This is the script of an extraordinary lecture held on 17th January 2011 at the British Library. The 'lecture' was produced and performed by Elizabeth Shove and members of the ESRC funded social-change climate-change working party.

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How the social sciences can help climate change policy

JUDE ENGLAND, British Library: What a fantastic turn out for this next bit of today, the Extraordinary Lecture which I'm very much looking forward to. I'm just really 'Hello, welcome.' It's fantastic to see you. If there's a fire drill, it's real, just follow me and the loos are either side of the stairs, and I think that's all. Turn your phones off. Have you got your phones turned off? We don't want any phones ringing in the middle, and I'm going to hand over to Elizabeth.

ELIZABETH: Thank you, [Jude]. The British Library has been an enormous help here, and in very practical ways.

You're about to experience an Extraordinary Lecture. Welcome. This is an Extraordinary Lecture on how the social sciences can help climate change policy. It's now widely agreed that the challenges of climate change are such that many familiar ways of life, and many of the patterns of consumption associated with them, are fundamentally unsustainable. If there's to be any effective response to climate change, new forms of living working and playing will have to take hold across all sectors of society. The task of understanding how social arrangements come to be as they are, how they develop, is core business for sociology, for disciplines like history, technology studies, material culture, cultural theory, theories of practices, change, transitions, innovation studies. And yet, there's a problem here, and the problem is only a few ideas get into government policy. I'm not going to say very much about policy makers' current emphasis on individuals and choices, or the dominance of certain strands of psychology and economics. But it's important to recognise, there's another little drip, the prevalence of a way of thinking which emphasises what we might think of as the A, B, C, the A, B, C of climate change and individual behaviour. It's an A, B, C… it is a simple story. I'm simplifying it, but even when it's complicated it's still quite simple. Individuals have attitudes, that's the A. Attitudes drive the B, B stands for behaviour. Behaviours need changing, that's clear. And that matters… people choose how to behave and so from a policy point of view, it is actually relatively simple. If people had different attitudes they'd behave, and choose to behave differently and if only they chose not to use so much energy, water, other resources we'd not be in the fix we are. So, in a way, that's fairly… fairly straightforward. It's a position which dominates climate change policy in its simple forms and its complicated forms. It figures very prominently in the Department of Environment, Food and Rural Affairs, framework for pro-environmental behaviours. It's absolutely central to the United Nations Environment Programme, 'Kick The Habit', 'Kick the CO2 Habit', as if we're somehow addicted to it, 'Creatures of Habit - The Art of Behavioural Change.' You can just read from the titles the kind of

orientation focusing on individuals and their choice. I will if you will. Changing behaviour through policy making, motivating sustainable consumption, and even driving public behaviours for sustainable lifestyles. So the purpose of today's Extraordinary Lecture is to give you a sense and a taste of what more the social sciences have to offer.

So it's an Extraordinary Lecture in that it is designed along lines of a natural science demonstration of ideas, a kind of Christmas show. This means that key concepts will be introduced and performed by members of the Social Change - Climate Change Working Party. This working party, funded by the Economic and Social Research Council, consists of around twenty people from business policy making and universities. They've met together three times over the last eighteen months to develop and discuss fresh ways of conceptualising and promoting transitions in ordinary, but environmentally significant ways of life. For example, in patterns of food consumption, energy and water intensive habits, and in the disappearance, for example, of cycling as a normal means of transport. So this lecture and the accompanying exhibition of ideas is the culmination of a process of working and partying, and it consequently involves an unusually large number of people, few of whom have had very much opportunity for rehearsal or preparation, well hardly any of them. The performance begins with a chance encounter between a puzzled policy maker and a social scientist. Together they explore a yellow container of concepts that might be of use in tackling urgent and seemingly insurmountable problems of climate change.

The puzzled policy maker and the social scientists

POLICY MAKER: Yes, yes. Yes minister, yes, yep. Certainly, certainly, yes, yes. Three bags full minister.

Well I don't know what I'm going to do next. If you look at this chart you'll see that we're going to have a problem. If we're going to hit this target, CO2 emissions are going to have to drop. A step change is required. I mean it's true, more efficient technologies will do a lot of the heavy lifting but really the figures are only pointing one way. There's going to be a great big gap. People are just going to have to change the way they live their lives. I mean as policy makers we've tried everything. We've targeted messages, and we provide labels and we run adverts telling people to use less energy and water. We've tinkered with prices and we've persuaded people like made. We've even listened to behavioural economists, I mean, I've heard all about Hyperbolic discounting, and values, and even habits. I mean, I could tell you a few things about the theory of planned behaviour. So for instance, beliefs are the underlying foundations and motivation. People make judgements based on what they think other people will think of the behaviours that they undertake, and, oh yes, perceived behavioural control [here] has a moderating effect on intensions in determining behaviours. I mean, a couple of years ago we got a load of consultants in and they help us to cluster some lifestyle segments so, so that we could target messages at the concerned consumers or the honestly disengaged. Well actually not at the honestly disengaged because they're a bit of a write off. So across ten years

of concerted effort on behaviour change, I have to admit really not that much has changed. I've been trying to drive public behaviours to sustainable lifestyles as hard as I can and to be honest very little effect. I just don't know what to do next.

SOCIAL SCIENTIST: Don't look so miserable.

POLICY MAKER: Why not? I am miserable.

SOCIAL SCIENTIST: Well, maybe I can help you.

POLICY MAKER: You? And who are you?

SOCIAL SCIENTIST: I'm a social scientist.

POLICY MAKER: Oh great. Oh well, we've spoken to your lot before. We've done just about everything we can.

SOCIAL SCIENTIST: But have you done everything? Give me a few minutes, see what I can offer you.

POLICY MAKER: What's this?

SOCIAL SCIENTIST: It's a concept container. It has a whole bunch of ideas in it. Some are old, some are new, some might be useless, but others could really help you. Why don't you take a look, see what you can find.

POLICY MAKER: What's this? Concept 1: I see, "Concept 1. People do not use energy, water and other natural resources. They use the services that make these resources possible." That's not a concept, that's a statement. Wait a minute, here comes a concept. Consumption is an outcome of ordinary practices like heating, eating, cooling, travelling and showering. Policy makers should therefore focus on how such practices are reproduced and how they changed.

No, like I said, this is no use at all. I'm interested in CO2 emissions, and energy demand, and litres of water per household per day, and how to get people to use less. I mean, I need evidence based solutions and I need them now.

SOCIAL SCIENTIST: Well, what if instead you tried to reframe your problem? What if instead of trying to persuade individuals to use less energy and less water, you thought about the resource intensity of practices, how they take hold in society and how they might change, because, surely, the interesting question is what people do in society and how that has environmental impacts and uses environmental resources.

POLICY MAKER: No, no. I don't think you understand. I'm interested in changing behaviour and you're using all this new jargon about social practices. What is a practice? What's in it and how can I change it? That's what I need to know.

SOCIAL SCIENTIST: It's really not that complicated. All you need to know is in here. Here, take this, "Concept 2: Social practices, like driving or cycling to work, taking a daily shower, cooking and eating dinner, they all involve the act of integration of elements, and elements include materials, objects, infrastructures, forms of competence and know how, images and meanings."

POLICY MAKER: No, sorry.

SOCIAL SCIENTIST: Here, why don't I invite my friends up? Social scientist 1 and social scientist 2, would you come and help us out? Can you help explain what exactly is a practice made of?

SOCIAL SCIENTIST 1: So, can you tell us how do we make a social practice?

SOCIAL SCIENTIST 2: Well, a practice consists of three different elements. I can illustrate this with these three differently coloured balls. The yellow one represents images and meaning.

SOCIAL SCIENTIST 1: And what might be an example of an image or a meaning?

SOCIAL SCIENTIST 2: Hold on a second. The red one stands for skills and practical know how, and the blue one stands for things such as objects, materials and tools. I'll give you an example. What does it take to cycle to work daily? It requires some things like a bike, suitable shoes and a good road, but it also requires some skills. You need to know how to ride a bike.

SOCIAL SCIENTIST 1: And yes, I suppose it also needs some ideas, some meanings. You need to think that it's a perfectly reasonable thing to do, to cycle to work, that it's not some crazy notion.

SOCIAL SCIENTIST 2: Exactly. So any practice can be thought of as being constituted by these three different elements. Lets try another example. What are the elements of showering? What does it take to have that daily shower?

SOCIAL SCIENTIST 1: Well I suppose first of all you need the stuff, you need the shower, the hot running water, you need the know-how. What does it mean to take a shower, how do you use the shower controls, maybe how to control the boiler. And yes, you need the meaning, the idea of cleanliness, of freshness, of convenience.

SOCIAL SCIENTIST 2: You're right, and in doing so, when people integrate these elements in the dynamic way.

SOCIAL SCIENTIST 1: Like this?

SOCIAL SCIENTIST 2: Yeah, just like that. Thanks for that demonstration. Yes, elements have to be integrated by practitioners, and true enough, that takes some skill. Just like riding a bike.

SOCIAL SCIENTIST 1: Ok, so does that mean that changing practice is easy? Say if we wanted somebody to cycle to work rather than drive to work, we just need to give them the bike, give them the confidence that they're going to balance, give them the idea that it's a perfectly reasonable thing to do.

SOCIAL SCIENTIST 2: To some extent you're right, but remember, not all forms of cycling are indeed the same. Look at these solid bikes, this beautiful cycle path and this leisurely image of cycling. Is it not indeed quite different from this racing cyclist, with a sporty image, the sleek clothing and this distinctive skill.

SOCIAL SCIENTIST 1: Absolutely. I get your point. There's more than one way of doing cycling. It all depends on the specific configuration of the different images, skills and meanings.

SOCIAL SCIENTIST: Thanks very much. I think that was really very useful. We might need you later but why don't you [social scientists 1 and 2] go and sit down for now. So, you wanted to know what practices are made of and now you know. As they demonstrated, practices are made up of all these three elements. So, cycling to work everyday or having a daily shower involves the integration of meanings, and skills and materials. And your job then, as a policy maker, is both to try and influence the specific elements of existing practices so they might become more sustainable, but also to think about the whole collection and range of practices that might make up a more sustainable society.

POLICY MAKER: Well I still don't see how that's going to help me understand behaviour change.

SOCIAL SCIENTIST: Well, if you really want to think about change, maybe its best to think about the past.

POLICY MAKER: Oh great.

SOCIAL SCIENTIST: I think I have a video in here. The video might help you. It's about a housewife, Sarah, and couch potato, Sam, and its called 'The Flipping Habits in the Kitchen.' Let me try and find it here. Ahhhh what's that? Oh, I think it's behavioural economics, get rid of it. Right, here we are, why don't you sit down.

Flipping Habits in the Kitchen

INTERVIEWER: The year is 1875. It is November and we've just called in to see housewife Sarah, who lives in a brand new house in a place that will soon become known as Grand Suburbia.

SARAH: Good afternoon. Welcome to my home. Won't you come through to the kitchen?

INTERVIEWER: That would be lovely, thank you.

SARAH: So, here we are in the kitchen.

INTERVIEWER: Well thanks, Sarah. It looks lovely, and I see your hens have been laying well?

SARAH: Yes, yes, even at this time of year. Now do come through to the scullery.

INTERVIEWER: Well, this looks nice and spacious. But tell me, why, why have you got your washboard on the wall?

SARAH: Oh, that's just my son. He must be playing around. I'm sure he will be a museum curator when he grows up. Now come over here, I'll show you my larder for all my dried goods, all the preserves and pickles I've made and my lovely new pantry for keeping things cool. And on this shelf here are all my brand new copper pans, and here's my cream skimmer, and my colander. It's very modern you know.

INTERVIEWER: Well you are well equipped, but how do you going to decide what to cook tonight?

SARAH: Well, let me think. I've just got this wonderful book of recipes. I think I should consult it. So, let's see what's in season, in November. Here we are, brill, carp, cod, we've got to wait until December for the barbel and the herring, so not fish I think. Maybe poultry. Lark, what a good idea, we'll make Lark.

INTERVIEWER: Lark?

SARAH: If I remember rightly there is an excellent recipe for larks and onions in here. Now, here it is, page 1305. Clean the larks and bone them, stuff them with liver and herbs chopped very fine, put some slices of bacon at the bottom of the stew pan, place the larks over them and just cover with stock. Put a little forcemeat in each onion and a lark over it, replacing the head with a little forcemeat, taking care to remove the eyes. Salt the onions slightly, cover with slices of lard and a piece of paper. Yes, I remember this, it is delicious. It is a bit fiddly though, perhaps not today. What else can I make with larks? Lark pie, yes, lark pie. Beef, bacon, nine larks, parsley, shallot. Roll the larks in flour and then stuff them. Now, if I'm going to make this pie I'll need to make some pastry, but it's not a problem. My mother taught me well and of course I know all the tricks, like testing the temperature of the oven by putting my arm in, to see if I can hold it there for 20 seconds exactly, then its just right, and you know, it will take a long time but I do enjoy my work in the kitchen. Especially smelling the fresh ingredients, hearing the pea pods snapping, knowing just how long everything's going to take. It's very satisfying.

INTERVIEWER: I'm sorry to interrupt, Sarah, its all very interesting, but what is it that you have in that pot?

SARAH: Those are my larding pins, garnishing tools and my pastry jagger, and my lard-sculpting tool. I couldn't do without them.

INTERVIEWER: Sorry to change the subject yet again, but I see you've just taken delivery of… what is that, a rocket knife grinder with the price ticket still attached.

SARAH: Oh yes. It is marvellous. I had so many different kinds of knives, more than twenty, so this is something that I really do need, and what's more, I do think its important to keep up with Mr & Mrs Jones who've just moved in next door. So, as you can see I've really got all the latest state of the art technology in my home, and what's more, I know how to use it all.

INTERVIEWER: That's certainly right. I have no idea what half of these things are. Sarah, what's the one on the top right?

SARAH: What, you mean you don't know a raisin pitter when you see one? You really should read Mrs Beeton. After all, she has such good advice about moral and ideological significance of the domestic arts. Let me read to you, here. 'What moved me to attempt to work like this,' she says, 'was the discomfort and suffering which I had seen bought upon men and women by household mismanagement. I have always thought that there is no more fruitful source of family discontent than a housewife's badly cooked dinners and untidy ways. A mistress must be thoroughly acquainted with the theory and practice of cookery as well as be perfectly conversant with all the other arts of making and keeping a comfortable home.' I couldn't agree more.

INTERVIEWER: Thanks for the advice and for the tour. That pie certainly smells good even from this distance.

Now let us fast forward to, Sam, who lives in 2011.

INTERVIEWER: Good evening. I'm here with local resident, Sam Brown, as we study his habits of cooking and eating. You'll notice we find him not in the kitchen but in his living room, in front of the television. He spends a lot of time here, so much time that he is known as 'Couch Potato Sam'. What are you watching?

SAM: Jamie Oliver.

INTERVIEWER: Oh, lovely. That's all about food, isn't it? Is that making you hungry?

SAM: Now you mention it, it is making me a bit hungry, yeah.

INTERVIEWER: Well perhaps you'd better go and prepare yourself a meal then.

SAM: Chicken supreme. 8 minutes, full power. Lark pie, 3 hours, no way. I think I'll go for something traditional, pizza.

INTERVIEWER: The story of 'Couch Potato Sam' reminds us that habits have changed on a societal scale and in a direction that is increasingly unsustainable. It is true that larks are no longer on the menu, but the environmental burden of Sam's diet is more extensive and more distributed than was the case with 'Housewife Sarah'. That's important. But the real point of their story was to remind us that change on this scale is not a matter of individual choice. The cooking and eating routines we have seen depend on really different infrastructures, skills and shared ideas about what makes a normal meal.

POLICY MAKER: That was a nice little film. I do like history programmes, but I don't really see what that's got to do with me. I mean 1875 was a long time ago, things have changed. Anything else you're trying to tell me.

SOCIAL SCIENTIST: Well, I suppose it was a bit short, but if you were paying attention you would have seen how it showed the different elements of practices like cooking and eating, and how they change in relationship to each other over time.

POLICY MAKER: How do you mean?

SOCIAL SCIENTIST: Well take housewife Sarah, for instance, and her larding pins. She knows how to use them and they're really important tools for her when she's making her pies, but without her skills and knowledge, they're really just funny shaped sticks.

POLICY MAKER: So you mean objects and skills go together?

SOCIAL SCIENTIST: Absolutely, and did you notice the part about social significance? For Sarah, all of the time she spends cooking is not just about the cooking but its about making the home and caring for her family, whereas, for Sam, food is really just fuel.

POLICY MAKER: Yes, I did get that.

SOCIAL SCIENTIST: But I really wish they would have made more of the different systems of provision, I mean that…

POLICY MAKER: The systems of what?

SOCIAL SCIENTIST: Oh, well I mean the options that Sarah and Sam have for making a meal. They depend on complex networks of provision, production, consumption, supply, and really what they do then ends up being related to the social organisation of food provisioning, and that's the part I really wish they would have said more about. But, I suppose in some ways it prepares us well for the next concept.

[Concept 3] “Transitions in practice reflect changes in the composition of elements, objects and materials, skills and know how, images and meanings, and in how these elements are integrated. Such changes are collective and practices have careers and trajectories of their own.” I think you know what I mean. Changes in what we do, behaviour changing in your language, are the result of transitions in practice not just the consequence of individual attitudes or choices.

POLICY MAKER: To be honest I’m not sure I do get what you mean. You’re losing me again and in any case, I don’t care about the past, I’m interested in shaping the future and I want to know what you think I should be doing. I mean, even if I did agree the patterns of consumption were shared and the outcome of infrastructures and institutions, and even if I did agree that the global food system was really important in shaping what people eat, well what am I going to do about that? What am I going to do to steer habits and conventions in a more sustainable direction?

SOCIAL SCIENTIST: That’s a good question. Why don’t we get the experts back and see if they’ve got some suggestions for you?

POLICY MAKER: Oh great.

SOCIAL SCIENTIST: Social scientists 1 and 2, if practices are made up of these three colour balls, then what can our policy maker do to promote change?

SOCIAL SCIENTIST 1: Well, you might start by perhaps changing this bit, change the infrastructures, the material circumstances, change the opportunities, make a difference. Look for example at these magnificent sewers. A bold infrastructural intervention built by the state, enabling new practices of hygiene and cleanliness.

SOCIAL SCIENTIST 2: Yeah, fair enough, and what about images, and what about, indeed, skills.

SOCIAL SCIENTIST 1: No problem. Governments have promoted the ideas of hygiene and cleanliness, for example, for decades. Take a look at this poster produced for the war office in 1941. In ways like this, and many others, policy makers have helped make, for example, washing part of daily life.

SOCIAL SCIENTIST 2: So, policy makers intervene by changing the elements of practice: yes, that does make sense.

POLICY MAKER: I can see what they mean, but where have people gone in this story? I mean, I’m interested in changing behaviour and you’ve just got three coloured balls.

SOCIAL SCIENTIST: Right, ok. I don’t think we’ve quite got the message across. Why don’t you sit down and I’ll try another tactic. Why don’t we just dip into the concept container and see if there’s an answer to your question in there. What’s that?

POLICY MAKER: Oh. Oh, that's social psychology. I've seen that before.

SOCIAL SCIENTIST: This is what I was looking for. There you go.

POLICY MAKER: "Concept 4: People are the carriers of practices. People's lives intersect with those of the routines and practices that they sustain and reproduce." No. You're talking in riddles. I mean, are you seriously trying to tell me that practices are more important than people, and people are just carriers of practice, and that I'm a host to a set of practices that have lives of their own? I mean, I've been quite patient so far. This is rubbish.

SOCIAL SCIENTIST: Just give it a chance. It might not be so crazy. I think I have another video that might help convince you. Its called 'Captured By Showering'. Take a seat.

POLICY MAKER: Thank you.

Captured By Showering

NARRATOR: If you want to save water you should spend less time in the shower, three minutes and not ten, and you should use a low flow showerhead. That's the current advice. But how does this relate to the ways in which people get wet today, and do the ideas of body, freshness and hygiene that they enact and carry?

In the UK, in 2009, people had an average of 1½ baths a week and 4½ showers a week. Only statisticians know what it means to have half a shower, but the trend is clear. For some people, showering once, twice or even three or four times a day is becoming normal. Just in case you're wondering, the development of daily showering is important for energy and water use in the home. It is true that a single bath usually takes more water than a shower, but in seven minutes a powerful shower uses more water than a bath. This means that someone who used to have a bath three times a week and who now has a power shower on a daily basis will have more than trebled their water consumption. This is especially important in that showers use hot water and making water hot accounts for around 24% of household energy consumption. These figures remind us that water use for bathing and showering depends on the technology involved - is it a bath, an ordinary electric shower or a more forceful power shower? - water use also depends on how often people use it [the shower] and for how long.

In becoming normal showering has captured people's time. It has embedded itself into their routine and it has become an essential and not an optional thing to do. As we are about to see there are different ways in which this comes about. But before we embark on our journey behind the bathroom door, I want you to pause for a moment and think. Why is it that so many people today pour so many litres of water over themselves to remove just a few specks of dirt, and why do so many do so on such a regular basis? Isn't that an extraordinary thing to do?

It is true, the Romans were keen on bathing, but for them it was a social activity not something private. And in the medieval period people were really scared of getting wet, scared that water would leak into their bodies and scared that they would leak out into the bath water. The idea of hydrotherapy came later, but even then getting wet all over was a special treatment, not something to do every day. Of course ideas about germs and hygiene changed all that but even then it was enough to take a bath once a week.

So what is all this about showering once a day? When you think about it, it really is very strange. How is it that daily showering has captured so many enthusiastic recruits? To find out we need to take a peek behind the bathroom door.

Meet Martin. Martin's getting ready for a night out. Taking a nice long shower is part of his ritual of getting ready for the evening.

He's washing his hair.

He's shaving his legs.

He's exfoliating, everywhere.

Each time he goes out he showers, and each time he enacts this combination of showering and going out, the more firmly he is committed to this routine. It makes him smell nice and fresh and it gets him in the party mood. He could not contemplate going out without first having a shower. He can't remember when he began to feel like this, but he knows for sure having a shower before going out is simply essential. It would be impossible to leave it out. Well, have a good night, Martin.

Alison is only just getting up. She jumps in the shower to wake herself up ready for work. She sets off to work all clean and fresh. It's 8:30 am and Alison arrives at work. Hang on a minute, what's going on now? What is she doing? It must have been that hot sweaty tube. She's having a quick shower at the office to cool off so that she's comfortable in that important meeting that's about to start.

It's lunchtime and Ali is off for a run. She takes another shower so she isn't sweaty and smelly in the afternoon.

It's home time, but it's a hot day. When Ali gets home she is still sticky from the tube. She's meeting some friends at yoga and getting coffee afterwards. She doesn't want to look a mess so jumps in the shower to freshen up.

Martin and Ali have not always acted this way, nor have their friends, some of whom have provided some details of their bathing and showering habits over the last few years.

This graph shows a rather clear trend in the pattern of bathing and showering. It is only based on information from ten people, but it shows that private habits are not idiosyncratic or random. In doing what they do, people like Martin and Ali create and reproduce and sustain specific versions of normality. Just as important, if people like them did not shower every day, daily showering would not be a normal thing do.

Martin can't separate showering from going out for the night. Alison can't do without the shower to wake up, to cool off, to wash off sweat, to freshen up. And in their showering, in their routine integration of the materials, the images and the process of showering, both confirm and reproduce the idea that using water in this way is completely normal. Both are, unwittingly, captured by the need to shower.

POLICY MAKER: Well, I'm beginning to see what you mean. Martin and Ali, I mean they're not using water, they're just doing what's normal for them, so if I want to reduce energy and water consumption, I need to focus on the dynamics of the showering habit, and I need to think about the social and material organisation of daily life. But, I think I can see a problem coming up because if I follow the advice of those social scientists and I intervene in the elements of one social practice, then I'm fairly likely to be making changes to some others. So, for instance, for Martin, showering is about getting ready to go out. For Ali, she's interested in bodily freshness and the freshness of her clothing, and for her the showering routine is meshed in with a whole load of other routines. So just telling them to use less water won't really change the rhythm of their day. But how does something simple as those three little balls explain the rhythm of a day?

SOCIAL SCIENTIST: I think you've just tripped over the next concept all by yourself. "Concept number 5: Routines and practices are not isolated, they connect during the course of a day and over the course of a lifetime, just as elements link together to make practices, so practices link together to make social and technical systems and societal rhythms." Why don't we invite those social scientists back? I think they were working on a model that helps explain this.

Oh dear.

It's quite something.

POLICY MAKER: It is indeed.

SOCIAL SCIENTIST 2: As we can see here, a day is made up of a whole set of different rhythms and routines, the details of which matter for one another. Ali has to fit showering into whole programme of exercising, commuting and meetings. So the timing of one practice matters for the timing of another practice. She has to squeeze in a shower here, and squeeze in a shower there just in order to be normal. It's simple really, time devoted to one practice is not spent on another one. So, therefore this type of element over here might be in competition with a set of elements over here, and this is something our policy makers really should be very

interested in. How do resource intensive practices, compete with those which might be more sustainable, and what particular patterns and configuration of patterns and practices make a lower carbon way of life?

SOCIAL SCIENTIST 1: That is a vital question. But, what's happening here? If you look here you'll see the model suggests that competences build, that experience is cumulative, that an enactment of a practice has consequences for the future, for the future direction of that practice. We saw that with Martin. He's now well into his routine of showering before he goes out for the night, it's not a pattern that is likely to break.

SOCIAL SCIENTIST 2: Doctor Watson, in this case I have to agree with you. Martin's practice of showering seemed extraordinarily stable. But what happened to housewife Sarah? There she was getting better and better at baking those lark pies and then what, instant meals arrived. Microwaves and fast food, all her skills went to waste. The particular links that held her way of life in place broke, just like that.

SOCIAL SCIENTIST 1: Indeed. Of course we can also see the model as a representation of their dynamic, interdependent relations that change over time around practices. If you look here you can see how cars and drivers have displaced bicycles and bicycle riders, and in the process roads have changed, shifting the landscape for the practice of cycling. Let me explain a little more.

Thank you.

In the 1940s, in the UK, 20% of journeys to work were by bicycle. The bicycle signified freedom, independence. Bicycles were solid machines. Roads were relatively empty. These elements of cycling have of course changed over time, not by accident but in relation to other practices as they have arrived, as they have developed - practices, most obviously, such as driving. So, as the materiality of cycling has changed, on the one hand bicycles have got lighter, easier to pedal, roads have got smoother, but the roads have got busier, more full of other traffic. So the skills involved in cycling have to change in order to cope with this environment and so the meanings change as well. These elements are interdependent and shift around each other. So the elements of material, meaning and skill are switched around in the UK in terms of cycling, but this configuration is not inevitable, it's not just the outcome of individual choice. So, this graph shows cycling rates for different cities around Europe, and you can see that through the middle of the twentieth century, cycling declined everywhere, in the Netherlands as in the UK. But in the Netherlands today there are of course more roads and cars than there used to be but there are also more cyclists than there were in the 1970s. There are increasing numbers of commuting cyclists, and in some cities there's as many as 40% of local trips made by bicycles. This isn't a matter of attitude or personal preference, in that country government policies have helped hold the elements of cycling as normal in place. Not through any so called behaviour change initiative, but by means of planning and managing, managing the relation between cars and bicycles, between

cycling and driving, between mobility and distance. They've helped keep the elements of a more sustainable transport system in place.

POLICY MAKER: Yeah, but so far you've just been talking about cycling. But this is an abstract model and in principle there's no reason why these ideas shouldn't help explain the global food system, or keeping comfortable indoors, or daily showering, or the practice of holidaying abroad. I mean none of these … none of these arrangements are an expression of individual choice, and all of them are part of systems like this.

SOCIAL SCIENTIST 1: Definitely.

SOCIAL SCIENTIST 2: Oh yeah, for sure.

POLICY MAKER: I think I might be getting somewhere now. Yeah, in fact I'm not so puzzled anymore, or worried, I'm slightly excited. I can see that policy makers have a hand in shaping the elements which make up arrangements like this, and policy makers in the past have had a huge influence over what people do today. Yeah, so what do I need to do differently? Just tell me, what else do I need to know? But make it quick because I don't have time to think or read.

SOCIAL SCIENTIST: Right. Can I borrow that? Alright, you want some simple messages to take back, perhaps in bullet points? Here we go then. Firstly you want to focus on how practices are reproduced and how they change, and then when you're thinking about trying to intervene in practices, you first want to shape the elements of practice and their distribution. And then our beautiful model is hiding it a little, but the last point is you want to shape the relations between practices. But, remember, as you're doing all of this we're not just talking about behaviour change anymore because all of the concepts that we've been finding in this container has led us to reframe the agenda and the problem.

POLICY MAKER: Yes. I need to go. I have to tell my colleagues that they have a future but it's not the one that they thought. Climate change policy is not about telling people to reduce their energy and their water use, its about intervening carefully and subtly in the elements and systems of daily life. Yeah. I must run.

Goodbye, goodbye.

Oh, and thanks.

SOCIAL SCIENTIST: Well it was great to meet you to and good luck. Let us know how you're doing.

Well I think we did a pretty good job there.

ELIZABETH: I think you did very well. Very well indeed.

The value of social science, as presented in this Extraordinary Lecture, is to redefine the meaning of evidence, to ask new questions and to identify new opportunities and methods of policy intervention. We've extended the vocabulary beyond the A, B, C. We can now talk about duck, which stands for dynamics, infrastructure, practice, postmen, rabbits and regimes. We can think about systems and spoons, tables and transitions, and in adding to this vocabulary, we could have got into a discussion of methodology. If only that policy maker had just stayed for a moment longer, we could have said so much more. We could have talked about the need for, not only a different vocabulary but different types of questions. We could have talked about the problem of focusing on water and energy, and how that doesn't allow him, really, to catch the changing dynamics of comfort, cleanliness and convenience, or about how ideas of the body are changing in society, all the issues that matter. So, new ideas mean new methods, new forms of intervention. This, for many policy makers, is unfamiliar territory but they have no need to worry. There's a whole history of social science on which to draw. There are plenty more concepts in that container, and in the exhibition outside.

If you go across the foyer, and if you're fairly quick, you can get a glass of wine in room 2, where you can collect your own concept container and take it through to room 4 where you can explore to exhibition of ideas for yourselves. There will be members of the working party on hand to explain. For each exhibit there's a postcard with some references, further reading, and you can collect the set of eight. So I'd now like to invite absolutely everybody who has been in any way at all involved in the working parties, or in the Extraordinary Lecture, to stand up.

Ok. Thanks to you all, and to everyone for coming to this Extraordinary Lecture.

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