

Transcription of Dr Sholom Glouberman's Lecture:
Thursday 24 February 2005

THREE PHILOSOPHICAL IDEAS AND HEALTH

Dr Harry Burns

It gives me very great pleasure to introduce my friend Sholom Glouberman. Sholom and I... I suppose it must almost be 15 years since we first met. Since then Sholom has returned to his native Canada to embark on a whole range of activity related to health. In Canada he finds himself with the wonderful job title of Philosopher in Residence at Baycrest Hospital in Toronto. Now, that's a genuine title - I've been in his office and he's got that name on the door. But what I really like is his assistant's job title. The office next to Sholom, the title on the door is Sorcerer's Apprentice - that's what I would really like. *[Laughter]*

Sholom is a philosopher by training and his PhD from Cornell is in philosophy and over the years we have explored some really interesting concepts as to how the Western idea has got to where it has on health, and that is what he is going to explore this evening. The format is he will talk for 45 minutes then we will have some discussion, and then Carol Craig will sum up, or will respond, at the end for five minutes and the aim is to be finished here by six o'clock. The one other thing to remind folk is that if they've got a mobile phone could you switch it off, or silence it, or something.

So it is my very great pleasure to introduce Sholom.

Sholom Glouberman

Thanks a lot. It's a pleasure to be here today to try out some of the things I have been working on. I've been looking at the history of three philosophical ideas to see how they develop over time, and then thinking about how they influence our ideas about health. Today I will try to see how all of this fits together.

The three ideas that I'm going to talk about are ideas about the underlying nature of the world; whether the world is chaotic or ordered. I want to look at how our ideas about the connection between chaos and order have changed in time. The second idea is about how humans relate to nature and how it has changed over time and finally the idea about how we know who we are, the notion of our self, how we understand ourselves, our self identity in time and how that idea has changed, and then relate those three ideas, and the changes in those ideas, to how our ideas of health have changed.

The first idea is about order and chaos. I will look at creation myths, ancient Greek philosophy, a little bit about the Mediaevals, the period of the scientific revolution with Descartes and Francis Bacon, people like that, and then I'll talk about the changes in the scientific revolution, what's happened since then about the notions of the relationship between order and instability.

We are all aware of the fact that in the bible God creates the world out of chaos - that order emerges from disorder. But it's not only the Judeo Christian tradition that has that creation story. Most cultures speak of a being, a god of some kind or a series of forces that create order out of chaos. Creation myths seem always to be about 'order out of chaos'. In many of these myths the question about the return of chaos is a part of the story: 'how do order and chaos interact in the world, how does that happen?' is a big, big issue that arises in most primitive societies that are beginning to think about these issues. Even in ancient Greece the notion of whether the world around us was ordered or chaotic remained an issue, so people like Heraclites, the ancient Greek philosopher, thought that the world was always changing, that there was no stability in the world, that the world was in some ways quite chaotic and disordered and said things like "You can't step in the same river twice." My friend Gerry Cohen who's a philosopher in England said: "Of course you can. You put your foot in the river and then you run downstream and put it in again and step..." No.

[Laughter]

And of course there are other philosophers in ancient Greece like Parmenides who said well there's no change, there's no change in the world at all - the real world doesn't change at all. In fact change is impossible, it is an illusion. The underlying reality must be unchanging. These issues were discussed by Plato who tried to bring the two ideas together. He expands the question from one about the world to one about the possibility of knowledge. For Plato, knowledge cannot change, and so the objects of knowledge cannot change. We can't know them if they are changing all the time. The world around us, the physical world, is a world which is very much not in order, it's full of change; our knowledge can't come from that world. But we do know things and so our knowledge must come from a world where things don't change. There must therefore be a world that doesn't change, a world of reality. There are two different worlds. One, the world around us, the world of becoming, and the other one, a world of being, as he called it. There's a very famous picture by Raphael which has Plato pointing up to the stars where the real world is, and Aristotle has his hand out as if to say "This is the world that's real and we have to understand it." "

Aristotle believed that the world around us probably had an underlining order. He thought that it was understandable, that there were enough stable elements in it so you could know things about the physical world. Aristotle's ideas have had a profound influence on the history of many sciences from physics to biology. Thinking about and observing phenomena allowed him to develop theoretical structures that were very stable and were the basis for how people tried to understand the world for almost 1800 years. So if you want to think science that lasts, Aristotelian physics was pretty much the physics of record from, I'd say 350 BC to 1400AD. That is a long time for a theoretical frame to last.

There is a strong connection between science and culture: How people think about the world is how they think about other things as well. For example there are interactions between how we think about the world and the values that we have, what we think of as truth, how we gain knowledge, how we use knowledge, and of course how we think about health.

Medieval physics adopted Aristotelian physics, but added the role of an active god, an active creator, which Aristotle did not really think about much, so that the order in the world was related to divine will and to the way in which God made the world. There is an order, but it's an order that is understandable to God. It's not completely understandable to man because of human limitations. Aristotle had already introduced the idea that there are purposes to things, that one of the ways of thinking about causality - is thinking about the purpose of something. So, for example, the purpose of an acorn is to become an oak tree and for Aristotle becoming an oak is the final or end cause of an acorn. So the notion of ends and objectives of things is part of their nature and part of our understanding of their causes. The mediaevals thought about these ends in terms of divine purpose. In mediaeval thinking the reason that a swan is white (*candidus*) is to teach us about purity, to teach us about purity of soul (*candour*) and to connect those ideas with this broader picture of reality that the mediaevals had in their religion.

The sources of knowledge for the mediaevals included not only observation and historical documents that came down from the ancients but also revelation and scriptures. They also believed that in ancient times people knew more, and that there was a loss of knowledge over time. Historical and scientific research was an attempt to regain some of the knowledge that had been lost.

In the late medieval / early renaissance period people began to attack Aristotle and to look at physics differently. So for example Copernicus argued for a heliocentric solar system rather than a geocentric one, Galileo attacked the Aristotelian view of falling bodies: There were attacks on the ideas about final causes. The very foundations of Aristotelian thinking came under attack. Everything from the introduction of the printing press to the discovery of America – influenced new ways of thinking

Francis Bacon argued for a major intellectual cleanup. There are things inherent in our nature that mislead us to look at the world in certain ways that are false; there are sometimes subjective attitudes that we have had to overcome in order to get to better pictures of the truth; sometimes language itself can mislead us. Bacon calls these the false idols that must be destroyed before we can have a clear understanding of the world. He introduces a method of gathering information and testing it in order to find out whether or not you could get some kind of truth that is objective and free of the earlier idols. His ideas become the inspiration for the beginnings of the Royal Society in 1650s and the rise of what we now call modern science. The frontispiece for the first contemporary history of the Royal Society contains a portrait of Bacon as its inspiration.

In the 16th Century Descartes began to think about the world as mechanical and human beings as mechanisms with a difference – as machines with minds. This mechanical metaphor for nature is taken up by many early scientists and philosophers. Newton, for one, tries to show how the solar system functions as a mechanism that follows the three laws of motion. He believes that his theory of gravity applies to everything from the tiniest object to the largest astronomical objects. Because the three laws of motion should apply to everything in the world, he sets a problem of demonstrating the stability of the solar system.

The debate between Newton and Leibniz appears in a series of letters between Leibniz and Clarke who is Newton's representative- the Clarke-Leibniz debate. Newton held that the solar system was built by God, and it was clock work but it was a real clock, so God would have to come in and adjust it every once in a while - fix the dial, wind it up, make sure that everything was working right, put in a little bit of oil, do things like that. So God had a role as a caretaker of a real clock-work solar system. Leibniz believed that if God created the solar system then he would have created a perfect solar system that never needed any kind of intervention. So that it would be a self running machine, an eternal machine. And those two views, the struggle between those two views became a very important struggle at the time.

Newton was very, very religious and believed that there was a god. The fear was that if you took an interventionist God out of the solar system that it might very well lead to atheism. And many of his colleagues, the people he worked with in the Royal Society, were also very religious. Towards the end of his life, Robert Boyle became afraid that this new science might lead to atheism and he spent quite a lot of effort trying to clear his conscience and assure himself that the new scientific knowledge did not come from diabolical sources.

Simon Laplace was a late 18th / early 19th century French mathematician. He's the man who did a very early census in France, did a lot of demography, and a lot of studies of hospitals. But his big book on the solar system is called 'Celestial Mechanics'. He was a young genius, very much like Newton and he set as his task to complete Newton's work - he was going to prove the stability of the solar system and he was going to prove that the solar system worked on a Leibnizian model. He thought that a complete cycle of planetary movement around the sun would take about 10,000 years. He developed a series of formulae that would prove that the solar system was completely stable over that period of time and if you had a picture of the solar system at one instant in time, and you understood the Laplacean formulae, then you could deduce where every element in the solar system would be all the way into the future and all the way back to the beginning of time.

Now that model, Laplace believed, would not only work for the solar system, but it might work for everything, since everything from the smallest molecule to the largest star had to follow the three laws of motion. As a very young man he had the idea that if there were a being who understood all the laws of nature and had a picture of the world, the universe, at one instant in time, then he would be able to deduce everything that had ever happened, and everything that would happen in the future. And that being has come to be called 'Laplace's Demon'. This is a description of it that he wrote when he was in his twenties.

This description is, I think, at the core of our belief about the world - that most of us believe something like this: that if only we had all the laws of nature right, and if only we had all the information, then we could figure everything out.

We may regard the present state of the universe as the effect of its past and the cause of its future. An intellect which at any given moment knew all of the forces that animate nature and the mutual positions of the beings that compose it, if this intellect were vast enough to submit the data to analysis, could condense into a single formula the movement of the greatest bodies of the universe and that of the lightest atom; for such an intellect nothing could be uncertain and the future just like the past would be present before its eyes.

When Laplace came to Paris he studied with Jean Le Rond d'Alembert, a mathematician who got him a job at the Académie Militaire. Napoleon was a cadet there at the same time that Laplace taught, and there is some discussion about whether or not they actually had contact at that time, but certainly when Laplace wrote his '*Celestial Mechanics*' Napoleon was in power and he knew Laplace. The story goes that he came to Laplace and said: "Look, I've read your book", because Laplace's book was accessible, "I've read your book, but I see in it there's no mention of God" and Laplace is said to have replied: "God is an unnecessary hypothesis". The change to an atheistic science that Newton and others feared occurred by the end of the eighteenth century.

Napoleon appointed Laplace as the Minister of the Interior but fired him after six weeks saying, "He tried to reduce the workings of the ministry to a series of predictable infinitesimal events." And of course it didn't work. Here is an argument against the scientific management of Fredrick Taylor that happened a hundred years before Taylorism ever existed.

At the end of the 19th century Henri Poincaré demonstrated that when you have three bodies in space you can't have a single formula that's going to tell you where they all are at the same time. Poincaré shows that it's not a matter of not having found a formula yet, it's that there is no formula because of the ways in which three bodies interact.

In 1988, Jack Wisdom, an astrophysicist at MIT built a computer that took into account more than 40,000 variables and calculated the paths of the outer planets. He found that there were chaotic aspects to the paths of one moon of Pluto. In 1989 Jacques Lascar built an even more powerful computer and considered more than 150,000 variables, to show that the solar system was unstable over a period of 200 million years.

So we go from the notion that there is an underlying order, a mechanical account of the solar system to the recognition that there are aspects of chaos even in the most regular feature of our world. There are limits to how far we can predict the location and velocity of the bodies in the solar system. This is a very powerful attack on Laplace's Demon. It's very hard for us to assimilate its consequences. We think that we understand them, but deep down we continue to think that if only we had more information and if only we had the formulae we'd be able to predict without limit. It's very hard for us to believe that there are limits to our capacity because of the nature of the world, not because we just don't understand yet.

We know that there are lots of non-forecastable phenomena now and we have mathematical proof that tells us that some things are not forecastable - from the stock market to the weather to the next drip of the faucet. It's not simply that we don't have enough information and that we don't have the formulae right. It's that, given the nature of these phenomena there are no such formulae and it's not just a matter of not having enough information or not getting the formulae right - that's the hard thing for us to assimilate.

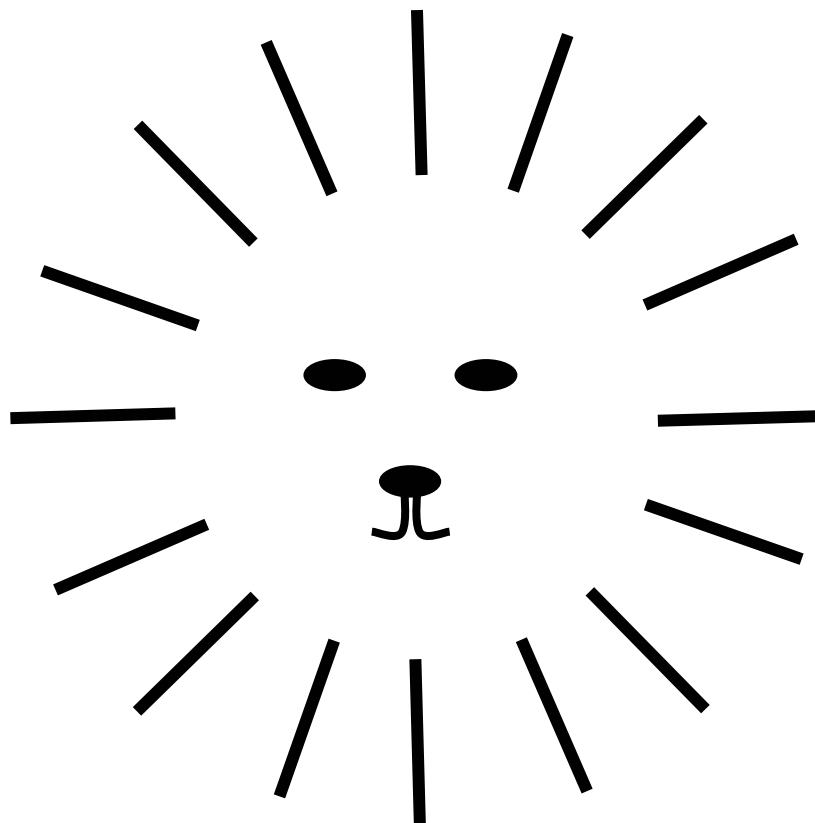
That's the first big idea. We go from the notion that everything is chaotic, to it's being ordered by a divine being, to the notion that the world is basically ordered, to the notion that, well, it looks like there is an interaction between order and chaos that's happening all the time - that seems to be the root of that idea, that is how it seems to go.

I will trace the history of the second idea in the same kind of way - from ancient times to today. In pagan societies everything has spirits associated with it - the world is alive; rocks are alive; mountains are alive; trees are alive; everything is alive, everything has a soul. We were talking before about astrology... it's now thought to be a pseudo-science, but in fact up until the 5th century or the 6th century people built temples to the stars thinking that the planets around the world were gods. Not that they represented gods but they *were* gods - you saw the gods themselves in the night sky. The joke goes that two young Canadian girls are sitting and talking and one says: "What's further, Vancouver or the moon?" and the second one says "Heellloo - you can see the moon!"

[Laughter]

Aristotle made the distinction between different kinds of living things. He said that there were different kinds of souls: vegetative souls, animative souls and rational souls, and he distinguished human beings from other living things because we have all three souls, while animals have only two: vegetative and animative, and vegetables have only one. Aristotle thought that only human beings had self conscious lives.

The mediaevals began to make human beings even more distinct from the rest of the world as human beings were somewhere between earthly creatures and spiritual ones like angels. The great chain of being is a hierarchical account of nature - there's a hierarchy of minerals; a hierarchy of animals; a hierarchy of trees; a hierarchy of living things. At the top of the hierarchy of mortal living things are human beings - they are just below angels. So angels go above the line and human beings go below the line. Human beings actually cross over a little bit because of their immortal souls.



When you look at this picture *[referring to slide]* it's very interesting that today, in our minds, what we see is a picture of a lion, and a picture of the sun and we think of both as gold. We have the sense that the lion, the sun and gold all go together. And the sun is in the hierarchy of planets and is the highest planet and the purest; the lion is the king of the animals; and gold is the king of the metals - it's the highest metal. So that notion of hierarchy and the hierarchy of these ideas is very, very deep in our own culture. It's not something that's accidental - it has a very long and powerful history. The symbols are deeply imbedded in our minds; we all recognize them almost immediately.

Francis Bacon identifies two kinds of truths - luciferous ones that shed light on things, and fructiferous ones that allow us to have practical application, allow us to gain control over nature. Before the 1960's, Bacon was thought of as arguing for a science that would allow us to exploit nature; to gain power and control over it. More recently Bacon scholarship has changed and Bacon is thought to be a lot more environmentally sound. Certainly Bacon believes that science will increase our capacity to control nature.

Thomas Hobbes knew Bacon personally - he used to accompany Bacon on walks and take notes of their conversation. Bacon liked Hobbes because Hobbes was one of the few young note takers who understood what he was saying.

Hobbes' believed that the world is a jungle. There are no rules; that things are chaotic; that everything is uncontrolled; everything is dangerous; everything is wild. Science would tame nature so that, in the future, you could get rid of the jungles, get rid of the swamps. The world would be transformed into plantations and zoos. That is civilization. We would domesticate the world. The huge engineering projects of the 19th century like the Suez Canal, the great railroad systems, all represented a very optimistic picture of the world and our taming of nature.

This picture lasted until the middle of the 20th century. When Rachel Carson wrote a book called 'Silent Spring'. In the United States this made a huge difference. I think it made a difference here too. People began to change their attitude, and I think that we have very different view of the natural world now than we did even fifty years ago. Within a lifetime very serious and deep attitudes can change. We used to think that -we could control nature; that science was going to provide any answer to natural problems. This idea has eroded to the point that we now think that we have to live in accord with nature, in the same way as the mediaevals thought they had to. They had to have respect for nature; you have to have respect for god's creatures; you have to understand that you are part of nature and not simply the master of nature - we don't sit in that place in the great chain of being anymore. This probably has as much to do with Charles Darwin's theory of evolution as with Rachel Carson. SO I should say that there are lots of other influences on this kind of change. But certainly the publication of the book 'Silent Spring' marked a major change on people's attitudes to these things.

Now we see the jungle as full of complex patterns; it has a delicate order of fragile relationships; it's exotic and it's free. In fact, what's interesting is that we go from Hobbes's picture to Rachel Carson's and - we hold both of those views at the same time - and they are not contradictory. We have a more complex understanding of things when the pendulum of an idea swings back. When we think about a world that's chaotic, then God orders it and the world is orderly and then we have a notion of interaction between order and chaos - that's a richer picture of the world. The same thing happens here. We have a richer and more complex picture of the relationship between humans and nature.

The third idea is about self identity - understanding who you are. I'll go through the same thing again. In primitive societies, the way people understood themselves was in terms of kinship. You are somebody's sister, and somebody's wife, and somebody's daughter and somebody's cousin. Those kinds of relationships become the way in which you understand who you are. You understand who you are in relation with other people. Some of these kinship structures are very, very complex and very hard to decipher in fact, and many anthropologists spend years deciphering how people identify themselves.

A good way of reading Aristotle is to recognize that he saw individuals as part of a society. When he talks about the state he talks about the elements of the state being individual people. So the state is the big thing and individuals form part of it. Aristotle's notion of happiness and a good life is not acontextual - it's always as being part of the society that one lives in. So being a good person, for Aristotle, had a great deal to do with playing out one's role as a citizen; an artisan, a foreigner. Playing out one's role in the society, whatever that role was depends on the place one has in a society and also about how one uses that place.

There are books now being written that argue that the notion of the independent self really begins in the late medieval period. Personal salvation is a function of individual action rather than social context. As a result people began to differentiate themselves from others in a more extreme way and identity becomes distinct from the political context of your family and so on.

In the Renaissance and the Reformation, people gain the right to pray as individuals, to form individual beliefs about the scriptures and individualism gains ground. There has been some argument that the printing press had a profound influence on these kinds of changes because translations of the bible and other writings made them much more accessible to increasingly independent individuals.

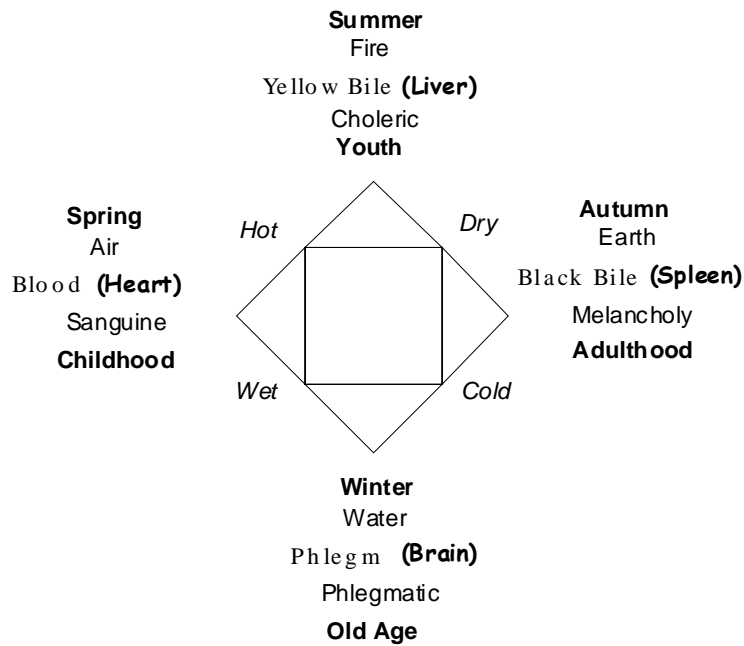
René Descartes, separates body and mind completely. The self becomes the mind - who I am is a mind, not a body. "Cogito ergo sum" tells us that it's only thinking that makes me who I am. According to Descartes, knowing myself, or knowing who I am, is purely a mental phenomenon. And then I have to prove the existence of the physical world. For Descartes self has moved from being entirely external to being almost entirely internal on this swing of the pendulum.

What's been happening since then is that the pendulum is swinging back. Philosophers in the 20th century - began to talk about the fact that you can't separate the body and the mind in the same way that Descartes did; that you have to start to think about people in their context. Thinking depends on language which in turn depends on other people. This is associated with where you are and what context you find yourself in. So people like Gilbert Ryle, G E Moore and Ludwig Wittgenstein all argued against the Cartesian separation of body and mind and the notion of self as being somehow a disembodied spirit inside the body. This is consistent with current theories about linguistics: which suggest that we understand who we are in the context of our culture. It is also supported by developmental theories recognition of the importance of family and social context on development - both neural development and personality development. So the brain only develops in certain kinds of ways with certain kinds of input from the outside world.

When you consider the three big ideas, a similar pattern of change emerges. They all swing to a mechanistic account that makes a large distinction between humans and the rest of the world - the special nature of human beings – and then swing back to older views, but to a richer and different picture of these earlier views. So it's an interesting kind of pendulum swing. Things do change and become more complex, but we continue to accept some of the older ideas as well.

Well, let's talk about health given that I only have two minutes left. But I'm going to go longer I think - I'm going to go a bit longer. The oldest ideas of health in the western tradition have to do with spirits inhabiting the body and the job of the Doctor was to get rid of the spirits. This is true of many primitive societies – to assuage the spirits, or to get rid of the evil spirits, or to do something like that. That was certainly true in the Mesopotamian medical books that we have translated.

Health, for Aristotle, is a resource. It's one of the resources that allow you to lead a good life - it's not an end in itself. Being very, very ill prevents you from living a good life. The test of a good life is that you have the resources for living it and health is one of them. Aristotle also considers that illness is an imbalance of different elements in the body and the objective of a cure is to rebalance things. His general views about nature and health form the background for the medical theories of Galen who lived in the late second century. His medical theories are closely connected to the Aristotelian world view lasted for a very long time just as did Aristotelian science. Galen integrates his medical theory with the theory of the world - with the seasons; with the ages of man; with organs; with humours; with personality - it all fits together. You just keep on adding layers to this.



Versions of this picture have appeared in medical books for almost 1,800 years. When you study medicine now you do a little bit of history in medicine so the picture remains familiar but no longer applicable. It was taken seriously and used in medicine up until the year 1800. According to Galen all of the elements of the diagram interact - the four humours interact with each other; they interact with personality; they interact with lifestyle; they interact with the fluids in the body and they go every which way. It's not a one way thing. It's not that you change the fluids. If you get more black bile you will become angry; if you become angry you will get more black bile – it's both ways. Interactive. Bidirectional. If you want to cure anger one of the ways of doing it is to get black bile out of your body. Another way to do it is to change your lifestyle. That there are all these different ways of intervening is the Galenic approach.

Galen like other doctors prescribed diets and fitness regimens. Modern nutritionists have reviewed Galen's diet and say: "If you live on Galen's diet for six months, you'll die because it is so nutritionally unsound." It turns out that nobody has kept to a diet since the time of Galen. Dietary regimens are there to be broken.

The mediaevals continue in the Galenic tradition but add God as a somewhat vengeful being who can make you sick if you are sinful. The mediaevals add a notion of perfect health – the health of Adam and Eve in the Garden of Eden before the Fall. They have physical, mental and spiritual well-being - no pain, no illness, no aging. This is remarkably like the WHO definition of health as a complete state of mental, physical and social wellbeing. According to this definition, I wonder if there is anyone in this room who is healthy. Well, nobody is standing up. I mean, think about it, right? So it's also a notion of a goal, or the idea that somehow we'll try to regain this paradise in one way or another - of course that's one of the mediaeval objectives.

Paracelsus begins the attack. Paracelsus Theophrastus Bombastus von Hohenheim - so nice to say it. He burns Galen's books in the town square - I mean, these are the famous stories about Paracelsus. He is an itinerant physician kicked out of one town and another. He engages in alchemy and uses mysterious chemical potions. Paracelsus has been cited as one of the most important influences on modern medicine because he introduces a picture of the body as a kind of chemical retort. A healthy person is a well-functioning chemical factory with appropriate chemicals and with chemical processes that work well. New content comes into the body with food and is transformed chemically through process of digestion and fermentation into blood, muscle and bone. Understanding the nature of digestion and fermentation becomes a major interest of medical scientists from that time on.

Paracelsus has new ideas about cures, and many of them are useful. For example, for anaemia you take iron says Paracelsus. His reasoning however, is different. So why take iron for anaemia? According to Paracelsus, you take iron because anaemia is a disease of the blood, blood is red, Mars is red, Mars is the god of war, and Mars is associated with becoming stronger and iron is related to war, and so you take iron for anaemia. Now, it works, right? But the reasoning is, to say the least, different. He uses argument by analogy to argue his point, but because he also experimented with different chemicals and gathered clinical experience., his results are not too bad.

Descartes' idea of the human body as a machine has enormous implications to medicine and ideas about health. Although it is not widely noticed, Descartes, in the Meditations says that "The preservation of health has always been the principle end of my studies." He hoped to devise "a system of medicine which is founded on infallible demonstrations."

Robert Boyle brings together the ideas of Paracelsus and Descartes and argues for a corpuscular mechanical account for the world, as well as for health. Much of Boyle's research was in health. In fact, he took almost no honours in his life. He wouldn't agree to become the President of the Royal Society but he did agree to accept an honorary title as a physician. Because he was quite sickly for much of his life he had a very powerful medical interest and a very powerful interest in health. In fact, I think that he was something like the Medical Research Council of his time. He funded the Royal Society, built many labs and hired large numbers of technicians and scientists.

The Cartesian view of the body is that health is a smoothly running machine. Adding Paracelsus' notion that it is a well-functioning chemical plant creates the metaphor for health that has lasted for more than 300 years. It is accompanied by a research program that has been extraordinarily successful. The germ theorists like Pasteur and Koch in the 19th century were a high point of this tradition. They began to understand more about the role of bacteria in fermentation; began to identify diseases; find their causes and discover their cures. And that picture of disease - the picture of acute onset diseases that led to epidemics - the identification of them and the cure of them followed this model. It showed the success and the wonderful possibilities inherent in the chemical mechanical model of the body. It led to great successes - enormous successes - at the hands of people like Koch and Pasteur and they were the beginnings - the founders, if you like - of what we call modern medicine.

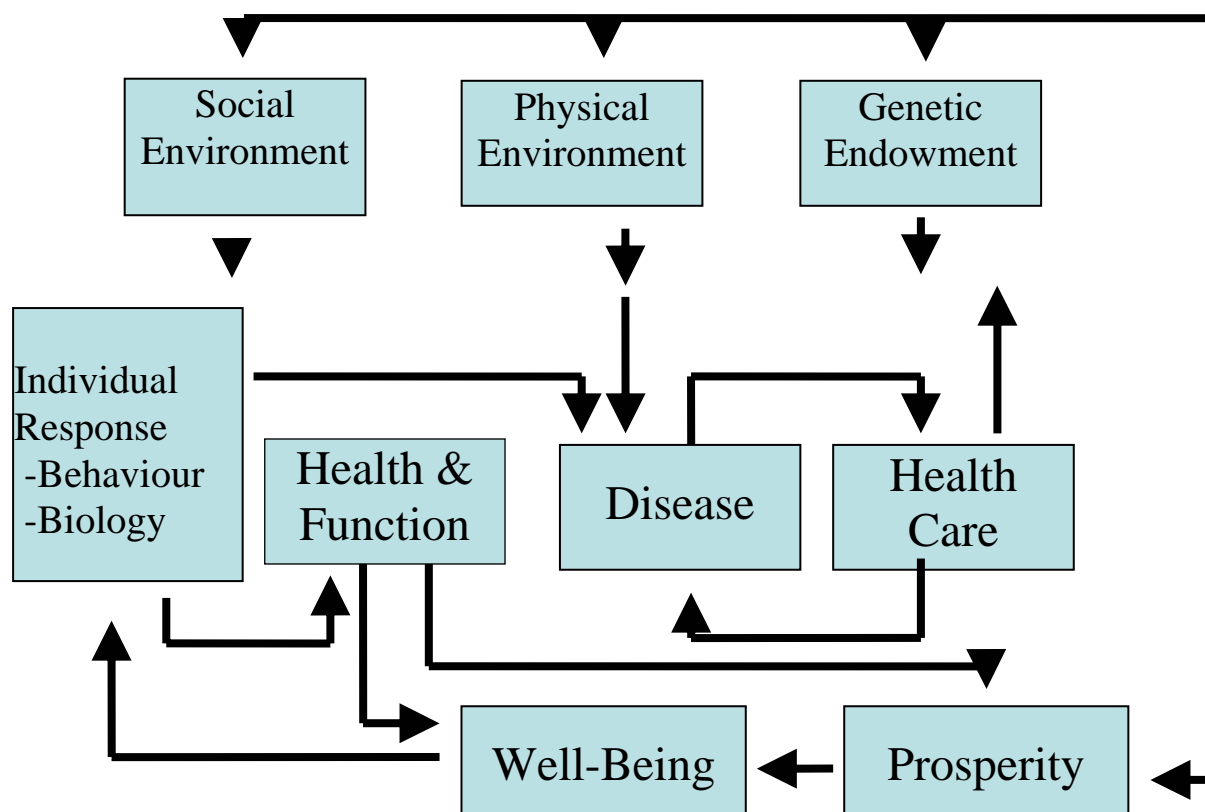
The rise of large public health projects such as sewage treatment and water purification emerged from this tradition. In fact the introduction of publicly funded health care systems can be traced to the discovery that many army recruits in the Boer War were suffering from medically treatable diseases, but could not afford care. So you have the arguments for publicly funded health care which happened in the late 19th century. Of course the NHS appeared only 50 years after these arguments began. That's about the time it takes for an idea to sink in - 50 years is about right. So be patient.

One of the things that was promised when public health advocates argued for the NHS was that if we could treat people who had medically treatable conditions we would have a healthier population and demand would go down. Instead, it went up. The success of the chemical mechanical model really raised demand, because there was more that you could do.

The limitations of the chemical mechanical approach to health began to become evident when some disease didn't seem to follow the model. In the 30 year war on Cancer in the United States they've spent over 100 billion dollars to find the cure for cancer and they haven't succeeded. To a certain extent that's because there was a misconstrual of what the nature of the disease was - it's not one disease, it's many; it doesn't have a single cause, it has multiple causes; it doesn't respond to a single treatment, there are multiple treatments. So it's not like the old diseases - it has to be thought of in a different way. The re-conceptualisation of these diseases is something that we're just now going through. That's what's happening. I have come to think that cancer research is something like trying to understand an epidemic of shooting deaths by spending millions of dollars exploring the intricacies of the gun trigger – right down to the molecular level. Do you think it's a good one? [Laughter]

In the late seventies Thomas McKeown, I think he's Scottish. Do you know about this guy? You do? And you know where he was really influential? In Canada. He was the guy who influenced the writing of the Lalonde Report in Canada. He believed that health doesn't come by the smooth running of the machine or the good running of chemical retort - there are other things that you have to think about. The Lalonde Report talks about the four major influences on health introduced by McKeown - the environment, lifestyle, human biology and health care organisation. The notion of "influences" on health, later became "determinants" of health, and have finally become the basis of modern health promotion.

The Black Report of the 1980s expands this thinking and increases the number of determinants of health but starts to correlate health with socioeconomic status - the big issue in Britain. Epidemiologists claim that they have shown causal links between socio-economic determinants and health. Their approach turns out to be a bigger picture mechanical model. It's at the population level, but remains a mechanical model. Adding new determinants like environment and lifestyle to human biology makes the picture more complicated. There are many variables that have a rather deterministic causal link to health. The figure below comes from a Canadian organisation called CHEPA that tries to model health in these kinds of terms.



So those are four powerful metaphors for health: the four humours; the Garden of Eden; the chemical processor; the machine. And we still have all of them in our minds. Now a new metaphor seems to be emerging, but we can't quite see it. That's the point of this whole talk - that we have these big ideas that change; they have an impact on how we think about health; the big ideas have changed but our idea of health - the new idea of health - is still very, very unclear. What I'm going to try to do is to give you another unclear picture of it one that I've been working on for 10 years, it's evolved quite considerably with Harry Burns' help. Harry and I talk about this all the time - over and over and over again - and both of us... we keep trying to clarify this picture. And every one of these pictures begins to show its limitations after a while. What do you do next? How do you think about it next? How do you look at it? Harry's most recent ideas are about inflammation - that inflammation influences diseases. Harry has a lot to say about this - that inflammation is a healthy response to every day stress; that it's necessary for normal development; that in children, inflammation followed by recovery increases the capacity to deal with inflammation the next time; and that in our lives there will be periods when we will have inflammation, have disease. The un-healthy response is you don't have enough recovery before the next episode. So if what happens is you have inflammation and you don't have time to recover and you get another inflammatory episode then that's not good for normal development. It's too much. Chronic inflammation results in increased risk of serious disease and there is, apparently, good evidence for that. So there are questions about what the differences are between developmental valuable and dangerous kinds of inflammation and despite a healthy scepticism about this view, there may even be physiological measures for this.

The critical idea here is that order and disorder are part of the interaction in the normal world and that people confront both in the courses of their lives. Their capacity to deal with stress and inflammation and illness is something that you want to develop: you want resiliency of this kind to be part of the concept of health. You expect that there will be disorder - a perfectly orderly life is only possible if you are very limited. It's not possible in the real world. If your heart beats at the same rate all the time you will be immobilized very quickly. There must be periods of disorder and even chaos in ordinary people's lives.

So the notion of smooth functioning as a basis for health is not adequate. Harry Burns has introduced a notion of 'bounce-back-ability.' This is different from 'control over your life' because it's actually being able to respond to unpredictable and uncontrollable periods of disorder in one's life. So you can't reduce it to 'control over life.' We don't have control over some aspects of our life, we must be able to take in crises and respond to them... periods of disorder.

It might be useful to think in Aristotelian terms about resources for health. This allows us to use aspects of all the metaphors to build our new one. A good balance of humours, genetic structures, and a clean environment are all resources for health. None of them is a sufficient condition. Some are necessary. We can add to this a sense of individual identity, and confidence as resources for health. Some resources are part of one's self and increasingly we understand that one's self is interactive with the rest of the world. This means that external resources contribute to one's sense of self, for example, education and prosperity and our relation to the physical environment. Can we say that how we relate to our environment might be an aspect of health?

I think that access to health care is a very important resource for health because what it does is it gives us confidence that if we were to become ill - and it's very possible that we will - we would be cared for. So the notion that access to health care is not important is a silly idea that neglects the importance of the security provided by access to care.

This very sketchy notion of health can help us look at policy implications. What are the policies that follow from it? Effective policies would increase people's capacity to deal with crises and instabilities. What are the kinds of resources that do this? Understanding that everybody's life is going to have some sort of disorder in it, what allows you to respond to that better? What are those resources? It's interesting that... and if you can provide those resources then you will be doing something that will improve the health of the population as a whole, and that will narrow the health gap between the rich and the poor

There are policies that haven't worked well. For example, health education interestingly, works well for some people and doesn't for others. What it seems to have done, in some cases, is to widen inequalities, benefit some groups differentially. People who are better educated in general benefit more from stop smoking campaigns than people who aren't. So stop smoking education campaigns, must be supplemented by campaigns that change the cultural factors around smoking, making it socially less acceptable to smoke in most contexts.

It may be that increasing people's capacity to respond to life crises can include things like providing them with more resources to help them bounce back. Amartya Sen advocates providing resources that allows people to increase their capability. More widely available bank loans are powerful economic enablers that provide resources relevant to bounce-back-ability. Access to a wide variety of such supports like health care, education and jobs are all examples of this.

It may be that the results of these kinds of interventions are testable. I think that we have a lot of work to do to try to understand what the resources are and how public policy can help. I don't think we have an answer yet. We must continue to assimilate this new way of thinking and build our new picture of health. This will help us think about the policies that would augment. There's a lot of work to be done, the work is interesting and there is a way of moving forward. So I'm very optimistic about this. I think people recognise the limitations of the old ways of thinking and are trying to think of new ways and in the past few hours since coming here we've begun to talk in that kind of way to try and see if we can get anywhere with it. But I'm not a guru - I don't have the answers.

What I do have is a different graphic for health; that there are other different ways of thinking about it; that the boxes really aren't so clearly defined; that the individual in the body isn't this distinct; that the boxes are sort of blurry at the edges with a lot more interaction than we think and there's a lot more room for chaotic behaviour. So, instead of having boxes and arrows that are the old kinds of boxes and arrows the graphic below is what I propose. The different environments are open-ended and we can't put them into boxes; that they interact with each other and then they all interact with the individual in ways that are not so clear and that together - all of these things together - may result in bounce-back-ability. Unpredictable external disorders can affect health. Someone said that the lightening bolt in the graphic reminded them of the plane hitting the World Trade Centre, which unpredictably, affected the health of millions of people. This is a good example of the need to have a capacity for resilience and bounce-back-ability. My time has been up for about 10 minutes so thank you for your attention and patience. I will now give you a chance to bounce back.

Harry Burns:

I'd like to ask Carol Craig to give us her response to the ideas that Sholom has advanced.

Carol Craig:

To accept the poison chalice and respond to this very erudite lecture?

One of the things which struck me from the lecture is that hardly a word was said about women. In other words, Sholom was essentially talking about different male ways of seeing the world. If women had been part of this discussion we wouldn't have constructed the world in that way. The lecture ended with reference to relationships, emotion and connectedness but these would always have been there for women.

Since I've done a lot of work on personality type I was also aware that this isn't simply one male group's perspective, but a particular personality type's view of looking at the world and it's not how the majority see it. Incidentally, I myself am an abstract thinker so I understand their predictions but that's not how the masses see the world: it is a minority personality type. I was also aware that this was a Western perspective and that Eastern philosophies have a very, very different view of the world and maybe a view of the world that is much more conducive to good health because they don't see it in a mechanistic way. So I was very aware in the lecture that there was little about diversity or difference.

When I was listening to the lecture I had a wee voice in my head saying: "What have you let yourself in for in agreeing to give a response to this?" and this inevitably got me thinking about the fact that we are essentially animals who are very alert to fear and danger because that's what keeps us alive. It appears that the brain actively seeks out negativity and that there is a predisposition to negative self talk which is prevalent across cultures. Indeed psychologists like Csikszentmihalyi and others maintain that left to its own devices the brain becomes negative. One of the great benefits of Eastern philosophy and religions is that they train individuals to stop being driven by these negative impulses.

So how does this relate to the last point of the discussion? Illness may well be fed and encouraged by such negativity and those who are most likely to be healthy or get well easier are those who are managing a better level of positive self talk a lot of the time. I'm not meaning by this glib and superficial positive thinking but something which is positive and realistic. A lot of the time what we feel pessimistic about doesn't come to pass; we can train ourselves to see that things which we might see as negative out there are not as bad as we think. And it is in this type of approach that we may help people lead healthier lives.

Thank you.

Transcript prepared by Ms Fiona Boyce.