

# **Baruch Spinoza – A Seventeenth Century Philosopher for Today’s World<sup>1</sup>.**

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Some terms in this talk may be unfamiliar to some readers; or they know of them under a different name. Therefore, I insert, as footnotes, brief definitions of some terms used.



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I think you know that I've had a life-long interest in this mysterious organ inside our heads – the brain. Part of my interest has included the background philosophy on the relation between the physical entity of the brain and the mind, spirit, soul<sup>2</sup> – call it what you will – somehow related to that brain. However, this topic – generally seen as a question for philosophers – is very similar to one generally considered by theologians – the relationship between the physical universe as a whole, and the universal mind, spirit or soul, thought by some to exist – also known as “God” “Allah”, “Yahweh” or “Jehovah”.

On the philosophical question, my own views started to form before the age of 20, and are still broadly the same, although, I hope, now more broadly based, and more sophisticated. The philosophy is one which can be called “Psycho-physical parallelism”<sup>3</sup>. Mind and brain *are* very different, but are quite inseparable aspects of the same thing. The two go about mysteriously in parallel. Mind and brain are thus not sufficiently separate that one can talk about interactions, in a causal sense between the two. That means that mechanisms in the brain can be studied along the same lines as in physical sciences, without having unanswerable questions in the area where the non-material mind imposes its influence on the physical brain. So the philosophy of psycho-physical parallelism helps scientific study of the brain.

There are plenty of precedents for this way of thinking. One of the pioneers of experimental psychology, the German, Gustav Fechner (1801-1887) elaborated a similar view. He was a pioneer in developing psychology as a scientific discipline. He was the first to suggest a way in which the subjective aspects of sensation could be matched in quantitative manner with the magnitude of the stimulus which caused that subjective sensation. In his philosophy, in completely consistent fashion, he extended the relation between a single mind and its brain to the whole of the universe, which is then, at the same time both active consciousness and inert physical matter:

"As our bodies belong to the greater and higher individual *body* of the earth, so our spirits belong to the greater and higher individual *spirit* of the earth, which comprises all the spirits of earthly creatures, very much as the earth-body comprises their bodies. At the same time the earth-spirit is not a mere assembly of all the spirits of the earth, but a higher, individually conscious union of them. . . .the divine-spirit is one, omniscient and truly all-conscious, i.e., holding all the consciousness of the universe and thus comprising each individual consciousness. . .in a higher and the highest connection."<sup>4</sup>

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<sup>2</sup> I use these terms (as well as “consciousness”) in the same sense, to refer the subjective aspect of our selves. Others may want to draw distinctions between these terms.

<sup>3</sup> **Definition:** *Psycho-physical parallelism:* Events occurring in our minds run in parallel with events occurring in the brain. Our way of knowing each of these two is very different, but they are inseparable aspects of a single thing.

<sup>4</sup> Fechner,G. (1835/1945). *On life after death*. (trans H. Wernekke), Chicago, Open Court Publishing.

Another one who advocated psychophysical parallelism was a pioneer in neurology in Britain in the nineteenth century— John Hughlings Jackson (1835-1911) who was director of the West Riding Lunatic Asylum, near Wakefield in Yorkshire<sup>5</sup>. Here is a quote from him, less mystical in tone than Fechner:

States of consciousness are utterly different from nervous states of the highest centres. The two things occur together, for every mental state there being a correlative nervous state. Although the two things occur in parallelism, there is no interference of one with the other<sup>6</sup>

Fechner's metaphor for this is very evocative - a curve which is convex from one point of view and concave from another, yet it is just a single entity. My own metaphor is the two sides of a single coin. This has the additional implication that it is very difficult to see both sides at the same time. For either metaphor, it would be absurd to suggest that something happening on one side of the curve (or the coin), "caused" something to happen on the other side; and likewise it is absurd to talk about things in the mind causing things in the brain (or vice versa). Before any of these people, their forerunner, in the seventeenth century was the person I want to talk about, the Dutch philosopher, Baruch Spinoza, (whose writings were known to Fechner).

Let's go back a long, long way, to give the background. The ancient Greek philosophers, starting with Pythagoras, and then Plato were consistent dualists<sup>7</sup>: Mind – the world of spirit - was also the world of abstract reasoning, held to be absolutely true and therefore eternal. This was quite different from, and vastly superior to the world of physical and empirical reality. This viewpoint was taken up by some Christian philosophers, especially St. Augustine, and became central to Catholic philosophy, and still is to this day. The idea of each person having one indivisible immortal soul, supposedly outlasting the body and therefore independent of it, is an example of this. Amongst more modern philosophers, the issue of the relation between mind and brain is sometimes also frankly dualist, for instance with René Descartes, (although he was not favoured by the Catholic church of his day).

Others have said that only mind or spirit really exists (the idealists), or that only the physical world really exists (the materialists<sup>8</sup>). Both of the latter two, I think, still betray

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<sup>5</sup> This asylum was very unusual, in that it did research: and its research reports were transformed into the journal *Brain*, which is the oldest and now the most prestigious of all neurology journals.

<sup>6</sup> Clark, M.J. (1983) 'A plastic power ministering to organisation': Interpretations of the mind-body relation in, late nineteenth century British psychiatry. *Psychological Medicine*, 13, 487-497.

<sup>7</sup> **Definition:** *Dualism*: The belief that mind and matter (or sometimes mind and brain) are separate substances, so clearly separate that one of them can exert influences (acting as an external cause) on the other.

<sup>8</sup> **Definition:** *Materialism*: This term is a bit confusing, since it is commonly used to mean "over-concerned with worldly possessions". As a philosophical term (as I use it here) it refers to the belief that the fundamental form of reality is physical matter (i.e not mind, spirit, etc).

the influence of Greek dualism. To systematically reject one or other side of the dualism, means that you still think using the same terms as the Greek dualists.

Amongst scientists, dualism has also had major advocates. Isaac Newton, great man that he was, developed a system of the universe ruled by the laws of motion and the principle of universal gravitational attraction. By themselves, these laws were entirely deterministic<sup>9</sup>; except that, in his theology, Newton envisaged that God (“the Divine Arm” was his phrase), from a position right outside the physical universe, could bring about whatever change he/she liked to do, upon this physical universe. For instance Newton was puzzled about why the planets came to have the right positions, velocities and direction of movement in the first place, so that they could then circulate regularly through the heavens. These problems were solved, according to Newton, by the active intervention of God, as in the following quotation:

“The transverse impulse must be a just quantity; for if it be too big or too little, it will cause the earth to move in some other line. . . I do not know any power in nature which would cause this transverse motion without the divine arm.”<sup>10</sup>

Theologically, this had the seeds of its own un-doing, because, as more and more aspects of the motion of planets came to be encompassed within a deterministic framework, God – the Divine Arm – became increasingly redundant. This is perhaps why, today it is so often thought that, to be a true scientist, you must reject religious or theological notions, or even be a frank atheist.

There has however been another tradition in Western thinking, also going back to before the Christian era. Here I am indebted to a book by the late Harold Turner, who was a New Zealander, and whom I met a few years ago, in his ninetieth year in Auckland. I was led to him, by asking in Otago why it was in Europe, rather than, say, China (which had far better technology), that science, as we now understand it, eventually emerged. It was the Methodist chaplain there in Otago, Greg Hughson, who put me on to Turner’s book entitled “Roots of Science”, which tries to answer this question.

Turner traces the theological and “world-view” background to the emergence of science. Alongside the philosophies of the ancient Greeks, he describes the world view of ancient Hebraic tradition, as described in the Old Testament, one where body and spirit are equal in status, as inseparable partners. Turner calls this “duality”, to distinguish it from Greek dualism. This did not however become the dominant theme in Christian philosophy. Amongst modern philosophers, Spinoza is possibly the one who advocated this world view in most systematic and conscientious manner, although he is not

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<sup>9</sup> **Definition:** *Determinism:* The belief that, if one could know the exact conditions of everything in the universe at any point in time, and had sufficient intelligence, the scientific “laws of nature” would allow one to predict every future event with complete precision. This view was stated most explicitly by the French mathematician, Simon Pierre de Laplace, a century after Newton. If it is true, it implies that our own behaviour is pre-determined, and therefore the concept of human freewill or responsibility is an illusion.

<sup>10</sup> Thayer, H.S. (1953) Newton's philosophy of nature. Selected from his writings, Hafner Publishing Company, New York, p. 52

mentioned by Turner. Turner himself was a firm Trinitarian, and so set himself against Isaac Newton, who was what is now called a unitarian<sup>11</sup>; and Spinoza is vastly different from either. At a theological level, Spinoza appears to have rejected the Hebraic view, where God was a spirit who could intervene in history, and who was clearly outside the physical universe. As such, I have read of Spinoza described as the most radical of Western philosophers, the one who escaped most comprehensively not only from the Christian world view, but perhaps from the Judeo-Christian world view altogether, putting him more amongst Eastern philosophers.

Let me tell you a bit about his life and times. Baruch Spinoza (1632-1677) was born in Amsterdam, with a Jewish/Portuguese background. His first name is variously recorded as Bento, or its Hebrew equivalent Baruch, both meaning “blessed”. Many persons of Jewish faith had left the Iberian peninsula in the sixteenth and seventeenth centuries to escape the activities of the Spanish Inquisition, and later the Portuguese Inquisition (which included forced conversion for non-Catholics). Spinoza came from a comfortably-off Jewish family, was intellectually precocious, receiving an education within the traditions of the orthodox Jewish community by then established in Amsterdam. Little is known of his early life. In early adulthood, he had some experience in his father’s business, but rejected this in favour of a life of philosophy and scholarship.

In his early twenties two events occurred whose relationship is of great interest, but remain obscure: He became increasingly familiar with the writings of René Descartes (who was then also living in the low countries, and whose writings were published in Amsterdam). In addition, in 1656 he was excommunicated from his Jewish community. This was potentially very serious, not only in religious terms, but also socially and in relation to the networks necessary for Spinoza’s financial security. The reasons given, in the fearful proclamation, read in Hebrew at the synagogue in Amsterdam, mentioned “evil opinions”, “evil acts”, “heresies” and “monstrous deeds”, without defining what these words, opinions and deeds actually referred to. It is probable that ideas absorbed from Descartes’ works were unacceptable on theological grounds to Jewish, as they were to Christian thought. Steven Nadler<sup>12</sup> argues on the basis of anecdotes told by people who knew him at this time, that he was already speaking freely on the opinions which later were to form the core of his philosophical writings. Central to these were challenges to Jewish belief on the nature of God, on the divine origin of the Torah, and the “law” of Jewish tradition, and on the immortality of the soul (a point on which he actually agreed with Isaac Newton, but I think for different reasons). With regard to other aspects of Jewish tradition, his later writings clearly challenged the claim of Jewish people to be “chosen” in the eyes of God. At the time a similar issue was controversial in Christian groups in Amsterdam: The Calvinist majority was challenged by a group known as the Remonstrants. In both cases (Jewish claims to be “chosen”; Calvinist ideas of predestination), there were fears of new movements promoting democratic ideals, which Spinoza certainly supported later on, and probably did at the time of his

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<sup>11</sup> Unitarianism was emerging as a denomination in Newton’s and Spinoza’s lifetime. It probably traced back to theologians in the Iberian peninsula, and before that to Islamic thinkers in that region. Islam, of course is firmly monotheistic and anti-Trinitarian.

<sup>12</sup> *Spinoza: A Life*, 1999, Cambridge University Press.

excommunication. In the years after 1656, Spinoza lived for a while in Leiden, and then at a small village, close to the sea-front, near Leiden, called Rijnsburg. In 1665 he moved to another village (Voorburg) within walking distance of The Hague, where he got to know Christiaan Huygens, the pioneer physicist at this time. After his excommunication, he earned his living as a lens grinder, his lenses being held in high regard. This employment was probably not undertaken just from economic necessity, as is sometimes claimed. It is nevertheless possible that his early death was due to what was later called “grinder’s asthma”, due to inhaling glass dust.

As a philosopher, Spinoza’s work was not well known in his own lifetime, since he published little under his own name. His earliest writings were concerned with the interrelation between theology and politics, no doubt reflecting events surrounding his excommunication and other political currents in the 1650s. In later years he developed a more comprehensive philosophy starting from metaphysics, and including epistemology, science and ethics. He was known to the polymath and philosopher Gottfried Leibniz, and also to Henry Oldenburg, the first Secretary of the newly-formed Royal Society of London, who travelled a good deal in Europe, and actually visited Spinoza on one of his visits to the continent. Through the latter connection, he may have had an indirect influence on Isaac Newton.

While originally accepting Descartes’ dualism, Spinoza later advocated the view that mind and body were different aspects of a single reality. On a large scale, *that* reality, which encompasses the whole universe, could interchangeably be called either “God” or “Nature”. This philosophy, presented most comprehensively in his major work *Ethics*, published in the year of his death, 1677, was radically different from anything preceding it in Christian or Jewish traditions, or elsewhere in Judeo-Christian philosophy. In those traditions, the idea of God as separate from the created universe, acting upon it throughout history, from outside the universe, was central. Spinoza veers more towards eastern ideas, with a sort of gentle, yet very rational mysticism, not unlike that of Gustav Fechner two centuries later. By suggesting that God and Nature were identical, he totally rejected Judeo-Christian ideas of God, and that God, by acts of will, created the world as an entity separate from himself, performed miracles, and judged humans after their death. The soul had no *personal* immortality in Spinoza’s view. While it may be eternal, as is the physical material from which the body is made, that eternal entity contains nothing of personal identity. Christian concepts such as the Resurrection and the Incarnation were allegorical or metaphorical, rather than historically true. His philosophy led to common charges that he was either a pantheist or an atheist. His correspondence with Oldenburg, whose religious views were relatively conventional, became distinctly cooler in the 1670s, as Oldenburg gradually came to realise just how radical Spinoza’s philosophy actually was.

Like Descartes, Spinoza started from fundamental principles; but note that in the seventeenth century, ideas about what physical “causation” might be were unresolved, and were a matter for intense debate. Thus, inevitably his arguments are very abstract and general. I have not read much of Spinoza himself, even in translation; and since the secondary sources always present Spinoza’s views through the perspective of the writer (who may have a less radical perspective on fundamental matters than Spinoza), his views may be distorted. No doubt I do the same, and I try to piece together his ideas in a way which makes sense to me.

For Spinoza, the two most obvious attributes of a “being” or of a “substance” were *extension in space* (typical of physical bodies) and *thinking* (typical of minds), this distinction applying quite universally. One of Spinoza’s most interesting arguments was that if entities have absolutely *nothing* in common, they cannot be engaged in causal interaction. So, things which were extended in space engaged in their own form of causal interaction, and things existing in the realm of thought (ideas) followed their own quasi-causal sequences. However, since extension has nothing at all in common with thought, there can be no causal interaction between “mind” and “body” in either direction. Instead, there was a continual parallelism between the two sequences, necessarily so, since the two were different aspects of a single entity.

Some years ago I wrote a book published by SCM Press (*“Arguments against Secular Culture”*), and it was reviewed by someone from Knox College in Dunedin, with the headline “Spinoza amongst the Existentialists”. Why am I so attracted to Spinoza?

*First*, his philosophy allows one, as a scientist, to study the function of the brain, in the same way as one studies other parts of the natural world, without being confounded by the possibility that the soul (or whatever you want to call it) can interfere causally in the processes in the brain (as the dualists would claim). Moreover, one also does not have to deny the reality of subjective experiences of the person embodied by that brain (as many materialist seem to do). So, since those subjective experiences are one of the origins of our intuitions about moral or ethical values, we are not forced to cut ourselves off from one of the roots of human values.

Let me expand a bit on the merits of Spinoza’s philosophy for study of the brain: Physically the brain consists of many parts, interacting in immensely complex ways. As a result, our minds become quite well integrated most of the time; but they are never quite a complete unity for *any* of us. There are times when we haven’t quite got it all together, behave inconsistently, or out of character, and people who notice this may then make comments to embarrass us – and that is a reflection of the fact that physically our brains are not, and cannot be *completely* integrated. On the other hand the convinced dualists think of the soul as a complete integrity, an absolutely indivisible unity. Descartes, who, amongst other things, had studied anatomy, was led to believe that the physical brain interacted with the soul within a little structure in the middle of the brain called the pineal gland.

Why there? For the very good reason, according to his way of thinking, that the pineal gland is the only structure in the brain which is *not paired* into right and left sides: It sits right in the midline of the brain. So that was the only place where the indivisible soul could exert its influence. This is interesting reasoning. However, animals as well as humans have pineal glands, so they too must have some sort of eternal soul; but I don’t think Descartes got onto that.

Likewise Newton, another dualist wrote as follows:

Every sentient soul, at different times and in different organs of senses and motions, is the same indivisible person. There are parts that are successive in duration and coexistent in space, but neither of these exist in the person of man or in his thinking principle, and much less in the thinking substance of God. Every man in so far as he is a thing that has senses, is one and the same man throughout

his lifetime in each and every organ or his senses. God is one and the same God always and everywhere.”<sup>13</sup>

It is difficult to do rigorous brain science on the basis of such a philosophy.

In the seventeenth century, when ideas about natural causes were just being developed, natural causal laws might be viewed as being quite deterministic (except, for Newton, when God intervened). Spinoza could not use Newton’s assumption about an interventionist God, and so was probably a more systematic determinist than Newton. Nowadays, we know, from the most rigorous science – namely physics – that strict determinism can never be demonstrated empirically. Even theoretically, there are limits to what mathematics can prove in any logical system<sup>14</sup>. So, on logical grounds, strict determinism is unprovable theoretically. This is important, in reconciling a quasi-deterministic view of brain function with the demands we face for personal responsibility in moral and ethical decisions. That is always a problem for a world-view which makes determinist assumptions. Seen from today’s viewpoint, the quasi-deterministic aspects of Spinoza’s philosophy need not imply that we are absolved from these moral demands. Indeed, when we hear in legal court proceedings, someone claiming “I, as a person, am not responsible for my actions; my brain made me do it”, that person is implicitly using the concepts and language of Descartes’ dualism, not the parallelism of Spinoza. Thus Spinoza’s philosophy, with a bit of modern elaboration, still allows one to hold on to the centrality of the concept of a person, as a metaphysical entity, essential for developing human systems of value, without falling for the rigidity of the dualist position, or the moral emptiness of the materialist position.

*Second*, Spinoza’s philosophy still allows us to have a degree of relativity about the moral shortcomings of other people, and of ourselves, rather than hardline fundamentalist ideas of moral right and wrong, or mortal sins. We can accept a degree of determinism in our own behaviour, and that of other people. While not abandoning moral constraints, we can be somewhat forgiving of others, and of ourselves, when we can’t measure up to ideals.

Let me pursue this further with regard to mental illness: As you will be aware, for many serious mental illnesses, suicide is a serious risk. Sometimes (for instance for severe depression) that risk is built into the experience itself; but often it is a bi-product of the way we conceptualise it. Suppose our thoughts are behaving in a completely unruly, irrational way, coming up with notions that, in social terms, are quite unacceptable; and suppose also, as is often the case, that we have partial insight into what is happening to us. This puts us at serious suicide risk. If we have internalised a dualist philosophy, we are likely to blame ourselves (whatever that means) for those unruly thoughts, and there is then likely to be a catastrophic collapse in our view of ourself, and this can lead to definite suicidal acts. If on the other hand we have internalised a Spinoza-like parallelism, we can calm ourselves, and accept that, “that seems to be the way I am being driven today. Perhaps I need help . . . and in any case, I should try to forgive myself”.

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<sup>13</sup> Newton: *Principia*, final (1727) edition, completed and published the year Newton died. This paragraph did not appear in earlier editions of *Principia*.

<sup>14</sup> The branch of mathematics which develops this idea is called “chaos theory”.



For mental illness, more than for other forms of illness, “understanding is healing”, and Spinoza’s philosophy is a good basis for such understanding, and therefore for healing. Spinoza was striving, as far as possible, “to be free from the passions”. The human mind does not stand outside nature but is part of it, and is subject to nature’s laws. However humans are also rational beings, always seeking understanding. Spinoza writes:

“A man’s true happiness and blessedness lies simply in his wisdom and knowledge of the truth.” (*A Theologico-Political treatise*).

He regarded the “highest human perfection” to be to understand our own place in Nature, or, in Spinoza’s own words, to acquire

“knowledge of the union the mind has with the whole of nature”<sup>15</sup>.

As a determinist he rejected the idea that “good” and “evil” exist in a general and universal manner, but only as a reflection of human judgements. However, he is ambivalent on this. He regards God (=“Nature”) as benevolent, and writes:

“We maintain it as a fixed and unshakeable rule, that God is the first and only cause of all our good, and one who frees us from all our evil.”

*Third*, in Spinoza’s lifetime a radical split in areas of scholarly activity was becoming entrenched, and still is entrenched to this day. Before the seventeenth century, despite endless scholarly disputation, all philosophy could be considered together. “Philosophy of nature” (which later became the natural sciences) was not separated from moral philosophy. All were encompassed within a single world view. After the seventeenth century the two had become poles apart, seen for instance in the split between the natural sciences and the humanities.

One of the clearest examples of this shift is in the thinking of the Royal Society of London, founded 350 years ago this year, in Spinoza’s lifetime. So, in an anonymous late-seventeenth century memorandum, we read that the “business and design” of the Royal Society was

“to improve the knowledge of naturall things, and all useful Arts, Manufactures, Mechanick Practices, Engynes and Inventions by Experiments - (not meddling with Divinity, Metaphysics, Moralls, Politicks, Grammar, Rhetorick or Logick”<sup>16</sup>.

In 1696 the Royal Society refused to license a book for publication on the grounds that its subject was “Theological” and hence “not within the Cognizance of the Society”. The very first scientific journal (*Philosophical Transactions of the Royal Society*), founded in 1665, can now be searched on-line in its entirety, and you never find reference to terms such as “occult”, “theology”, “ethics”, “sin”, “prayer”, and later, “ectoplasm”,

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<sup>15</sup> Steven Nadler (op. cit.) p. 177 for references.

<sup>16</sup> M. Hunter: *Establishing the New Science. The experience of the Early Royal Society*. The Boydell Press, 1989, p. 560.

“telepathy”, “psychokinesis”, “time-travel” (in a vernacular sense), or now, “near-death syndrome”. These terms never appear, although some have been put to quite rigorous experimental test. “Religion” appears as “phenomenology of religion” only. “Morality” was absent until the year 2004, when one number contained papers on legal aspects of neuroscience. I haven’t yet tracked down how this rather exclusive concept of nature arose in the seventeenth century; but obviously it is very different from the view Spinoza would have adopted, where God and Nature were different aspects of the same thing.

*Fourth*, the question raised *ad nauseam* by modern biological secularists, and by many others is: How can you believe in a God who is all-powerful and all-loving, that is an interventionist God who is also the guarantor of human values, when you confront all the meaningless suffering in the world? This is no longer a problem in Spinoza’s world view: God is not responsible for what happens in the universe: He or she *is* the universe, and suffers and rejoices along with all humans, animals and others.

In our present times, biology, not physics, is the dominant science, and that biology is seen in increasingly simplistic materialistic terms. Biology, including the biology of the human brain is seen in a simple deterministic manner. As I’ve already said, this can never be proven, but it still convinces many people. It is part of the modern secular faith for many people. This might be justified in terms of biology now having its basis firmly in the physical sciences; although anyone who knows a bit about twentieth century physics knows that such simplistic determinism has long been abandoned by most physicists.

Anyway, according to the modern biological materialist viewpoint, the concept of human nature and human personhood is reduced to that of inanimate machines, as of no more significance in terms of enduring values than the dispensable mechanical devices which surround us, impressive products of modern technology no doubt, but of no more intrinsic value than the money and resources needed to produce them. The advance of molecular genetics claims to understand human uniqueness just in terms of the sequence of genes, described entirely in chemical form. More convincingly, in my view, the advance of neuroscience has made such mechanistic analysis of human personhood, both in terms of psychology, and underlying brain dynamics eminently plausible, if not exactly provable.

We used to think of the essence of each person as a unique and indivisible unity, like an atom, as captured in the idea of a single immortal soul. But in the last generation many people have been going down the strict materialist track. It *is* now entirely plausible, if not obligatory, to break up the human person, including his or her thought processes, and personal uniqueness into parts, whose interactions are analysed quite mechanistically, at least in terms of brain theory, if not comprehensively in an empirical way that will allow exact prediction of human behaviour. The human person is no longer seen as an atom-like unity. We know that even the most fully integrated person never corresponds to the idealized formulation of a unified personal whole. Different personality types plausibly derive from different physical make-ups of their brains; and to some extent that can already be demonstrated. When personal identity does not fit well into social norms, we talk about treating people with gene therapy, and we already practice treating it with psychoactive medicines. Can we still sustain the concept of an individual essence, unique to each person, hitherto the anchor for systems of morality, law and human rights? Why, in this brave new world, is human suffering at all important? If human beings are mere chemical, electrical and genetic machines, why does anything in the moral sphere matter?

I think there are no answers to such questions if we have a strictly materialist world view. Indirectly, the same is true if you are a strict dualist, because, as I already suggested, Newton's view of a determinist universe and an interventionist God had within it the seeds of its own demise. The progressive rise of atheism since Newton's day, is proof of that pudding.

Spinoza's gentle mysticism allows a different way of looking at our situation. Sure, our physical make-up contains deterministic elements, but it is unprovable that determinism is strictly and absolutely true, so it leaves room for notions of human responsibility. Spinoza's parallelism of mind and brain, of the subjective and objective sides of the single coin, allows us to take human suffering and rejoicing seriously, rather than denying their reality, and at least that is a start to taking moral intuitions seriously. In this respect Spinoza's philosophy might permit a start to healing the rift between the natural sciences and the humanities which has grown since Newton's day. This is desperately needed: The formidable ethical problems which modern biology presents us with certainly can't be addressed adequately either from a strict materialist, or from a dualist position, such as that adopted by Descartes or, with a different twist, by the modern-day Catholic church. In the seventeenth century the most prominent thinkers were wrestling with the deepest metaphysical issues, and, it was from that, that the notion of the natural sciences emerged. I don't think we can get a proper resolution of those profound ethical dilemmas unless we go back to square one, rethink the answers which predominated after those debates in the seventeenth century; and I look for different answers. Just imagine if, in the century when the natural science tradition emerged, it had been based on Spinoza's philosophy, rather than that of the Royal Society of London. Perhaps we now need his perspective to put us back on the right track, after centuries of rationalism which was not always based on very helpful assumptions.

In this, we do not need to see the interests of humans as completely paramount, the only ones that matter. Animals and other life forms have their own styles of consciousness too, and of suffering; and of course humans can and do form close relationships with animals. (Most people accept this in practice, but few build it deep into their world-view, perhaps just because they do not think in those terms.) So Spinoza's world view implies that we do not see human interests as the *sole* source of moral demands; there is also an obligation to preserve a stable environment.

Some influential modern thinkers, such as Paul Davies, emphasise what appear to be uncanny coincidences in the physical universe, which make for a stable universe, ones which make possible the formation of life-sustaining planets, and therefore for the existence of humans who can contemplate that universe. One way of viewing this is to perceive *design* in the construction of the universe (a view to which Isaac Newton subscribed). This also resonates with a modern view of many environmentalists, the concept of the planet earth with all its life forms - "Gaia" is the term used - as itself a self-sustaining living organism. Fechner, I'm sure would have accepted that view. With that as a background, Spinoza's parallelism of the physical universe (that is Nature) and the universal spirit (a.k.a. God) allows us to view the universe as a whole as a form of living organism, which, like ourselves, is part physical, part spiritual; and since that universal living being somehow seems to allow us to exist, even to sustain us, most of us, at least for a little while, there might even be an appropriate and reciprocal emotional response from us, as one spiritual entity in relation to another, of *gratitude* at least. In

similar tone, the nineteenth century New England hymn writer Frederick L. Hosmer (1840-1929) penned the following verse:

Thought answereth alone to thought  
And soul with soul hath kin.  
The outward God, he findeth not  
Who finds not God within.

I don't think this is main-stream Christianity, although it probably fits some of the lesser strands of Christian thought. Spinoza's philosophy certainly won't fit some of the best-known lines from the gospel, such as "God so loved the world that he gave his only begotten son etc". It is however probably quite similar to the world view common amongst indigenous peoples who, for countless generations, have lived close to the land, and have similar acknowledgment of a reciprocal relationship with the land. In Russia, I've heard people speak with some emotion of the vast expanses of forest and steppe in their country, as "Mother Russia". It's exactly the same sentiment.

I should also say, in finishing, that this is the first time I've ever expressed these views in public, and I've hardly ever spoken of them in private; but they've been with me, and growing, for a long time.