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Science, Technology and Society

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Staying on with the earlier lecture with how Chandler acknowledges that one compares socio technical institutions of different nations one sees with one, one looks at the way in which cultural attitudes one okay values two ideologies three physical political systems for social structures five and so on many, many, many more things can come up cultural imperatives and so on how they, they affect such imperative but the weight of argument and empirical evidence in the visible hand okay.

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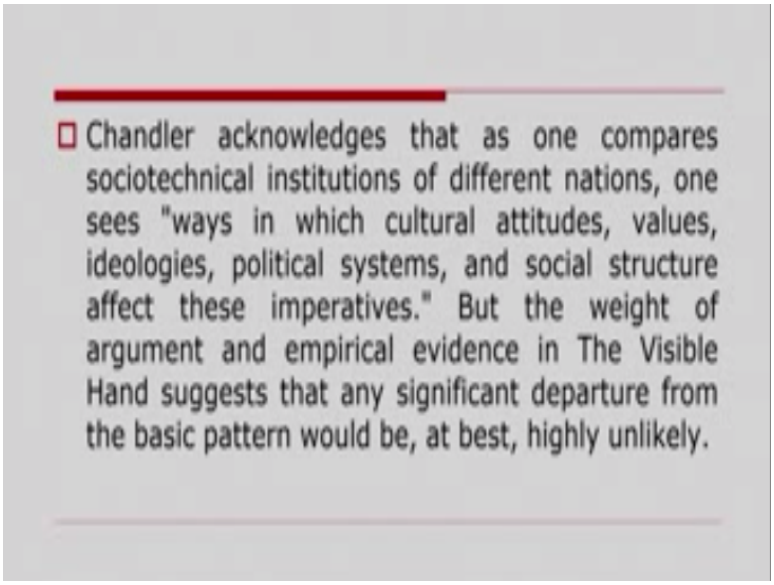

Which Chandler wrote long back that which suggests that any significant departure from the basic pattern would be at least highly unlike okay I think we stopped here and now we are going to complete this portion in the, in the present lecture.

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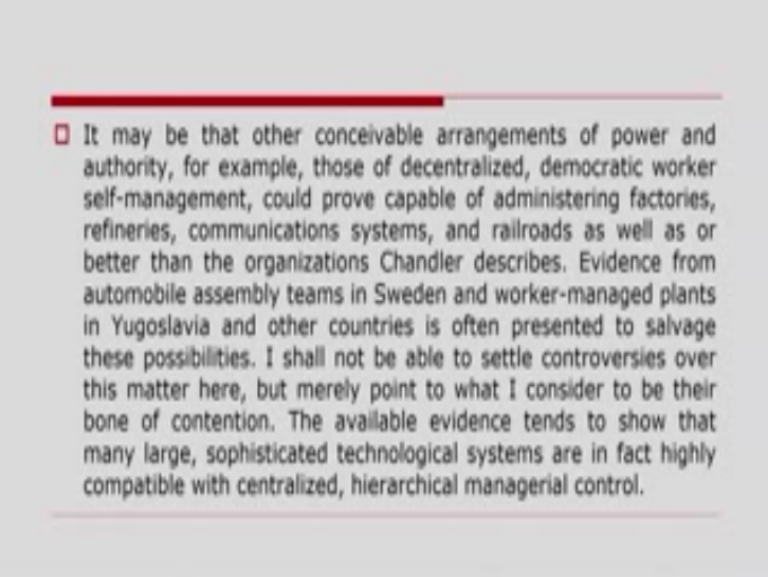

That it may be that other conceivable arrangements of power and authority okay which are very much embedded in the design and control over technology for example goals of decentralized or democratic workers self-management could prove capable of administrating factories refineries communication systems and railroads actual edge or better than the organization is which changes are described evidence from automobile assembly team in Sweden and worker managed plants in Yugoslavia.

And other countries is often presented to salvage this possibility okay what in, in technology and politics or effects of politics what random winners tried to do perhaps but he will he is intent and his purpose was not to settle controversies over this material but merely point to what he considered to be their boon of content the available evidence change to show that many large sophisticated technological systems are in fact highly compatible with centralized hierarchical managerial control.

When we talk about centralization when we talk about hierarchy it is very much I mean it very much involves the element of quality so that is all we talk about the political control of technological system okay in this context now what we are trying to do in the in the context of such, such embedded of politics or embeddedness of the elements of politics in the design and

control of for specific technology okay such question has to do with whether or not the pattern is in any sense.

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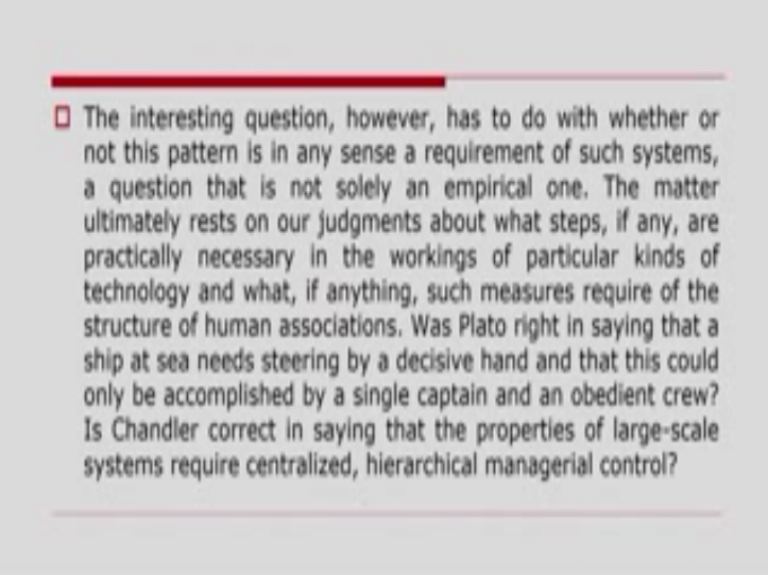

A requirement of such system a question that is not only an empirical one the matter ultimately rests on our judgment about what steps if any are practically necessary in the workings of particular kinds of technology and what if anything such measures require of the structure of human experience okay it is very important to understand that the interesting question however each has to do with whether or not such pattern of politically.

And culturally and economically embedded net political embeddedness of technology okay is in anything the requirement of such systems a question that is not solely an empirical one the matter ultimately rests on our judgment then we slowly deviate from the fact value dichotomy to, to the similarity or two to the porousness of, of openness between or the porousness between facts and values.

But in positivism we have studied that there must be a dichotomy between fact element but here the distinction between fact and value is not rigid but for okay this is a constructivist argument okay and what we say it goes beyond positivism it is an empty positivistic squash to science and technology okay this is very important that that when we talk about judgment we must talk about judgments of what kind whenever we make judgment okay.

We not only talk about fact but also about value okay that is why I repeat the matter ultimately rests on our judgments about number one what steps which are practically necessary in the workings of particular kinds of technology and number two what, what are such majors which are required of the structure of human experience let me, let me go back I mean I am trying to dwell upon Langdon winners reflects the known the political control of technological systems okay.

I mean let me go back I mean must like to write in saying that needs steering by a decisive hand and that this could be that this could only be accomplished by a single captain and an obedient crew each gender correct in saying that the properties of large scale systems require centralized hierarchical managerial control what Engels right when he will try to reflect on, on Authority okay.

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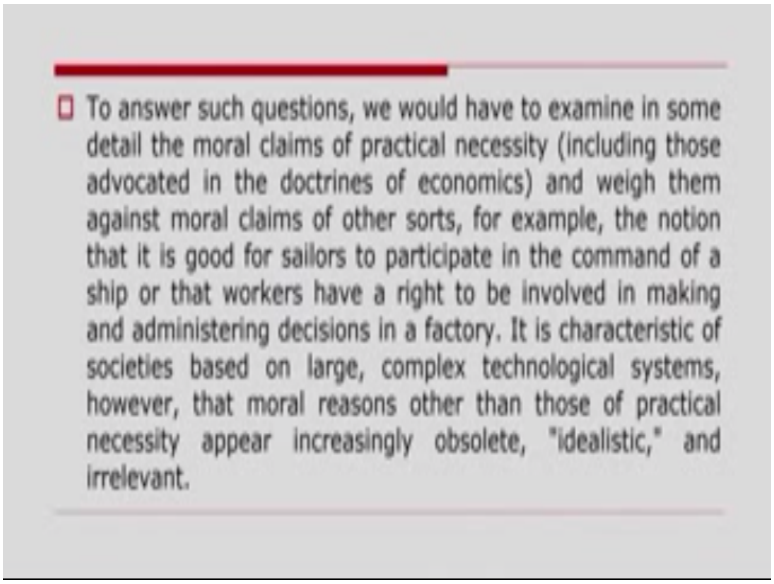

To answer such questions we have to examine in some details the moral claims of practical necessity including those advocated in the doctrines of economics and weigh them against moral claims of other sorts for example the notion that it is good for sailors to participate in the command of a ship or that workers have a right to be involved in making and administering decisions in a factory.

It is characteristic of society based on large complex technological systems however that moral reasons other than those of practical necessity appear increasingly obsolete idealistic and irrelevant if they appear that it is if you re fight positive okay.

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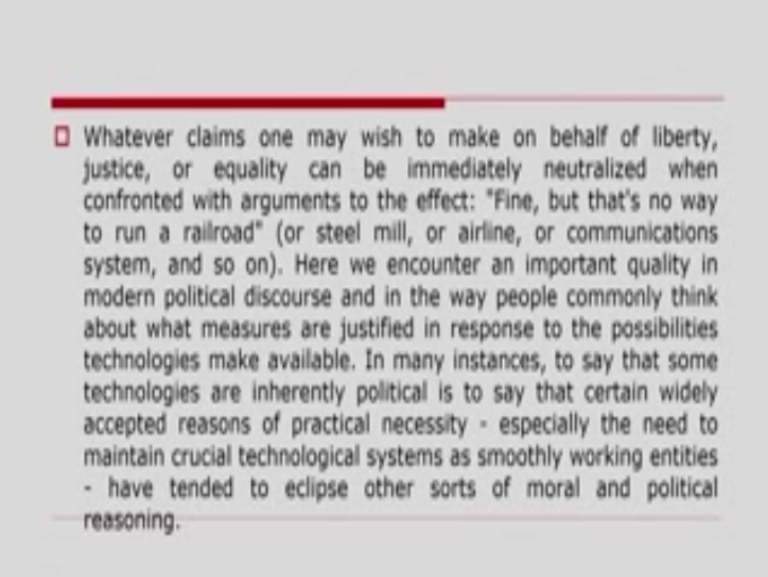

Then whatever claims one which to make on behalf of liberty justice or equality in the context of the political control of technological systems can be immediately neutralized when confronted with arguments to the effect let us fight but that is no way to run a railroad or steel mill or airline or communication system and so then, then, there is then such questions as um greater significance against the backdrop of even the questions of Liberty justice or equality okay.

Here we encounter an important quality in modern political discourse and in the way people commonly think about what measures are justified in response to the possibility which technologies makes available in many cases in many examples in many instances to say that some technologies are inherently political is to say that certain widely accepted reasons of practical necessity especially the need to maintain crucial technological systems.

And smoothly working entities have tended to eclipse other sorts of moral and political easement okay then, then the questions of Liberty the questions of justice the question of equality the question of moral reasoning the question of political reasoning okay they seem to disappear in the context of the way technologies are developed the way technologies are practiced okay.

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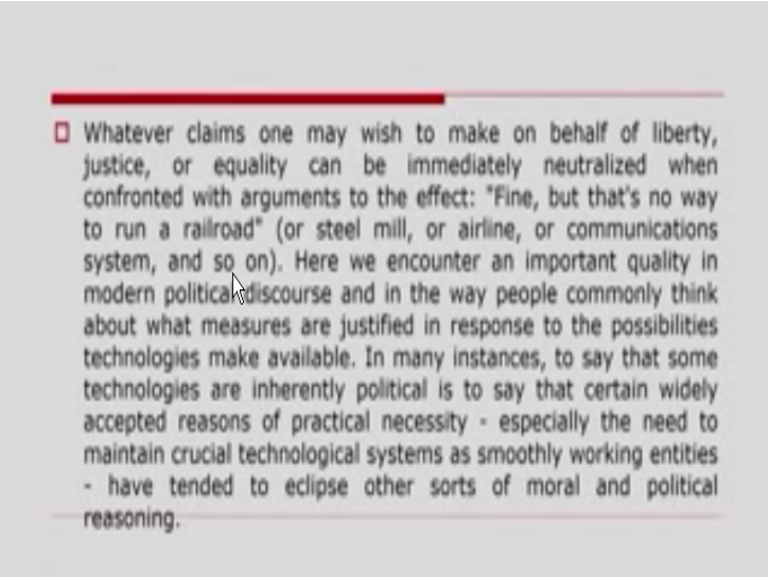

One attempt to surveys the economy of politics from the buying the practical necessity involves the most on that conditions of human association founding the in the internal workings of technological systems can easily be kept separately from the polity as a whole okay earlier we have discussed this I mean somebody may say that no technology is merely a technique okay there is no question of public policy there is no question of politics there is no question of economics there is no question of culture there is no question of society on the hood.

There is no question of market can you think of for technology which does not consider marketing market into error or which does not take market into account or consideration then economics the field of economics the field of mascara field of Commerce the field of culture the

field of public policy they assume greater significance when we talk about the relationship between technology and politics or when we talk about the design in control okay.

But you will find that Americans have long rested content in the beliefs that arrangements of power and authority inside industrial corporations public utilities and so on has little bearing on public institutions practices and ideas at large that democracy stops that the factory gate was taken at as a fact of life that had nothing to do in the practice of political freedom okay.

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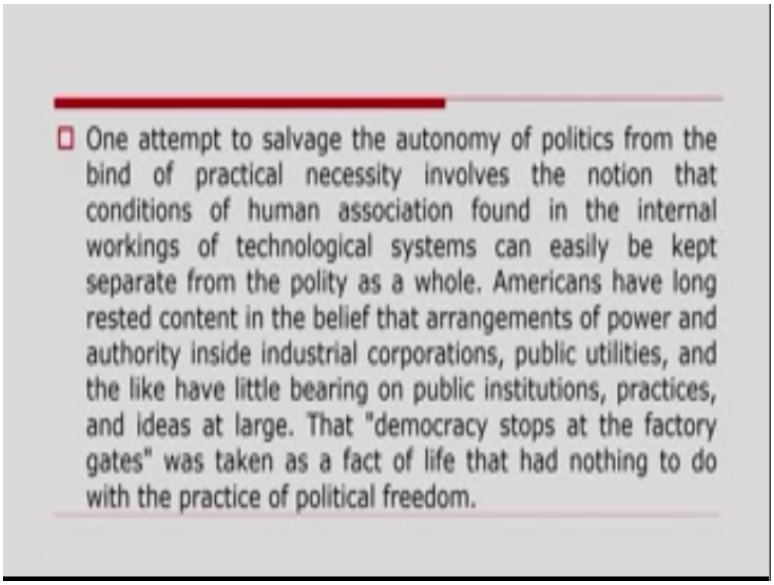

But the central question which assumes greater significance that that when we talk about a specific technology we must discuss democracy we must discuss Liberty we must discuss equality we must discuss justice we must discuss political freedom we must discuss moral and political reason okay because technology cannot be examined in isolation that is what we are going to doing the lectures to follow how technology as a form of knowledge as a technology as a form of practice by Edwin T. Arlet but let us first now because this let us this let us first complete this component of the force.

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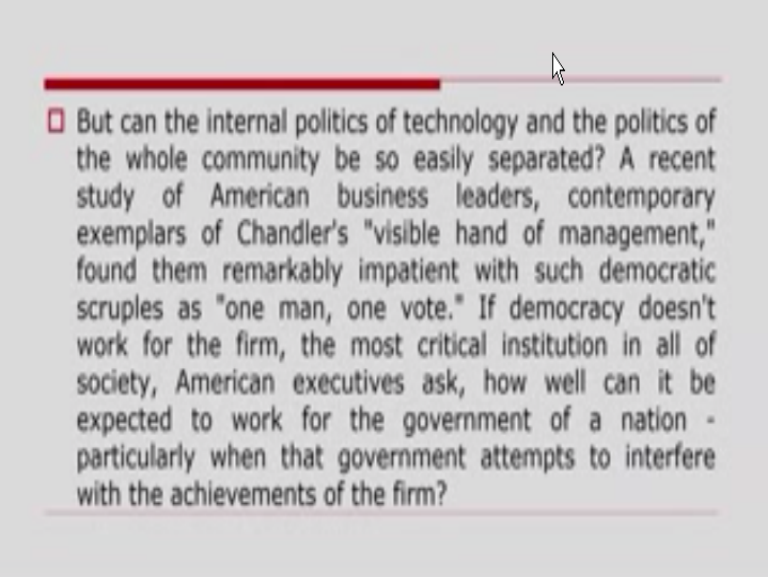

But the question is that can be internal politics of Technology and the politics of the whole community evenly separated a recent study of American business leaders component contemporary examples of Chandler's visible hand of management found them remarkably impressed into it such Democratic scruples as one man one water if democracy does not work for the most critical institution means all of society American official tips on how well can it be execute expected to work for the government or of an ethyl particularly when the when that government attempts to interfere with the achievements of the part.

Then if I say that that a particular dam is remarkably useful for the nation at the cost of the indigenous population let us take the example of the Northeast okay if I say that design of a dam I mean subway period am okay is remarkably useful for the nation then how can I leave out how can I leave the expedition's the, the, the, the life and living of the indigenous community who have been displaced who has not yet been rehabilitated who have been dislocated from their homeland who have been dislocated from, from the essence of life.

And me but it is very important to remember okay then that that if democracy does not want first one particular form one particular community one particular group one particular social group okay then how well it can how well can it be expected to work for the government or fines in particularly when that government attempts to interfere with the achievements of those

communities those social groups those marginalized community this let the political institution that is the space must take into consideration of the, of the interest of these groups these institutions this institutional framework and okay.

They I mean if you if you look at certain things many may observe that patterns of authority that work effectively the corporation becomes for businessmen the desirable model against which to compare political and economic relationships in the rest of society while such findings are far from conclusive they do reflect the sensing and increasingly common in the length what is what is that now what DM is like the energy crisis of energy required is not a redistribution of wealth or broader public participation but rather stronger centralized public okay.

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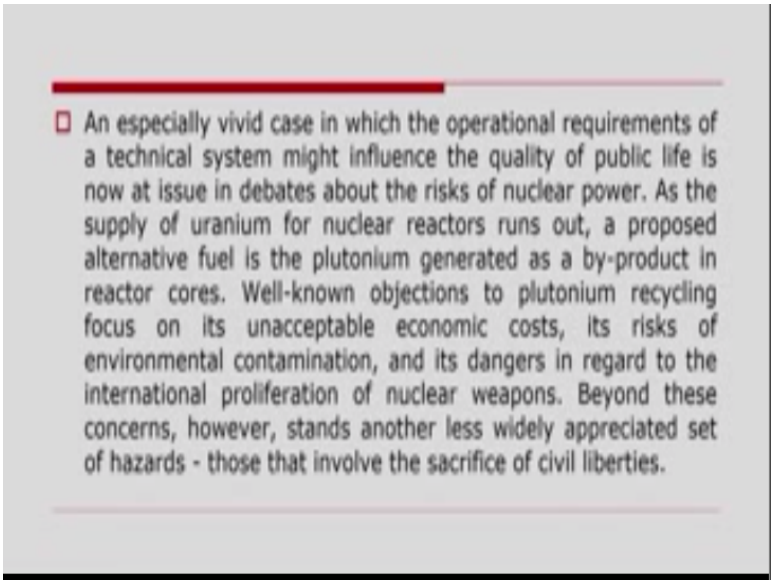

That is what may be argued and especially vivid case in which the operational requirements of a technical system might influence the quality of public life is now at it will debate about the risks of nuclear form as the supply of uranium for nuclear reactors concerns a proposed alternative well is the is the plutonium not generated as a byproduct in a reactor core welcome objections to plutonium recycling focus on it is unacceptable economic cost its risks the of environmental contamination and it is been judged in regard to the International proliferation of nuclear weapons beyond these concerns however stands another less widely appreciated set of hazards okay those that involve the sacrifice of civil liberties.

That is what from the very beginning London winner as the disc has restarted with this event we moon pool discuss treat that technologies are evaluated technologies are assessed not simply in terms of the positive and negative environmental side effect they are not simply judged on the basis of their efficiency they are not simply just in terms of their productivity but, but they must be evaluated in terms of the way in which they embody specific forms of power and authority next well the negative casualties in the, in the context of the supply of uranium for nuclear reactors okay.

Next that it is not simply about economic cost or environmental contamination or dangers in regard to the International proliferation of nuclear weapons but beyond these concerns however stands another less widely appreciated set of hazard okay perhaps which is the most which is one of the most important factors in this context those that involve sacrifice of civil liberty my mind right to life my right to live in my right to live my right to life I mean to live a meaningful life to live a life without any dislocation from my habit okay without being dislocated from my habitation okay.

These are very important factors okay loss of civil liberties assumes greater significance okay as compared to the loss of productivity or efficiency or positive and negative environmental side effects or economic costs or environmental contamination or dangers in regards to the international of nuclear weapons and Earth's and so on okay with when your own self when your own self not simply as an individual but also as a community but also as an institution but also I did organization there at stake okay such economic cost such positive and negative environmental side effects environmentally contaminates and efficiency productivity okay.

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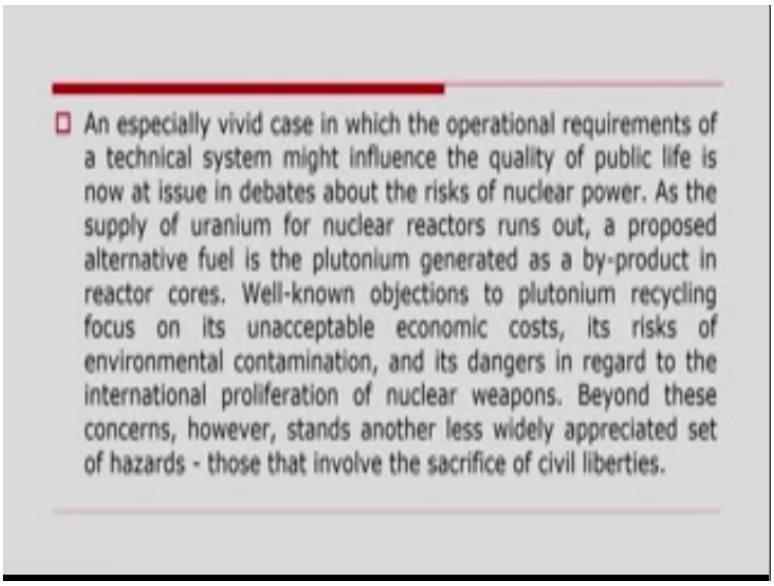

They are not blame important if civil liberties yourself not simply again individual I repeat but also as a community but also as an institution but also I just culture but also education is very good okay the widespread use of plutonium as a well increases the chance that this toxic substance might be stolen by terrorists organized crime or other person these bridges the prospect and not a trivial one that extraordinary measures would have to be taken to assess good plutonium from theft and to recover it if ever in the substance Western workers in the nuclear industry as well as ordinary citizens outside could well become subject to background security checks overt no surveillance.

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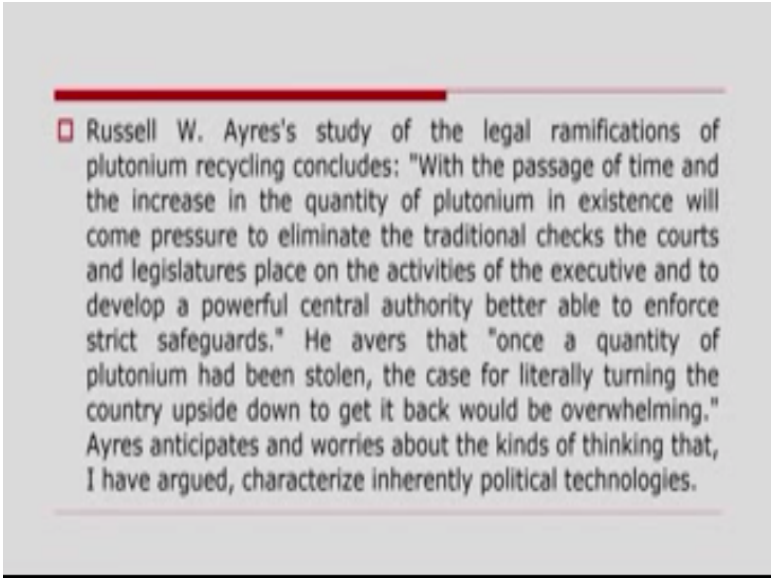

We are tapping informants and even emergency measures under martial law in all justified by the need to separate little the understructure okay W. Ayres's Russell the view I have study of the legal ramifications saw the tournament recycling conclude with the passage of time and the progress of human civilization the increase in the quantity of plutonium in existence will come pressure to eliminate the traditional check the courts and legislatures place on the activities and to develop a powerful central oscillating better able to input strict scepter he ever that one of quantity of plutonium had been stolen the Cape fur literally turning the country upside down to get it back would be overwhelming.

I had anticipated and what is about the kinds of thinking that as, as winner has argued that which characterize inherently political economy okay it is still true that in a world in which human beings make and maintain a typical system nothing is required in an absolute sense everything is required in and religion okay because different communities different individuals different groups different countries different lessons different ethnicities different religions different regions they have relative frequent nevertheless.

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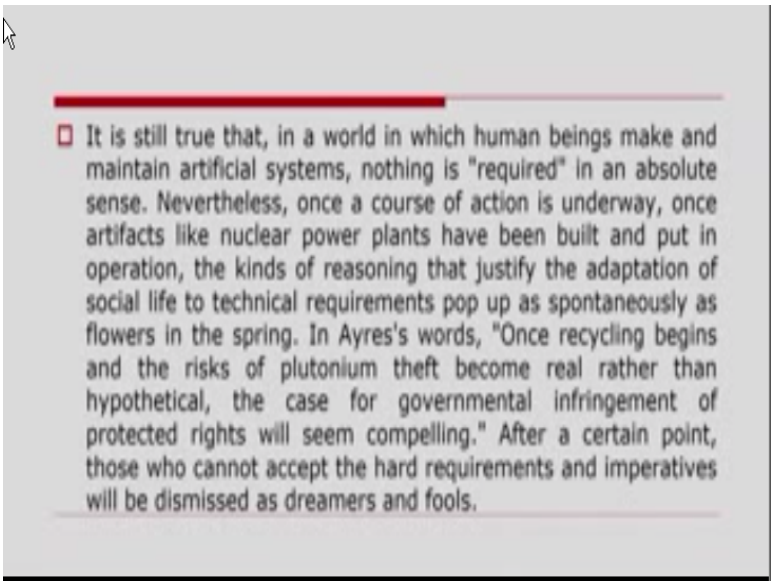

Once the force faction is underway once at effects like nuclear power plants have been built and put in operations the kinds of reasoning that justifies the adaptation of social lives to technical requirements pop up as spontaneously as flowers in the spring in our squads let me quote there once recycling begins and the risks of plutonium theft become real rather than hypothetical the case for governmental impingement of protected rights will in compelling that is why the state is a political institutions the I mean its role becomes very important.

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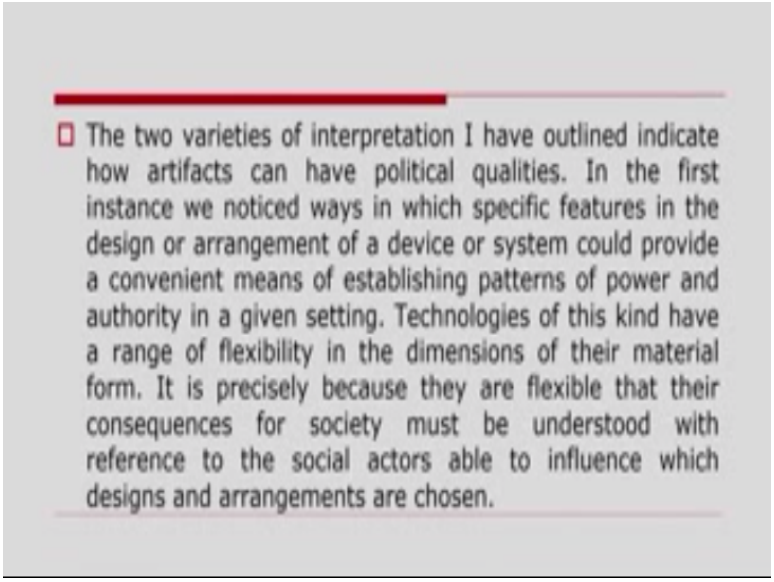

After a certain point those who cannot accept the hard requirements and imperative will be dismissed as dreamers of fools okay that is how the state character ranges different things different elements okay the two varieties of interpretation which London winner has outlined indicate how Active can have political qualities what are those two varieties in the first instance we noticed the way in which specific features in the design or arrangement of a device or system could provide the convenient means of establishing patterns of power and authority in a given setting technologies of this kind has a range of flexibility in the dimensions of their material form.

It is precisely because they are flexible that their consequences for society must be understood with reference to the social actors able to influence which designs and arrangement characters and in the first instance we discussed that how specific features in the design or arrangement of a device or system could provide a convenient way of establishing such pattern institutional patterns of power and authority in a given setting in a given framework and technologies of such kind have a range of flexibility in the dimensions of their material for it is precisely.

Because they are flexible it is because of their flexibility that their consequences for society must be understood with reference to the social factors that are able to influence which designs and arrangements are chosen and such selection is as we have discussed earlier that in the context of Weber okay selection is based on cultural religion okay selection is also based on the kind of consensus.

That you build in the context of food selection is also based on the kind of the alliance between science and politics that you are going to Forge or rather in the in the present context in Indian context I will say that it is the Alliance but an times politics and Industry okay which determines what kind of design and arrangement which are selected or chosen and that was the fastest.

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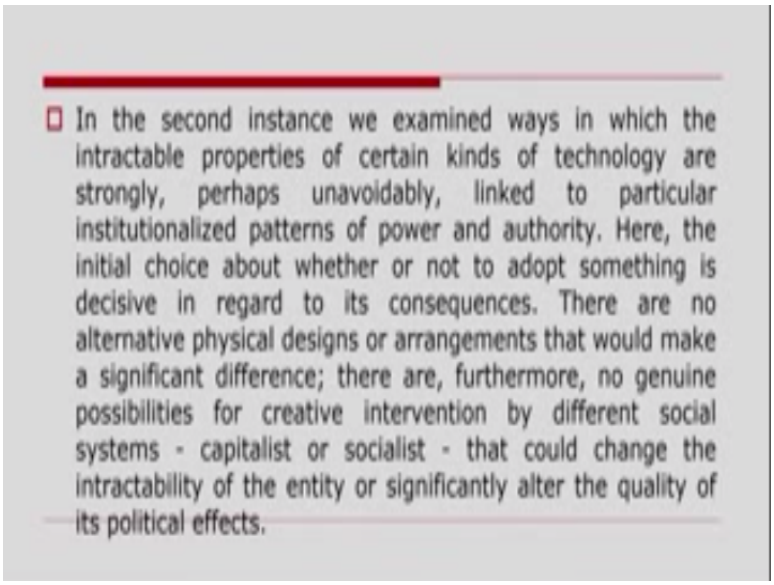

In the second instance we examine the way in which the inter table properties of certain kinds of technology are strongly perhaps unavoidably linked to particular institutionalized patterns of power emulation here the initial choice about whether or not to adopt something is decisive in regard to its consequences okay the, the consequences they, they determine what kind of thing that we are going to say there are no alternative physical designs or arrangement that would make a significant difference there are furthermore no genuine possibilities for creative intervention by different social economic political systems whether it is capitalist or socialist that could change the impact ability of the entity or significantly alter the quality of its political effects.

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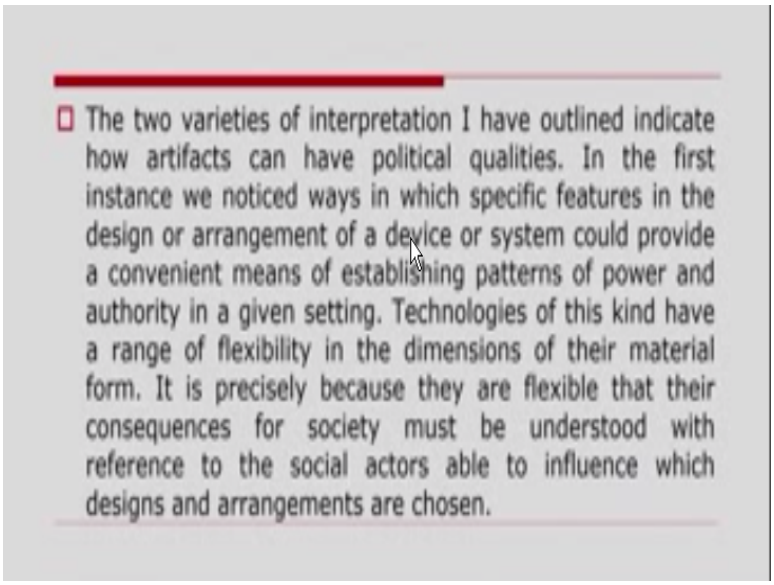

Then in the first instance what we have discussed in the first instance we examine the ways in which specific features in the design or arrangement of a device or system which could provide a convenient means of establishing patterns of power and authority in a given framework in a given institutional framework in a given institutional settings and how technologies of such kind of a range of flexibility or in the dimensions of that material form.

And because of their flexibility that their consequences for society must be understood with reference to certain social actors which are able to influence which designs and arrangements are chosen and in the second instance we have examined the ways in which the indexable properties of certain kinds of technology are strongly for us unavoidably linked to particular institutionalized patterns of power and authority okay.

And perhaps, perhaps for this vision the initial choice about whether or not to adopt something is decisive in regard to its consequences and there are no alternative physical designs or arrangements that would make a significant difference there are furthermore no genuine possibilities for creative intervention by different social systems be it capitalist or socialist that could change the intelligibility of the entity or significantly alter the quality of its political effect.

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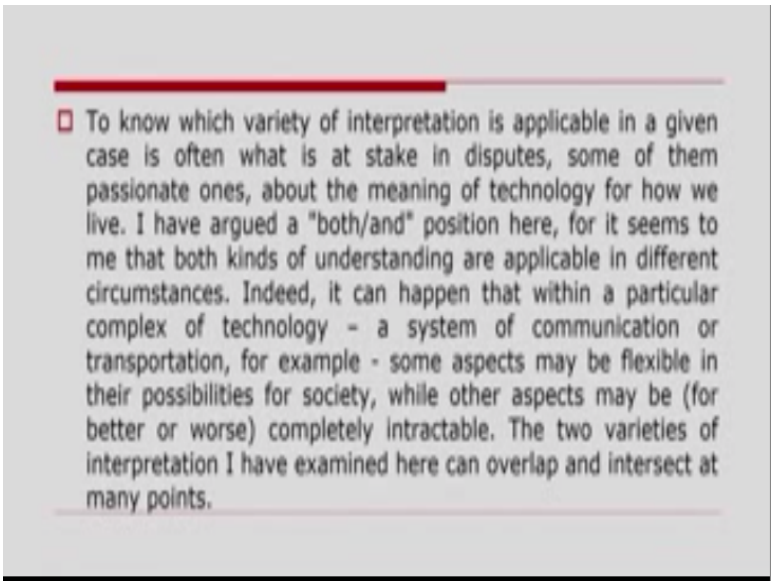

To know which variety of interpretation is applicable given these two instances that we have discussed in a given case to examine which variety of interpretation is applicable in a given context is also in that what is at stake and in disputes some of them resonate once about them meaning of technology for how we need I mean the way London winner has now both hand position we need most kinds of here for it seems to us that most kinds of understanding are applicable in different circumstances different context indeed.

It can happen that within a particular complex of technology there is a system of communication or transportation for example some aspects may be flexible in their possibilities for society culture economy quality while other aspects maybe for better or worse completely intact the two varieties of interpretation that Langdon winner has examined here can overlap and intersect at many more and such intersectionality has to be understood we need or perhaps, perhaps we, we require both types of interpretations in the contemporary context in the end and more so in the Indian context such intent intersection is very important these are of course issues on which people can visit thus some proponents of energy from renewable sources.

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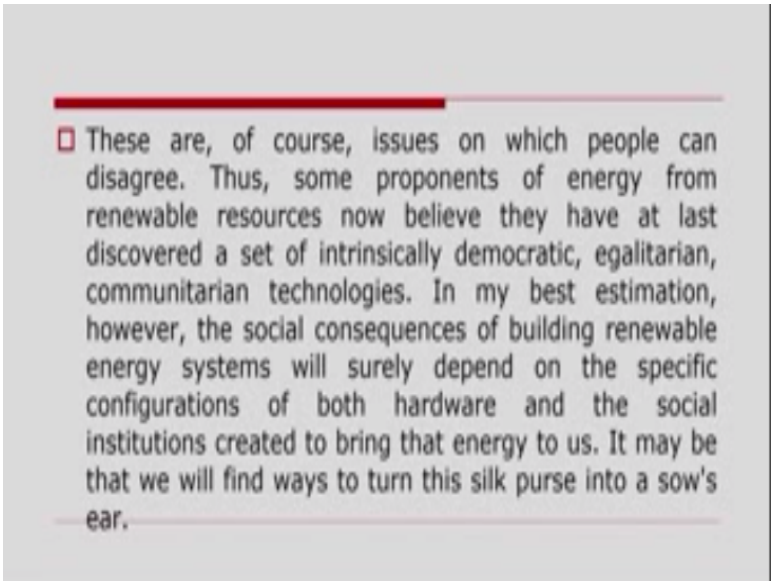

Now believe that they have at last discovered a set of intrinsically democratic egalitarian communitarian technology however the social consequences of building renewable energy systems will surely depend on the specific configurations of most hardware and the total institutions created to bring that energy to earth it may be that we will find ways to turn this filter into social okay.

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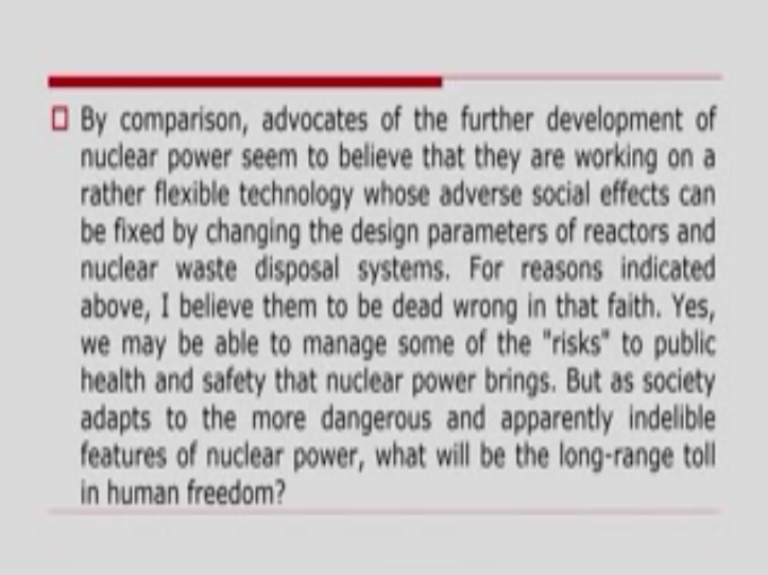

By comparison and look at the further development of nuclear power seem to believe that they are working on a rather flexible technology whose adverse total impacts can be fixed by changing the design parameters of reactors of nuclear waste disposal systems for reasons that we have discussed earlier that that we believe them to be dead wrong in that faith if we may be able to manage some of the risks to public health and safety that nuclear power brings but as society adapts to the more dangerous and apparently in gullible and indelible features of nuclear power what will be the long range of Toyland human freedom.

You may look at nuclear power you may look at bacillus Turin genesis things both food crop and as well as non food crop but cotton which is the bringer for example in the Indian context you can look at large dams okay that is why we may be able to manage we may be able to reduce the level of risk the amount of risk to public health testing that, that is the nuclear power project the dam projects large dam possess wisdom bitty seed project they bring about but a society adapts to the more dangerous and apparently invisible features of nuclear power it is a serious question.

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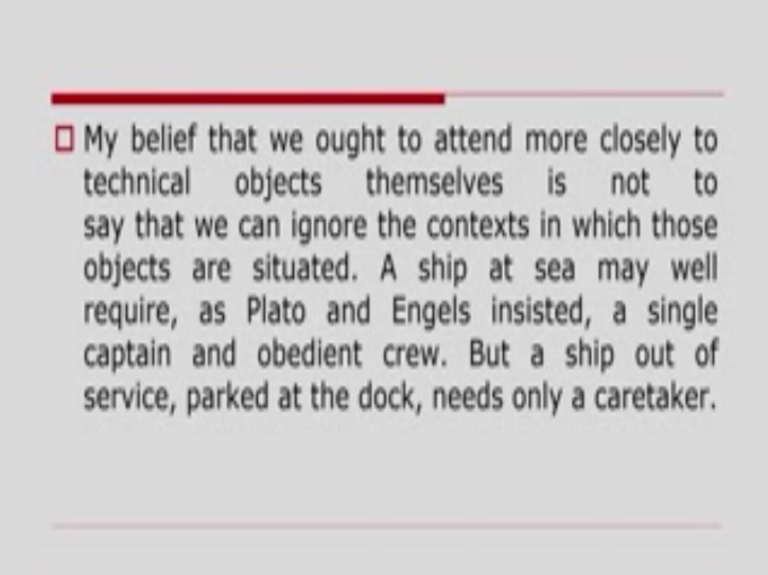

That we must hold that what will be the long-range in human freedom what London winner is believed believes that we must we should attend we ought to attend more closely to technical objects themselves is not to say that we can ignore the context in which those objects are situated a seaport see may well require a plateau an airy angles in system a single captain and obedient crews but sit out of service for dock at the dock needs only aquatic it is interesting this is how we talk about social setting of technology.

We talk about social construction of technological systems this is how we talk about now talking against the way power and authority is closely embedded in the design and control of a technological system as London winner argues that a stupid theme may well require a single Junction and obedient group even if you go by you know when we fly when we bought a flight okay.

We see we always notice that flight is always controlled by a single captain and an obedient group and a few big integrals but a flight out of service part of the dock needs only a Catholic or a group of characters that is right that is why it is the context in which of lightly situated a flight is located if context differ then our structures of power the structures of authority also decide okay there is not a universal thing they but this is not a decision is not an absolute thing but this is a relativist position that that scholarship our text to understand which technologies and which contexts are important to us and why they are important is an unsurprised okay is an exercise that must involve both the study of specific technical systems.

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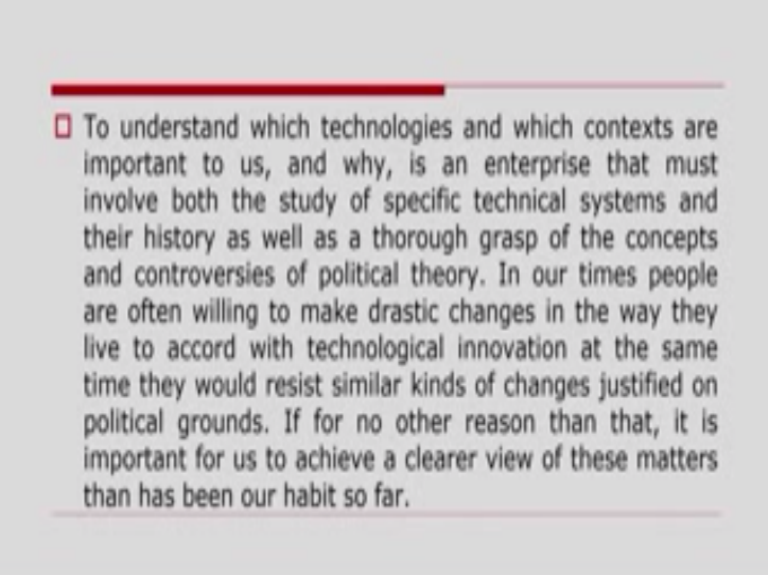

And the history as well as a photograph of the concepts and controversies of political theory that we will discuss in Leighton juniors article on technology knowledge okay it is important it is it is such, such the what kind of technologies we require what kind of technologies are relevant for us today if we ask the question then such exercise must involve number one the study of specific technical system and number two the way these specific technical systems have evolved over time and across space.

And the thorough grasp of the concepts and controversies of political theory in our time in the in recent times in contemporary page what do you people are often willing to make drastic changes in the way they leave to accord with technological innovation at the same time they would register mere kinds of changes justified on political grounds if for no other reason than that it is important for us to achieve a clearer view of these matters than has been in our habit so far then in this if this lecture what we have learned what we have discussed till now we have discussed what matters is not technology itself but the social or economic context in which it is developed in which it is practiced okay.

It is not simply to understand it is not merely to understand the technology itself but it is also important under what circumstances what under what circumstances ranging from social economic political cultural legal ethical institutional ideological and soon which have given rise to such technology if technology will be any no had had technology been a universal

phenomenon then what kind of the kind of technology which is used in U.S India must also using the similar kind of technology.

We do not use that kind of technology or Africans must be using that term okay it is the political system which it is the political institution it is the social acceptance it is the cultural embeddedness which determines what kind of technology that we are going to use okay and from this the form of knowledge the form of practice that we came to look at as a part of technology or rather put to put it technologies knowledge and use criticism then what we have discussed from the very beginning okay.

During these means let us just we started with ontological questions then we went into the normative questions then we discussed the inequalities in science then social stepping of Technology okay I mean first, first technological setting of society in, in, in a bit and then we went ahead with social settings of technology within social setting of technology we are trying to dismiss number one technology I mean political Constitution illogical system and number two we are going to discuss technology as knowledge.

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