

David Bohm, Paul Cezanne and Creativity

TALK GIVEN AT EDINBURGH ON CREATIVITY

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As a very young man David Bohm had a vision of the transcendent, of an intense light that could stretch across the universe, of a light so bright that it formed a new color, light so intense that it would penetrate matter. Also of energy, energy that could destroy worlds, of whirlwinds and tornados, of penetrating acids, highly active chemicals, chemicals that would excite the brain. And of a universe that exists in a higher dimension.

The images were always taken from science. (Indeed, Bohm at that time believed implicitly in the power of science to control nature and transform human society.) Yet on the other hand (light, vortexes of fluid, energy) they are all metaphors for the subtle, for that which lies beyond surface appearance, for that which can enter into them. His visions are not uncommon with the mystics - after all Jacob Bohem's first great illumination came from staring at light reflected in a pewter plate.

As with any image of such a numinous power it has a multiplicity of meanings (Freud suggested that such images are "overdetermined", Carl Jung called them archetypes and spoke of the powerful forces that can be unleashed when one gives oneself to the archetype. The ancient Greeks spoke of a divine intoxication of giving oneself to the gods.) It could be taken to refer to the primal forces of the natural world, to the penetrating power of the human intellect, to the realm of the subtle, to unconditioned creativity, to what is called "the spirit", or even to the breath of God. And we must remember that although Bohm did not subscribe to any orthodox religion in later life he was brought up in the Jewish faith and heard of the God that cannot be named.

I mentioned the Greek notion of possession and maybe this is not too bad a way to describe Bohm for the one possessed becomes "enthused" but always at a price and when the gods departed they could leave Bohm in a deeply depressed state - one must remember Neitche who believed he was possessed by Zorashtra, which gave him moments of intense illumination and passion but finally robbed him of his mental balance. I'm not saying this was the case with Bohm. His was a fine mind yet I think what he did took him beyond the personal intellect and left him open to what lies beyond - the unknown, the unconditioned, the pure intelligence of the universe, an act of grace, a pure passion.

And if he was possessed then maybe it was by those twin gods that haunt western civilization - and, at the time of the Greeks, were named Apollo and Dionysis. Apollo being order, classicism, balance and harmony. Dionysis being the divine intoxication, the transcendence of rules and order, "inspiration". Maybe those gods used Bohm as their testing ground and, through him, contemporary science.

As a young man Bohm may have dreamed of new scientific theories, and have used his political views of, for example, individual human freedom and the need for a socialist collective, to guide him towards his theory of the plasma in which individual behaviors is made possible by the existence of the collective (shielding long range interactions) and the collective by virtue of the existence of the individual. But later Bohm began to see that new theories, new ideas and

hypotheses were simply not enough, what was called for was a NEW ORDER.

At one level this represented a new scientific order, one that was demanded by the revolutions of quantum theory and relativity. These represented dramatic changes for science ways, Bohm pointed out, that brought us closer to the way we actually perceive and experience the world than the physics of Newton. Nevertheless although the theories have changed the old order remains - most significant was what Bohm termed the Cartesian order of space and time, an order I personally associate with some prior, the vision of space inherent in perspective. In placing the viewer outside the universe, limiting him or her, freezing time, presenting a single "objective" vision of the world. Earlier art was filled with time and movement and the view was free to enter into it. So for me the Cartesian order is one of the ways in which the human participator has been excluded from the universe.

Bohm was clear that there could be no reconciliation of relativity and quantum theory until this new order (of space and time) had been discovered. The new order had to be prior to any theoretical advance in physics. Part of what he meant by the new order was the Implicate Order, and the notion of an infinity of levels to reality, each being qualitatively different from what lies above and below. An order that is never reductionistic for which processes within the orders below can give rise to manifestations at higher orders these higher orders, in turn, condition those that lie below.

Bohm even went so far as to suggest that a new order called for a new language, a new means of expression. Our present language, he said, stresses the separation between objects and their independence. His rheomode would begin with pure process and activity out of which would emerge, at a secondary level quasi independent objects localized in space and time.

But these is far more to Bohm's call for a new order than what is inherent in a new scientific revolution for Bohm came to see the world as wholeness and process - this is even inherent in a scientific theory he developed as a schoolboy. It is truly a "theory of everything", matter, process, space, time and even consciousness.

For Bohm a new order was also a new order to human society, comparable to the transformation of order that took place in the late middle ages. It would be a new order of mind and matter, of matter and the subtle, of thought and what lies beyond. A new order implied a transformation of human conscious, not simply at the level of the mind but of the brain and body itself. As he often said, a change of meaning is a chance of being. Transform individual consciousness and the consciousness of humanity is changed; transform consciousness and the physical brain is modified. Produce a radical change of order and consciousness and it reached deeply into the world of matter, transforming DNA and even possibly changing the status of the material world - and I don't think I am distorting Bohm in taking things this far.

In this Bohm may not be too far from the ancient Cabbalists and Alchemists who participated in the Great Work as a means of renewal, of placing oneself in correspondence to the moment of creation, of naming, of breathing the animating spirit. Or of the Sun Dance of the plains which is a ceremony, a sacrifice, a social renewal for the whole of creation. Or of the medicine wheel, the prayers at sunrise, the sacred circle and pipe. They are all ways of expressing our participation in the

ongoing processes of creation and renewal.

Now in taking things this far I begin to see how Bohm had become a part of a very general movement of renewal that, I believe, is taking place in our own time and began maybe sometime in the last century. It is an attempt to bring humanity back into the universe, to assume our responsibilities and obligations. To make room for love and compassion in the face of nature. If Bohm approached this from the perspective of the sciences asking questions about the structure of space and time, of the meaning of matter, light and energy; of moving from object to process; then I believe that very similar investigations are taking place in the fields of art and music.

It is fairly obvious that from the time of Cezanne artists have been struggling to find new orders; but this also implies a questioning of the whole meaning and function of art, of the role of the subjective and objective. I believe that these are some truly radical questions being explored that have many parallels with what is going on in science. A few weeks ago Anthony Gormley and I were discussing the nature of art. I mentioned Umberto Eco's vision of aesthetics in the middle ages, that it was not pure egotistical creation and self-expression but rather assisting nature. That seemed to strike a cord, sculpture was acceptance of the natural, of matter and the human body. It was entering into the space within the body and using that as the starting point for sculpture. It was seeking ways to define space in relationship to the human body and the architecture in which it lives - a space within and a space without. So space becomes relationship, relationship based within the sensation of the body - not far from Bohm. And not far from Cezanne either whose new order in painting came out of the sensations of the body.

And going into this inner space, this endarkenment, is what is common to Anish Kapoor. Which also raises the question "Where is the art" And David Hockney and his seeking to place time back into painting recalls very much Bohm and Hiley's attempt to introduce time into physics.

Now there is another point I want to make and that is, in seeking a new order, how Bohm saw this as very much involving the fact of the material world and his existence within it. This again I see as a symptom of our return into nature, the reanimation of nature and accepting human responsibility towards nature and our own fact of existence.

Quote Bohm on the internal body condition - I believe that much of Bohm's thinking took place at this level, a level at which mind and matter are indivisible. It is not so much the brain that is thinking, that is stringing along words - the internal chatter - but the entire body through subtle muscular movements which then unfold into thoughts. Or rather that the body movements become ordered, or that an internal body process takes place which can then partly manifest itself in intuitions and perceptions. Then these may become symbolized as thoughts and ideas - and the intellect then has to do the job of filling in the gaps and producing a new order - an order appropriate to, for example, the English language or mathematical algebras. Bohm accepted that his body was a microcosm of the macrocosm and so the order of the universe was manifesting itself within his body. Using the language of his Implicate order, the whole lay implicit in each part and was therefore present in an implicate way within his body.

The discipline of years of studying physics, developing particular sensitivities and skills then enabled him to partly unfold these sensations. (He spoke to Einstein about this and

learned that the physicist similar proceeded from minimal body movements. Einstein carried a ball that he used to squeeze when thinking about space and time. It is clear to me that the deepest "thinking"/intuiting takes place at this level.

I have also read about Hockney designing sets for Opera, playing the music and experimenting until at some point the color glows or takes on some numinous quality. This has been described as "synesthesia" which I feel is another word for having access to deep body experiences which can be made manifest though years of training and coordination. In this sense we are very similar to Cezanne vision of his "sensations" and nature thinking itself through the medium of our bodies.

Cezanne said something very similar to Bohm

"The Landscape becomes reflective, human and thinks itself though me. I make it an object, let it project itself and endure within my painting...I become the subjective consciousness of the landscape, and my painting becomes its objective consciousness."

"I am becoming more lucid before nature, but always with me the realization of my sensations is always painful. I cannot attain the intensity that is unfolded before my senses.... Here on the bank of the river the motifs multiply, the same subject seen from a different angle offers subject for study of the most powerful interest and so varied that I think I could occupy myself for months without changing place by turning now more to the right, now more to the left."

Creativity becomes nature singing her own songs. The scientist and artist become assistants, co workers with nature. Nature seeks new ways to express herself though human society and human skills. In turn we seek to celebrate nature though acts of renewal.

Now all that sounds very nice but I also want to touch on a darker side. In many ways Cezanne had a miserable life, his painting was always a terrible struggle and he signed very few paintings. He was rude and intransigent. He hated being touched to the point where it cost him his life. After going out to paint and getting soaked to the skin he collapsed in the road of a fever his female servant was too frightened to pick him up, several days later her died. Realizing the sensations was a terrible struggle for Cezanne "the realization of my sensations is always painful." In some senses the search for a new order was similarly a struggle for Bohm and he spoke of the conflict he experienced when starting to do science.

The reason, I believe, is that these "sensations" lie very deep, at what Jung called the "psychoid" which was "neither matter nor mind and both'. They are levels tied to our deepest conditioning and earliest experiences of the world. Those artists and scientists who struggle to discover new orders must enter that world and it involves, I believe, a very painful sacrifice that can almost destroy the individual.

Activating these sensations can also mean activating incredibly painful emotions. Bohm Cezanne and Bohm suffered from a difficult relationship with their fathers. Bohm would speak to me of painful tensions within the body, being connected to early memories and feelings that had become locked within the physical body.

To take a different tack Piaget pointed out that when science seeks deeper and deeper levels of reality and abstraction - as

for example when we move from practical geometry, to Euclid, to topology, to cohomology, to abstract algebras we are, in fact, excavating both the history of human thought and, in reverse, the development of cognition at the earliest stages of life. To be a Bohm or an Einstein is to touch one's very earliest perceptions of the world and these can be bound up with incredibly painful sensations. Some lying at the purely personal level of an individuals history, some to do with the particular society in which one is reared, others being universal ones of separation from the mother and seeking autonomy.

When I stand in front of Cezanne I feel these painful conflicts and struggles very clearly - it is a world away from Beato Angelo or Mattise. Some are able to make the passage, others can be almost destroyed by it. I think that this is something we are all struggling with in the present day.

I spoke of sensing a common purpose and a desire for a new compassionate order, of something that unifies the natural and the transcendental. I do feel it is present in the arts, music and science. At another level it can be a powerful antidote for what I see is a flight from matter in our present society and a desire to escape into the world of spirit - as symbolized by Steven Hawking. While there is much to admire in Hawking's scientific achievements I find the adulation a little disturbing when people speak of the escape for the human spirit from the confines of matter. Rather I prefer alchemical renewal in which the spirit is refined and then returns to the womb of matter in an act of sacrifice and renewal (and here the metaphors may be getting a little mixed.)

In summation, Bohm sought a new order within physics. It becomes an entire new order for life and society. For myself I would not so much seek a transformation of human consciousness for that seems a little onesided - too much spirit and not enough matter - but rather a renewal of our position within the universe.

I find the vision of Islamic alchemy very attractive at this point. The classical alchemists were not so much concerned with the creation of gold but with an inner work. When transformation occurred, when the mirror of the heart was polished and cleansed, when the veils were lifted, at that point one had a radically different vision of the material world. Base matter was truly transformed because one saw it anew and that each thing was filled, to its capacity, with the divine. But then, since all things are one, all things are connected, at the moment of cleaning of perception and opening of vision then the world of matter itself became changed, renewed and transformed. It was no longer the same as before. So the transformation was mutual, when the interior changes so does the exterior. (Again I believe that something similar happens in art and that there is a true transformation both at the level of perception and material realization, one that cannot be explained in mechanistic terms alone.)

It is at this point that the work of the artist, the scientist and the medieval alchemist become the same. It is about our role in the transformation and renewal of nature, the manifestation of the divine. Bohm's search for a new order in physics goes right back to his earliest visions and his dream that human society could change and become more compassionate.