of behaviouralism. Then came in James Mill who spoke about human mind as a machine, so analysis of the phenomenon of the human mind is one of his famous work and here he speaks about mind as a machine.

Next is interesting empiricists one of his who happens to be James Mills son is John Stuart Mill and John Stuart Mill in his biography writes very interesting things. James Mill believed that if you would train a human being in a certain way, then he would definitely develop certain characteristics it is just the way you bring up a child. And John Stuart Mill his son another empiricists was brought up in a very strict regimented of fashion and he had 18 hours of work academics and by and he had to rigorously undergo a lot of academic work to develop a scientific brain that is what James Mill thought that you have to give a child that amount of knowledge.

So external knowledge was provided to him and Stuart Mill later complaint of lot of issues and grievances against his father James Mill and where he thought that his creative knowledge had not been tapped on and probably that is one of the reasons why he worked on creative synthesis and which speaks about proper combining of mental elements and that produces some distinct quality that was not present in (())(15:45) himself. So the Stuart Mill speaks about an individual developing those elements taking these elements integrating them and bringing out something which is very different from the (())(16:00) himself and that is where he spoke about the creative synthesis. So these were the major empiricists that have had a major influence in psychology and now this brings us to the physiological influences on psychology.

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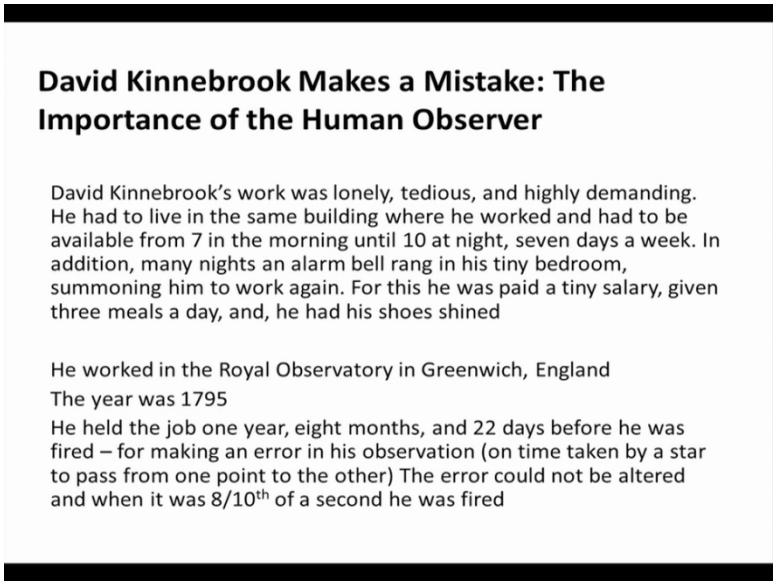

So to start up with I will talk about a very interesting case that of David Kinnebrook, David Kinnerbrook held the job that was one of the most boring jobs of that one can think off. His work was in he was lonely, tedious and highly demanding job. He had to live in same building where he worked and had to be available from 7 in the morning until 10 at night, 7 days a week. Mind you he had no holidays, he had no other entertainment and he would be called on days at other odd times also. So there were many other times when he would be called to work even and he had to go from his bedroom. The only perk that he had was his shoes were shined so by that was one of the tokens that he got. So and he got a tiny salary along with 3 meals a day. Now this work was in the Royal Observatory in Greenwich in England and this is 1795. So why is David Kennebrook's work so important why am I talking about him.

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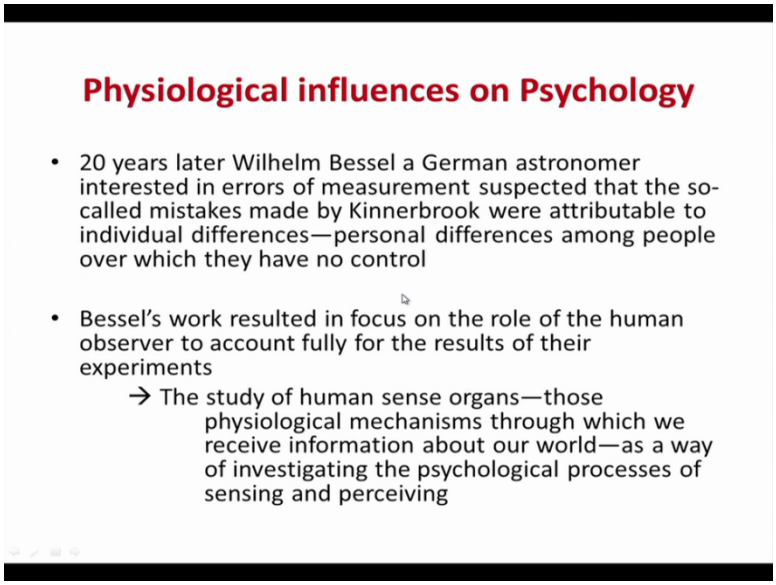

One of the major reasons is even David Kennebrook did not know that he would have such a huge influence in the development of psychology as a science. He held his job for one year, 8 months and 22 days before he was fired and why was Kennebrook fired? He had made a mistake and what was the mistake, his work was to observe the movement of a star in one point to the other, but he had made a mistake in that and his boss who was a very famous astronomer of the time was really angry and what was the mistake. His mistake was to correct his mistake he did not correct it and that is why even though Kennebrook was a very sincere individual he had to be forced asked to leave, so he was fired.

Twenty years later Wilhelm Bessel another German astronomer was interested in errors of measurement suspected that there was something wrong and Kennebrook had not intentionally made that mistake. So he started studying individual differences in astronomical calculations and that is important because several astronomers were having different kinds of reporting stand. So Bessel thought that this one of the reasons for that must be individual differences it is not intentional, it was a difference that was because of some process some changes in the brain and he termed this as personal differences among people over which they had no control. Now Kennebrook after being fired happen to be a teacher in a school and he did not realised that his work would have such an influence on psychology.

Bessel showed that the role of the human observer actually is important, so when we are discussing or when we are talking about astronomical science. Now this brought about the study of human sense organs and those physiological mechanisms through which we receive

information about our work. It is important to understand the psychological processes of sensing and perceiving. I was just talking about sensations and perceptions earlier on, so this is a first time that we are actually getting into the core physiology of sensation and perception.

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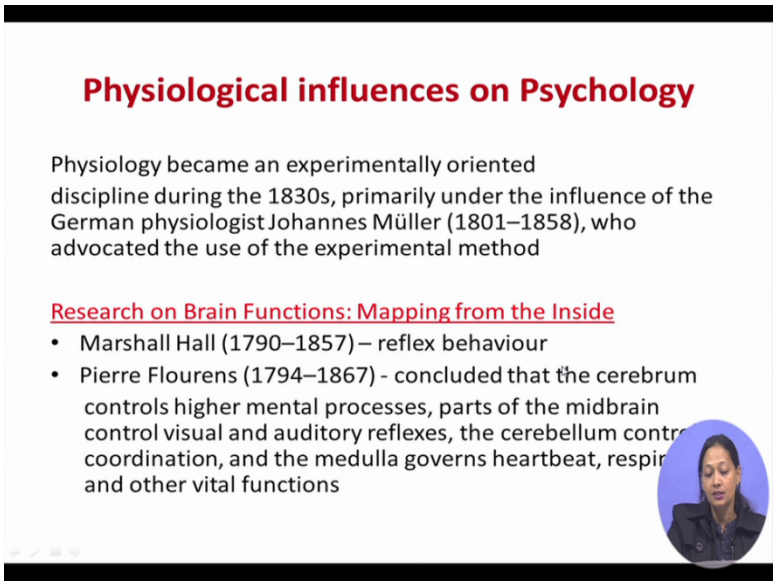

So now physiology as you can see is now gradually becoming experimentally oriented and this discipline during the 1830s, primarily under the influence of Johannes Muller advocated the use of experimental method. So now initially the mapping of the brain started from mapping from the inside and what they would do is, there were people who use a method of (()) (20:44) where they removed one part of the brain to see how it is been influencing the actions on the organisms. So he started with pigeon and other animals, so Marshall Hall worked on the reflex behaviour, Pierre Flouren who concluded that the cerebrum he worked on pigeon and he removed each small parts of the brain and he saw that the cerebrum controls higher mental processes, parts of the mid-brain controls visual and auditory reflexes and the cerebellum controls coordination, and the medulla is responsible for heart-beat, respiration and other vital functions.

If you are a student of psychology or if you are a student who has an interest in the brain sciences you will realise that this is still believed today, so think about this that during the early 1800, 1800s they were already talking about such advancements to understand the importance of brain in several of the human functions.

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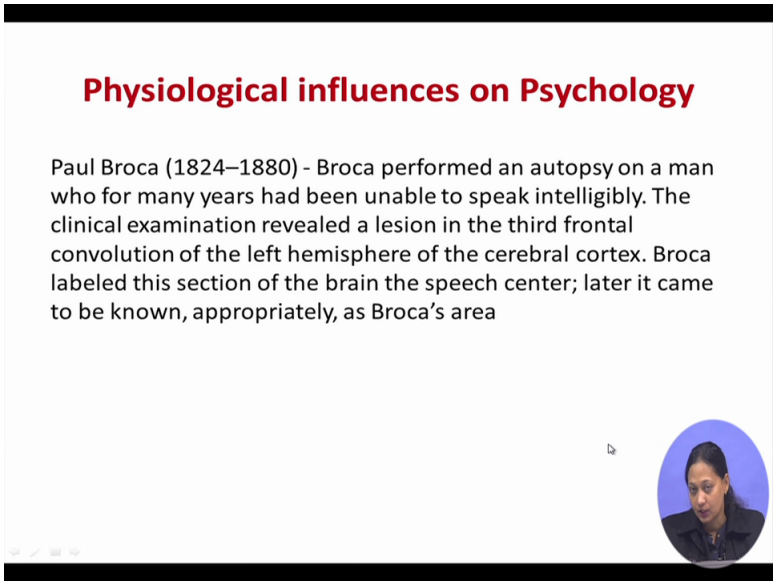

So next came in Broca and Broca's role is irreparable or I should say it is it cannot be challenged in physiology as well as psychology and Broca performed an autopsy on a man who had for many years had been unable to speak properly intelligently so he could not be understood by others and after his death when Broca did an autopsy he realised that there was a lesion or an injury in the third frontal convolution of left hemisphere or I should be very, to simply put on the cervical cortex.

So this area became known as Broca's centre or speech centre of the brain, so Broca's area or the speech centre of the brain is very important an area that actually affects how we speak, so there were of course other areas they were tapped later on. One of them majorly known as Wernicke's area, but Broca's area has led to a lot of work to be done on how human beings understand language, how human beings speak and if there is a damage between the association areas between Broca's areas and other areas like the Wernicke's area then how language is affected.

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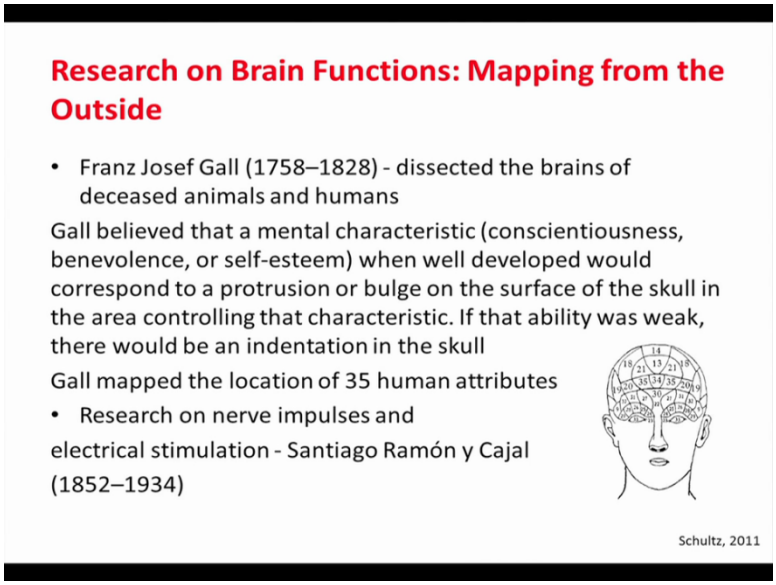

So actually, we get to see that these have a major role in psychology later on, so students of psychology attending this course you will know this very well that when we are talking of language and memory how important Broca is. Now we have been talking of mapping from the inside which used lot of techniques that could be actually unacceptable to other ethical constraints and would be other ethical constraints, so this developed mapping from the outside, so Franz Josef Gall was one of the famous physiologists during this time who dissected the brain of deceased animals and humans. So to explicate one part of the brain, or to paralyse one part of the brain and see its influence on others could be little unethical considering scientific standards.

So that way there were the dissection were now being conducted on this deceased human being and animals and Gall found out that a mental characteristics primarily consciences, benevolence, self-esteem when well developed would correspond to the protrusion or a bulge on this skull and if the ability is weak, there would be an indentation in the skull. Now Gall mapped 35 attributes and this research was really made created havoc in society.

And similarly during the same time, Santiago Ramon found out that nerve impulses could be created electrical stimulation, so just imagine how the brain sciences were developing during this time and you know one of the very interesting parts that as I said that it created Galls study created havoc in society because people were going to measure their skull and to see whether they were good in how whether they were they had strange strong characteristics in mental processes or they were weak in certain areas.

This theory later on was contradicted and by several other researchers, especially the specific localization considering the human attributes, but this formed a major path in the study of physiology or in the science of physiology because it was bringing forward several other concepts that could be included in physiology. So he was talking about mental characteristics and psychological principle of conscientiousness, benevolence and self-esteem and very soon we would see that psychology when developed as a science by in its own standards it would actually take up these very factors And would tried to do experiments on them to identify whether which specific areas could be tapped at.

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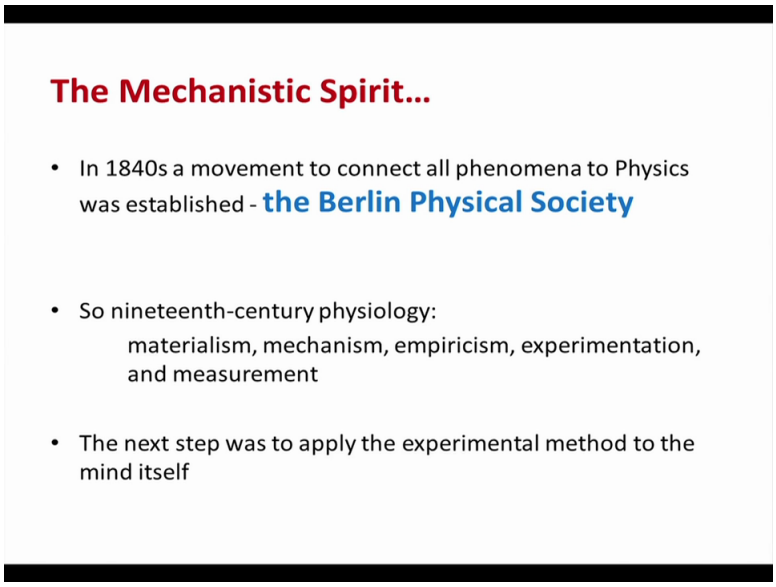

Now, during this period during the 1840 another movement was taking place that was The Mechanistic Spirit, The Mechanistic Spirit involved primarily all the physicists who were also interested in the physiological principles and their associate their major relationship was to their major focus was to find relationship between physiology and physics. So they said they established the Berlin Physical Society and they were generally the students of Muller who formed this society and felt that all phenomenon has to be connected we believe that all phenomenon that is scientifically experiment can be experimentally verifiable is connected to physics. So the 19th century physiology and 19th century physics was really refocusing on materialism, mechanism, empiricism, experimentation and measurement and the next step for this was to apply this experimental method that constituted of all these factors on the mind itself.

So as you can well understand, the development of psychology is from the early understanding of philosophy during Aristotle and Plato to mind to the understanding of the

mind and now it would develop into the understanding of human behaviour and so that brought about the beginnings of experimental psychology. This is something that we will study in our next lecture and thereafter we will also study some of the early experiments and please stay tuned and look forward looking forward looking forward to having more sessions with you. Thank you.