Implications of a technoscientific culture on personhood in Africa and in the West

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Abstract

This paper endeavours to converge on present-day experiences of self. This is done against the backdrop of the interdependence between person (organism) and environment (physical and cultural). The rich history of development of personhood in the West is discussed with reference to the metaphor of mask for personhood. Cultural epochs are described as phonocentric (in front of the mask), logocentric (behind the mask) and virtuocentric (between non-present masks). The history of modernism led to the experience of the end of personhood in the West. The restoration of personhood (subjectivity) seems possible through the restoration of some form of communitarianism. This brings Africa in focus. In an enigmatic way Africa knows science and utilises technology, but simultaneously relativises it in favour of traditional customs which the Western mind may judge to be mythological and primitive. African personhood is discussed with reference to African science in the format of Indigenous knowledge systems, to African community life as ubuntu, and to the place of seriti in African metaphysics.

1. INTRODUCTION

1.1 The search for personhood in a technoscientific environment[1]

It is part of human nature to question human personhood. What it is to be human, and what it is that constitutes personhood belongs to borderline

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[1] The term *technoscience* is used to reflect the crumbling of traditional boundaries between science and industry, between science and its applications, and between pure science and applied science.

questions like "Why are we here?", "What are we destined for?" and "What should we do?"

We can no longer respond to these questions by simply referring to metaphysical, ideological, philosophical or religious convictions which exclude the way our physical and cultural environment codetermines the views we hold. Significant changes in our physical or cultural environment inevitably pose new questions to personhood and modify the answers we give. Recent developments in technoscience have impacted on humankind in such a way that it questions human personhood in a radical new way. The question "What is a human person?" is still asked but can no longer be answered in terms of a cultural environment that no longer exists. Taylor (1989:27) considers this an "identity crisis", an acute form of disorientation, which people often express in terms of not knowing who they are or where they stand. For many, there is not a meaning-giving horizon of any significance any more.

Innovations in science and technology are so decisive that it can be said to introduce a third axial period which refers to a period of creative and radical cultural change in human existence. The first axial period refers to all the current major world philosophic and religious traditions which emerged in roughly 800-200 BCE. It was a period of new prosperity and concentration of wealth which stimulated new ideas. The second axial period was introduced in the 15th century with the advance of modernism. Our *axial age* is determined by increasingly explosive scientific and technological developments, as well as economic and cultural interpenetration and interaction (Gillette 2002:462-463). Teilhard saw a future axial period which will transform individual consciousness into global consciousness, envisioned not as simple, homogenised or empty obliteration of individuality, but as fruition of the person in and through mutuality (Shafer 2002:131). But in our axial period how few would see the realisation of the Teilhardian vision?

If our axial period, characterised by globalism, information technology, the market and technocracy, changes the cultural and physical environment, it will also change the experience of human personhood. We already experience the feeling of loss of control and of increasingly being objectified in a technoscientific environment. Technology has placed us literally in control of our destiny. The question "What is it to be human?" can no longer be isolated from the question "What is it to possess technology?" We do not only possess technology; we also serve, duplicate and improve it. Everyone is shovelling coals of progress into the locomotive of society without knowing where it should be going. Our salvation lies in production and production secures the future (Moltmann 1971:25). Our technological world has become the dictating

subject and humans "format" their lives to its demand. The human subject has been lost.

Michel Serres (in De Beer 2001:205-206) clearly indicates in his anthropology of science, the fundamental importance not of human subjects, but of technological things and their defining effects on subjects. Humans are hereby positioned differently with respect to things. Science always deals with objects. The question is: "How does the object relate to what is human?" This question concerns the primitive experience through which the object within itself constitutes the human subject. We usually accept that the subject builds the object. We are never told about the way the object creates the subject. It is this reversal of the traditional subject-object relationship in the anthropology of science that provides us with the key to the anthropology of cyberspace as well. In the light of cyberspace with its collective intelligence, the anthropos can no longer be understood as an individual, and as a monoculturally thinking, knowing and acting being, but as a collectively knowing, thinking, socialising and acting being. In the realm of "fractal subjectivity" we have to reinterpret human subjectivity and what it means to be human. De Beer (2001:219) reminds us that it is no longer only language that speaks in us, as Heidegger maintains; but it is the world that speaks in us, the environment speaks in us, things speak in us.

In our axial period human subjectivity can be defined as nomadic, fractured, conditional and simultaneously interdependent (part of a network/collective intelligence), and technologically integrated. This engenders uncertainty and risk, as well as knowledge and creativity. Humans as God's created co-creators are in a process of redefining and recreating themselves through their creations. We cannot avert the influence our technologies exert on us and we are challenged to maintain what constitutes basic humanity.

Developments in science and in applied science as technoscience, as well as the creation of economic globalism, are perhaps the most important factors changing our environment. While these developments have unobtrusively changed our world-view, we are slowly becoming aware of the influences this new world-view exerts on our lives. In this regard Moltmann (2002:134) remarks that any step forward in any sphere of life puts the life-system of the whole out of balance. So when any individual piece of progress is made, the balance has to be restored. The speech symbols, the legal codes, the morals on which we have depended, and the conditions of production must all be organised afresh. Although many people are not abreast with all the details of our scientific world-view, they live in a world immersed in the products of technoscience and are determined by such

products. But science has a tendency to demythologise everything, and the narratives of our lives have not remained untouched. Our bodies and health, our subjective inner experiences, our prejudices and beliefs, our relationships and even death have been demythologised. The world has been disenchanted, and our lives are devoid of fiction (see Gauchet 1997:62-64; Taylor 1989:51-52).

2. CHANGE IN THE HUMAN TECHNOCULTURAL ENVIRONMENT AND THE INFLUENCE THEREOF ON PERSONHOOD: FROM PHONOCENTRISM TO LOGOCENTRISM TO VIRTUOCENTRISM

The interdependence of organisms (including humans) and the environment is a biological given. The history of human culture has shown that change in the natural and cultural environment, has a determinative influence on people's world-view and on the way we interpret ourselves. In the case of humans, environmental influences have shifted from the predominantly physical environment to the cultural environment.

Humans are constantly redefined by their interaction with and response to the environment. The cultural environment acts as a feedback system since humans are influenced by their own creations. The feedback system, as in the case of a steam engine, depends on a sensor which measures the pressure and slows it down when necessary. Today microprocessors are used as software to regulate the hardware. Humans represent the software monitoring system of their own technology and must know to slow down when the system "overheats" or runs out of control (Davies 2000:114).

The development of technology (applied science), language, the written word (books), and virtual technologies like television, film and internet count among the most important developments in the cultural environment that have influenced the historical development of human societies (the development of language and unfolding of writing skills is part of technological progress). With a changing cultural environment in mind, we shall focus on the transition from an oral culture (phonocentrism), to a book culture (logocentrism), to a virtual culture (virtuocentrism), because it represents some of the most dramatic developments that have changed the experience of personhood. The role played by science, philosophy and religion is subsumed in these three phases.[2]

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[2] A number of other categories can be used to demarcate the development of human culture: mythical ʙ substantialist (modernism) ʙ functional (technology); premodern ʙ modern ʙ postmodern; agrarian ʙ industrial ʙ electronic.

The notion that changes in the cultural environment have impacted determinatively on personhood does not imply that our physical or cultural environment should be seen in a deterministic way. This idea must be opposed as much as the idea of social constructivism. Human behaviour can never be adequately understood as mere reactions to environmental stimuli; rather the nature and meaning of these stimuli are created in psychocultural processes which include a reciprocal relationship of complex influences (Reynolds et al 1987:90). Apart from genetic and environmental factors we must always inculcate the human spirit, supported by values and manifesting in human choices. The way biogeographical factors, codetermined the development of African culture, will be dealt with later on.

2.1 The phonocentric presence of the human person[3]

To be a person is to act on the world as a stage. To be a person means to be present somewhere in space and to present yourself by communicating with the (O)other. Greek mythology reflects an absence of individuality, and of an interior mental life. The ancient Greeks' environment was sociocentric (similar to many African societies today). Their environment comprised the interpersonal (communicative), social, natural and supernatural. This can be symbolised by their concept of a person. The Greek word *prósopon* (face) and the Latin word *persona* refer to the mask through which the Greek actors spoke on stage. In this section the concept "mask" is used metaphorically for the division between inner and outer world. In the Greek context, the mask typifies the role and character the actor is representing. The actor could not play his role simply by carrying the mask. It was the mask as well as the discourse that sounded forth (*per sonare)*, though the mask presented the role the actor played. Personhood and character became known through the deed as well as the words of the actor. Personhood was constituted through the communicating presence of the individual. Premodern personhood was phonocentric and was inconceivable in the absence of the individual. The corporal, speaking presence of the individual displayed his emotions, body language, will and reason. Communication and relationship was impossible without this sensual-rational presence. This presupposes that the person is

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[3] The word "self" is used in many different ways. Theological perspectives differ from philosophical, psychological, sociological and anthropological perspectives. These perspectives (on the part of the humanities) can be further subdivided according to specific subdisciplines. With recent developments in the biological sciences, new perspectives have been opened which impact on views emanating from the humanities. Cognitive science is a good example of an approach that includes both the physical and human perspectives. In this contribution the concept self is used with reference to its historical development (Taylor 1989:32ff), and against the background of recent developments in biogeography, cognitive science and information technology (perspectives from virtual reality). Reference will be made to the idea that the concept of self is nonessential, constructed and shifting all the time.

initiated into a language, and can refer to herself in social, geographic, social, religious, private, public and other spaces. The various uses of language set up these diverse spaces. Our standpoint in a specific space, occupies a perspective therein. The self is inseparable from existence in a space of moral issues, where identity, prejudice and values play a role. We exist in a space of concerns, says Taylor (1989:35, 51, 112).

Premodern people have the uncanny adeptness to see when someone is cheating (see Peterson 2003:163-167). This is because facial expression, tone of voice and body language verify the speaker's sincerity. This presupposes the integrity of the human person in which case inner and outer worlds are not distinguished. Mind and body is one and what comes up in the mind is displayed by the body in the process of communication. This differs from the Aristotelian idea that the body and its emotions must be contained by reason in the same way a rider reins in a horse.

The person and what she says is one. This is in contrast to the Western view where the inner world of consciousness and thought is separated from the way the person presents himself in the world. Phonocentric personhood places the emphasis on what happens between the "masks" and not on what goes on behind the mask. In contrast, the Western person lives in two worlds: predominantly in the world behind the mask (the private, self-conscious world) and, in a somewhat artificial way, in the world in front of the mask (the public, social world).

In this regard Teske (2000:198) mentions that for the Ilongot, there is no recognition of an autonomous self apart from outward behaviour. And the collectivist Ifaluk regards any reference to unique, autonomous behaviour as excessively egocentric. Traditional Hindu culture defines the self fluidly in and through others rather than by sharp differentiation from them. In contrast, the Western personality is self-centric. The Western mind is analytical, discriminative, differential, inductive, individualistic, intellectual, objective, scientific, generalising, conceptual, schematic, impersonal, power wielding, self-assertive, and tends to impose its will on others (Robbins 1996:66-67).

To be a person is to be a subject presenting him or herself in dialogue. This typifies personhood as phonocentric. The African oral tradition is still predominantly phonocentric. Verbal communication and bodily presence are experienced as what life is all about and outweighs the written text which communicates in the absence of the author (speaker). African tradition is maintained through proverbs where the wisdom of the forefathers comes alive through the existential use of proverbs. The indaba (consultation) process is used to resolve differences. Dialogue continues until people find each other. Idea and person must be one. When the interlocutor is present it is difficult for

me to lie, since my body language, voice or emotion may betray me. If the interlocutor is absent, what is said about her may be pure gossip, or when he presents himself through the written word there is no way of determining whether he speaks the truth.

2.2   Logocentrism and the virtual-textual presence of the author

Phonocentrism was followed by logocentrism whereby the written text came to stand in the place of the absent other (speaker, narrator), representing his exact words. The incarnation of the person in the written word ensured that her wisdom, knowledge, experience, will and wishes could be preserved and summoned whenever the reader wished to do so This was not something new to many believers since in many religions the authority of God came to be vested in the written word and in Christianity the invisible God came to dwell among earthlings as Logos. In Christian doctrine God was believed to be known through his explicit revelation in the Bible. The word was the mode of God's presence among believers.

During the time of the scientific revolution, however, the Bible was solely in the hands of the church and was written in Latin. The text was the way in which God was present, but it was not typical for humans to present themselves by means of the written word. But the invention of the printing press brought the possibility to read or express oneself through the written word within reach. This was to contribute to a revolution in the understanding of the self. Not only could people express themselves through the written word; nature could be revealed through mathematical symbols and formulas as well. This development was introduced by the scientific revolution which marked the beginning of modernism.

- **Logocentrism, mathematical scientism and the history of separation in modernism**

It is more than incidental that the rise of modernism (1500-2000) coincided with the so-called Copernican revolution, the invention of the printing press and the ideas and work of individuals (most of whom lived in the same century) like Gutenberg (1400-1468), Luther (1483-1546), Descartes (1596-1650), Galileo (1564-1642) and Hobbes (1588-1679). The Copernican revolution, together with the communication revolution (printing press) and economic revolution (16th century expansion of the marketplace), marks the beginning of a process which was to end in the detachment of wisdom and

truth from personhood; the detachment of man from nature, science[4] from theology and, eventually, natural science from all the other sciences (Jacob 1997:19-20). The scientific revolution, which spanned the period between 1500 and 1700, is symbolised by the Copernican revolution which replaced Aristotelian natural philosophy and the Ptolemaic earth-centred, heliocentric, world-view.

Gutenberg's invention of the printing press introduced the written word as a cultural artefact that would determine most people's everyday life. This promoted the translation of the Bible and classical texts in indigenous languages, and awarded those who became literate. The written word could convey a virtual world in which the reader could participate and share. The life, work and thought of another came within reach of those who could read the textual expression thereof. The written word would also contribute to the separation of the author from his words. Humans, like God, could become present elsewhere through a text.

- **Galileo and the separation of humans from nature, through mathematics**

The significance of the Copernican revolution lies in the change of the human cultural environment through the introduction of the virtual presence and understanding of nature by way of the language of mathematics. Similar to the way in which we can come to know God and other people through the written text, nature could be known essentially through the symbols and formulas of mathematics. The word as text, known predominantly in the Middle Ages as the authoritative word of God, was venerated by the people, endowed with mystery, power and authority. The word as text was now incarnated in the secular world. Although the medium of text could express both God and nature, both religious and secular text, all texts were not the same. Natural science developed a different language B a different book with different codes B than that of theology or the humanities. Galileo expressed his view on the autonomy of science in his *Dialogue on the two great world systems* (1632). God is the author of the book of revelation and the book of nature. In principle the Bible and science cannot contradict each other. The Bible speaks metaphorically and figuratively in the idiom of the authors of its time. Religion and science belong to two different spheres, and represent different approaches to the same reality. In Galileo's view physical science must be freed from the authority of Scripture. The Bible and science are both subject to

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[4] The word science and what we mean by it today, is a latecomer and dates from 1840 (Barzun 2000:191). Science was initially not narrowed down to one kind of knowledge and meant whatever was to be known.

divine (not ecclesiastic) authority as their ultimate source. Nature was depicted through mathematical proof as having a ratio of its own (without human mediation), as being soulless and neutral (independent of human values).

The Copernican revolution laid the foundations for classical mathematical physics, which culminated in the Newtonian laws. Mathematical physics depicted science as a self-explanatory system with its own laws, methodology and language. Science was no longer in need of spirits, mysticism or superstition to explain its subject. According to science, the things we see and touch do not belong to different realms governed by different rules. Matter, as the uniform, invisible substance that underlies all appearances, is governed by the same rules. This mechanical world picture left no place for purpose, quality or religion.

The symbolic representation of nature through mathematics contributed to the objectification and ensuing submission of nature to man. Humans came to confront nature as an enemy that needed either conquering or taming B through science. In a similar way humans (including their inner world and subjective ideas) could be objectified in the texts that mirrored them. Their inner world of thought could be studied, analysed and known B differently from what they intended.

With *Luther's* translation of the Bible in German and the printing of many German copies thereof, it became possible for the individual believer to gain knowledge of God and salvation without the mediation of the church. This was one of the main factors changing the experience of subjectivity in the Middle Ages from that of group subjectivity to that of individual subjectivity. Luther believed that personhood is relational and is constituted by the individual's relation with God, the world and himself (*coram Deo, coram mundo and coram meipsum).* This relation, however, emphasised the connection of the *individual*, as a believer or an unbeliever, to God, the world and *himself.* The relation of the individual to herself and her inner world is an important development that complemented the act of reading where a text related to the inner self and inner consciousness. Luther's doctrine can be summarised, *à la Descartes*, by the dictum "I believe, therefore I am". According to Luther, certainty was to be found in faith alone (*sola fidei*), and in the *res cogitans*, in Cartesian view. This certainty was the ground of self-consciousness, the key to all epistemological and moral worth, and the very foundation of personhood. The emphasis on "faith" and "thought" was essentialist and did not always reckon with the tension between essence and existence. According to Welker (2000:107, 112-113), the theological concept of the person constituted by faith has fallen prey to philosophical reductionism

in the time of modernism. Faith has been emptied of content and spirituality. This is partially because the modern concept of the autonomous person has greatly distanced us from the corporeal, sensual person and from the culturally and socially conditioned person.

Truth and authority came to be vested in the book (scientific text) and this truth was to be personalised in the act of faith (in the case of Luther) and in the act of thinking (in the case of Descartes). Luther internalised faith. Faith was in his time vested in the church structures and authority. The new authority which gave certainty and confidence became the individual's certainty of her own faith. The essentialist view of faith and rationalism came under attack and reached a climax in postmodernism. Once again the inner world of consciousness and reason, and of abstract subjectivity became devoid of final meaning, became vacuous. But we have become used to finding certainty and truth in abstract subjectivity and we find it difficult to reconcile the emotional and corporeal dimensions of being human with the rational dimension.

The Middle Ages was predominantly communitarian and the self did not exist apart from communal consciousness. Culture in the Middle Ages was phonocentric and the presence and wisdom of God phono-centrically mediated by the cleric. Luther challenged the authority of the cleric (not of the church) and shifted authority from the pope and priests to that of the written word. The individual is severed from the Middle Age corporate church community by the emphasis on the personal belief of the individual, and her relative independence of the vicarious belief of clerical leaders. The external world in front of the mask, constituted and mediated by the outward appearances, rites and rituals of the church, was not the real world of faith. Certainty of faith had to be recovered through the individual's personal faith in the grace of God.

• **Descartes and the mind-body separation**

Descartes' distinction between *res cogitans* and *res extensa* made it possible for the individual to find certainty in the act of thinking (reason). *Being* retreated to the inner world of thinking behind the mask. Reason takes consciousness as point of departure with which to describe the individual's own experiences. Through introspection and thought my reality is created.

Descartes is the founder of modern individualism, because his theory throws the individual thinker back on his own responsibility; it requires him to build an order of thought for himself, in the first person singular. The Cartesian quest is for an order of science, of clear and distinct knowledge in universal terms which, where possible, would be the basis for instrumental control (see

instrumental reason). Descartes followed the Galilean view of representation. To know reality is to have a correct representation of things B a correct picture in our minds of outer reality, as it has come to be perceived (*adequatio intellectus et res*). This conception of knowledge seemed to be unchallenged-able, once an account of knowledge in terms of a self-revealing reality, like the Platonic Ideas, was abandoned. Although the outer world "in front of the mask" seems to be of importance, this is not the case. The "world in front of the mask" is constructed by the act of thinking behind the mask. The idea of an order of ideas that *we find* was replaced by the idea of an order of ideas that *we build* (Taylor 1989:144ff, 182). Representation comes through innate ideas. I have no knowledge of what is outside me except by means of the ideas I have in me (ideas being the mind construct). Certainty comes from the way matter is presented to us in a certain light which makes it so real as to be undeniable.

The Cartesian mind-body dualism generated a number of other dualisms such as neutral scientific truth and human subjective truth; fact and value; internalist-externalist view of science; natural science and life sciences. Cartesianism symbolises a process of division, dualism and fragmentation that runs up to the present and which challenges present-day personhood. We (Westerners) may be so at home with our Cartesian identity that we are oblivious of it.

Geertz, for example, describes the Western image of the self as rather peculiar within the world context of cultures (quoted by Robbins 1996:66; see Teske 2000:198). In the West the conception of the person is seen as a bounded, unique, more or less integrated motivational and cognitive universe, a dynamic centre of awareness, emotion, judgement and action organised into a distinctive whole and set contrastively against other such wholes and against a social and natural background. The Western conception of an individual is constituted by a set of cultural roles and practices, struggling to come to terms with embodied consciousness and with our social and environmental entrenchment.

In spite of so much dialogue we are still struggling to unify the self; in spite of a renewed emphasis on embodiment we still struggle to come to terms with our bodies; despite the efforts of cognitive science we struggle to harmonise physicality with mind and spirituality. The post-Cartesian age is said to be antidualistic and pro-integrationist. There is even the possibility that mind-body integration may eventually favour a one-dimensional physicalism and materialism at the cost of the spiritual. It seems likely that in evolutionary biology, cognitive science and neuroscience morality, spirituality, religion and

values may be seen as coming from "below", and need not be ascribed to a transcendent cause (see Wilson 1998:261).

Plato's soul has been replaced by the autonomous self, which in turn is to disappear before the postmodern return to the whole, embodied person. Consciousness has in many ways taken the place of the soul as the prime locus of identity. Consciousness, however, cannot be diverted from the human person as embodied and socially determined consciousness (Peterson 2003:24, 70). In our time consciousness (the thinking I) is interpreted in physicalist terms. In cognitive science, the question of how exactly mind (consciousness) supervenes on the physical brain has not been resolved in a satisfactory way. Despite all the theories, of which some tend towards neo-Cartesianism (Du Toit 2002:8-12), we must maintain the physical, bodily and environmental framework of consciousness. If the human person is reduced to an exclusive emergent reality of consciousness we are back in a Neoplatonic frame of mind. The human person is embodied consciousness. We are not only influenced by our environment, but in a real sense we also become our environment. Not only does the environment influence our thinking, but the environment in a real sense becomes our thinking (Peterson 2003:43-44). The challenge is to keep the world of physicality in balance with the inner world of thought.

- **Hobbes and the separation of the sovereign (king) from the people**

Hobbes cannot be understood in isolation from the influence Galileo exerted on his work. It was especially Galileo's notion of motion and its importance in cosmology that Hobbes used in his philosophy. Hobbes's philosophy builds on the deductive method of geometry and on Galileo's concept of motion. After his contact with Galileo, Hobbes became obsessed by the idea of motion, an idea which led him to his own great innovation in the science of politics. His philosophy or science of *Body of man* and of the *Citizen* was built on the concept of motion: "... that which is really in us, is motion, or endeavour, which consisteth in Appetite or Aversion, to, or from the object of moving" (Hobbes 1968:19, 25, 31, 118ff). Similar to Descartes and Luther who found the essence of being human in the inner subjective world of thought and faith, Hobbes found it in the inner world of urges, motion and drives. While Luther and Augustine (both known for the self-torment they suffered) found in the inner world the sinful man in need of redemption through faith, Hobbes found in the inner man uncontrollable drives and desires that could only be controlled by the state.

Hobbes saw man in the state of nature as being an aggressor: "*homo homini lupus*" *(man is a wolf to man);* unless controlled man lives a life that is

solitary, poor, nasty, brutish and short. Therefore government (*Leviathan)* must be strong. *Leviathan* is a monster whose body is made up of the bodies of all citizens of the state, under one massive head. Their individual strengths are fused in the sovereign, and this union is the fruit of a contract not subject to revision. The absolute is a sovereign and the members of Commons saw *Leviathan* as the justification for an absolute Parliament B exactly what England is still ruled by today. This development in political science complemented the promotion of individualism in religion. The human person was individualised as a citizen, and had individual rights and responsibilities in the state. In place of the social community comes impersonal society where all are the same. The state was also symbolised by an individual (the sovereign/ruling party) who negotiated political life with its citizens. The universalism of reason and ethical individualism was merged to form the idea of society that was freely organised by the law. This view of society was as successful as Luther's view of Christianity and when it matured it lead to unknown development and growth and allowed the West to conquer the world.

What Galileo and Kepler had done for science, what Luther had done for theology, Descartes for philosophy and Hobbes for socio-political life made up a similar picture in which the human person was isolated from nature (science), from his body (Descartes), from the religious community (Luther) and from the social community (Hobbes).

The question is whether the tradition of dualism has really been overcome. In a sense, Cartesian dualism has been exacerbated with the advent of virtual reality.

2.3   The virtual experience of personhood

In our world today virtuocentrism seems to replace logocentrism and to restore a more sensual experience of the other I meet through the medium of film or in cyber space. "Sensual experience", as used here, may stimulate the sense but it remains disembodied experience. It imitates relationism since it interacts with the other. The other is physically absent and only virtually present. Virtual reality which entered the world through the written world became more sensuous and corporal by restoring the visual image and spoken word through film and video. The written word is incarnated as an animated spoken word through the presence of the virtual image on the screen. Communication technology and computer science increased the possibilities of this virtual reality. The other became present in a more sensual and personal way. This is the revival of phonocentrism but on a virtual level. Body, mind and spoken word are reunited in virtual mode. Less is asked of

the imagination and greater impact is made on our senses. The television decontextualises events, which should be placed in a historical context if they are to be understood, and transform them into human situations which provoke the elementary reactions of sympathy or antipathy (Touraine 2000:47).

Mass culture and the revolution of information technologies have invaded our inner space, and now overload our consciousness. The limits of space and time which separated the speaker from her written word is overcome in the virtual "personal" presence of the other. Information technology has changed our spatial and temporal framework. Seriality is replaced with simultaneity, evolution with diversity, and distance with proximity (Touraine 2000:47). The "other" is here without being present. This is, however, a unilateral and monological presence without real interaction.

It is possible that virtuocentrism might introduce a new experience of the self. This experience can be characterised as a virtual form of solidarity and unity between humans which transcends local, national and cultural limitations. This becomes possible because of a global consciousness mediated on a virtual sphere by the media and telecommunication technology. We are citizens of a cyber world where we can share in the local and personal well-being of anyone else on the planet. The world has become a virtual stage on which each can interact with the other. On a global level we are all affected by markets and currency fluctuations, economic growth and natural disasters. The planetary nature of our fate as well as the development of "universal values" like democracy and human rights give a new sense of commonality and interconnectedness. The "global self" has extended its corporate body to include the distant other who can become an intimate confidant. The global self also includes technology as an extension of our corporate experience. But how real is this virtual brotherhood, and what prevents us from sharing these experiences with the robotic other?

It is not a big step from this virtual interaction to the interaction with "thinking machines". Ironically, the idea of thinking robots is a return to Aristotle's animated soul; the only difference being that we are responsible for the infusion of animus into inanimate matter (computer robots) and not into the world soul. Kurtzweil anticipated computing power one hundred times that of the human brain by the year 2029 and the gradual interfacing of human minds with computers. Human beings will increasingly abandon bodies altogether (except when they really need them) and live in virtual communities linked by enormous networks (Peterson 2003:217). At present this seems cyber-utopian, but theoretically it may become possible. The upshot is that the virtual dimension of our lives (as well as nature) is expanding. If we have

limited control of our control of technology, then ostensibly we will not have much say in the development of a different mode of personhood.

A different mode of personhood comes from the film world. Film and video have contributed to the replacement of personal character through the notion of the celebrity. In the consumer culture of the 20th century the new popular heroes were less likely to be scientists, explorers or inventors and more likely to be celebrities, albeit that some of the celebrities would be film stars who would play the roles of those former heroes. A celebrity must have personality and the skills of an actor to present a colourful self, and to maintain allure, fascination and mystery. These are seen to replace the more traditional virtues of character, which emphasised moral consistency, sincerity and unity in purpose (Featherstone 1995:69). The sincerity of character and personhood fades before the virtual display of character in acting.

The mask as metaphor of acting, of living in a virtually created world is sensually celebrated by technological means. The mask does not conceal an essential inner world which must be mediated through words and actions; the mask itself is the world, a virtual world which lasts as long as we experience it. Experience constitutes this "virtual ontology". The technological medium has become the message. Reality is the technological means by which we come to live the virtual world. Technology has become substantial and human experience and personhood accidental.

- **The essentialist person and shifting identities**

The human person, like any living organism is open to continuous change within itself, in its environment and in the multitude of relations in which it finds itself. The "I", the self, the person, is in fact a kind of ongoing process, developing across time and emerging as a result of a large number of brain and bodily processes (Peterson 2003:85). In this regard Hefner (2000:74) talks about the image of God *meme* (*meme* is a cultural gene) which he characterises as determining humans as relational, open and accountable in the world. A relational ontology, rather than a substantive ontology determines our being in the world. This may include our individual conscious spirituality, but exceeds it as well. Personhood is a process of emergence.

For many, the very idea of personhood is essentialist and therefore untenable. Rorty, for example, sees the person as decentred with no underlying coherent essence behind it. Rather than being something unified and consistent, the self should be conceived as a bundle of conflicting "quasi-selves, a random and contingent assemblage of experiences" (Featherstone 1995:45; Fukuyama 2002:151-153) Underlying identity talk is the notion that questions of moral orientation cannot all be solved in simply universal terms

(Taylor 1989:28). But how can we talk of the integrity of our lives if we have no idea what it is? How can we talk of the integrity of creation without a firm vision of what it should be? The integrity of the human person is a perpetual challenge which refers to the way we assume values in order to make sense out of our lives. This inevitably gives our lives a narrative form, enabling us to orient ourselves to the good (the values we hold): narrative, culturally and historically rooted, unified by tradition and community, a *sine qua non* of both identity and moral spiritual life (Teske 2000:193; Taylor 1989:51-52).

The idea of personhood has especially been challenged in postmodernism by the notion of the death of the modern subject.

3.   TECHNOSCIENCE AND THE DEATH OF HUMAN SUBJECT

The history of modernism can be summarised as a process of division and fragmentation. The Copernican revolution, together with the communication revolution (printing press) and economic revolution (16th century expansion of the marketplace), marks the beginning of a process which was to end in the detachment of the human mind from its body, science from theology and, eventually, natural science from all the other sciences (Jacob 1997:19-20).

3.1   Demodernism and the challenge to restore the Subject

Demodernism is modernism gone wrong. The term *demodernism* expresses the loss of control modernism offered. Two reasons can be singled out for this loss of control: the role that instrumental reason came to play (the way instrumental reason became objectified in our technological world) and the global market (the unrivalled power economic globalisation assumed, empowered by the development of communication and information technology). The human Subject loses identity in this world of instrumentality. The Subject is struggling against the triumph of the market and technologies on the one hand, and communitarian authoritarian powers on the other (Touraine 2000:89).

       We have lost control to integrate and unite the factors and values that determine our lives. Modernism still succeeded in integrating technology, society and religious or moral beliefs, but this has became impossible in demodernism. Being in control of his world turned the individual into a Subject who could meaningfully relate to God, fellow citizens, and the world, according to a more or less acceptable standard of knowledge, custom and norms. Now, duty and the sense of duty have been replaced by the pursuit of happiness. Modernity has humanised transcendence. The disenchantment of the world and the decline of religion have resulted in the deification of man, and have

produced new transcendental values (the market) that are imposed as forcefully as the old (Touraine 2000:61-62).

Modernity was built upon the principles of order and the integration of the individual in society. Modernism rested on the pillars of rationalism and ethical individualism (Touraine 2000:44). Modernity's strongest assertion was that we are what we do. Identity comes through my place in society which is determined by my contribution to society which I perform according to my vocation and skills. In demodernism we have lost the stage, the public square, the social market. The actor has been severed from the system (stage), where he could act according to his authority, competency and convictions. The life-world has become virtual in a global market which replaced the modernist society with its normative principles, common good, general and national interests, and tradition (Touraine 2000:19, 37, 39, 48).

We have become citizens of the virtual sphere. The world of markets does not establish a social system, nor does it allow a social life, apart from a virtual one. The end of the modern Subject has been brought about by the dissociation of the market economy from cultural life.

The way out of demodernism and the restoration of the Subject is through the restoration of the Subject as an actor in community life, yet without compromising personal freedom. This is not simply a return to communitarianism as it was known in modernism, where community life can become a prison of petty bourgeois values. The individual can be transformed into the Subject only if Others are recognised as Subjects as well. This determines the Subject as co-Subject in communal life (Touraine 2000:13, 14, 80). This is exactly what one finds in Africa, but in a context far removed from what we have discussed up till now.

4. SCIENCE AND PERSONHOOD IN AFRICA

4.1 Influence of the biogeographic environment on human development

Before we focus on the influence of the cultural environment on the development of the human self in an African context, additional remarks must be made on the role that physical, biogeographic factors play in influencing human development. Human development proceeded differently on different continents. We have to look much further back to find the causes for the present-day state of affairs on the different continents. The roots of inequality in the modern world lie far back in prehistory and in the difference of biogeographic factors that influenced humans. In order to grasp something of personhood and science in Africa, the non-African must be rid of those

prejudices, so prevalent in colonial times and even today, that Africa is inherently culturally backwards, scientifically inferior and economically incompetent. The face of Africa cannot be read without noting the biogeographical factors that codetermined it.

In the centuries after CE 1500, as Europeans become aware of the wide differences among the world's peoples in technology and political organisation, they assumed that those differences arose from differences in innate ability. With the rise of Darwinian theory, explanations were recast in terms of natural selection and of evolutionary decent. Technologically primitive peoples were considered evolutionary vestiges of human decent from apelike ancestors. The displacement of such peoples by colonists from industrialised societies exemplified the survival of the fittest. With the rise of genetics, the explanations were recast once again in genetic terms. Europeans became considered genetically more intelligent than Africans and other less developed people. However, sound evidence for the existence of human differences in intelligence that parallel differences in technology is lacking. Peoples, who until recently were technologically primitive routinely master industrial technologies when given the opportunity to do so. "Stone-Age" peoples are on average probably more intelligent, not less intelligent, than industrialised people, because of the environmental challenges they have to face (Diamond 2000:18-19).

The biogeographic reason for differences in development and affluence between peoples can be summarised in four points:

- The first set consists of continental differences in the wild plant and animal species available as starting materials for domestication. This is crucial because food production is essential for the production of surpluses to feed large populations. The availability of sufficient amounts of food ensures military advantage even before ancient people have developed any technological or political advantage. The development of all economically complex, socially stratified, politically centralised societies beyond the level of small nascent chiefdoms were based on food production.

    Most animal and plant species have proved unsuitable for domestication. Food production has been based on relatively few species of livestock and crops. On each continent, animal and plant domestication was concentrated in a few especially favourable homelands accounting for only a small fraction of the continent's total area. The failure of the Khoisan and Pygmies to develop agriculture was due not to any inadequacy of theirs as farmers but merely to the

accident that southern Africa's wild plants were mostly unsuitable for domestication (Diamond 2000:389).

In the case of technological innovations, and political institutions as well, most societies acquire much more from other societies than they invent themselves. Migration within a continent contributes importantly to the development of its societies, which in the long run tend to share each other's developments. Societies initially lacking advantage either acquire if from societies possessing it or are replaced by these societies. Africa is not without its technological inventions, but its relative isolation separated it from Eurasian developments. Copper smelting had been going on in the West African Sahara and Sahel (region to the south of Sahara) since at least 2000 BC. Iron-smelting techniques of smiths in sub-Saharan Africa were so different from those of the Mediterranean as to suggest independent development. Diamond (2000:394) mentions that African smiths discovered how to produce high temperatures in their village furnaces and manufactured steel over 2 000 years before the Bessemer furnaces of the 19th century Europe came into use.

A domesticated animal is defined as an animal selectively bred in captivity and thereby modified from its wild ancestors, for use by humans who control the animal's breeding and food supply. Only fourteen ancient species of big herbivorous species could be domesticated. The wild ancestors of 13 of the Ancient Fourteen were confined to Eurasia. The reason is that Eurasia is the world's largest landmass and is also very diverse ecologically. Sub-Saharan Africa has only 51 potential species to domesticate, while Eurasia boasted 72 species. Africa's landmass is smaller and ecologically less diverse than Eurasia (Diamond 2000:159-160). Although some of Africa's wild mammals could be tamed they could not be domesticated. When Eurasia's Major Five domesticated mammals reached sub-Saharan Africa, they were adopted by the most diverse African peoples wherever conditions permitted. Those African herders thereby achieved a huge advantage over African hunter-gatherers (Khoisan) and quickly displaced them (Diamond 2000:163).

- A second set of factors consists of those affecting rates of diffusion and migration, which differed greatly among continents. They were most rapid in Eurasia, because of its east-west major axis and its relatively moderate ecological and geographic barriers. This favoured the movement of technology as well as crops, and livestock, which depend

strongly on climate and hence on latitude. Diffusion was slower in Africa and the Americas because of those continents' north-south major axes and geographical and ecological barriers. As one moves along a north-south axis, one traverses zones differing greatly in climate, habitat, rainfall, day length, and diseases, crops and livestock. Crops and animals domesticated in one part of Africa had great difficulty in moving to other parts. Pottery, recorded in the Sudan and Sahara around 8000 BC, did not reach the Cape until around AD. Cattle, goats, and sheep had already reached the northern edge of the Serengeti in the third millennium BC, but took more than 2000 years beyond that for livestock to cross the Serengeti and reach southern Africa. Egypt's wheat and barley never reached the Mediterranean climate of the Cape until European colonists brought it there in 1652 (Diamond 2000:399-400).

- A third set of factors concern diffusion between continents which determines the build-up of a local pool of domesticates and technology. The lack of contact and communication limited progress to those societies who benefited from positive biogeographic circumstances.

- The last set of factors consists of continental differences in area or total population size. A larger area or population means more potential inventors, more competing societies, more innovations available to adopt. Those societies that refused to adopt new inventions were simply overtaken by those with improved technological skills.

4.2   Science and technology in Africa

African technology has been present from the very distant past, while science has been absent. Agriculture, medicine and weapons of war were never absent from Africa, while "Western" science was. One cannot infer from this that Africa was in principle not open to the reflexive thinking basic to science. What can be said is that science in the "limited" sense of modern Newtonian science, empirically focussed, method-driven and theory-laden, inductively and deductively orientated, systematising and generalising (formulation of laws), is a relatively recent development and has in the same period been absent from Africa in this format (Du Toit 1998:12).

Understanding science in Africa is impossible without coming to grips with what can symbolically be called the soul of Africa. Neither can it be understood without taking the physical context of poverty and illiteracy into account. The interest of any community in science depends on its level of

exposure to a culture of science, on the extent to which such a community reaps the benefit of science, and on the accessibility of science studies to such a community. Most of these factors have been absent in black communities in South Africa.

Western technology goes hand in hand with traditional technology, in spite of the huge difference between them. The difference between Western and traditional technologies is that traditional "technology" is integrated with a people's beliefs, customs, values and social life. Western technology is conveniently used, but lacks the "spirit" which characterises traditional technology.

In Africa, technology still has a human face. The general feeling of many Africans is that the presence of high technology, of mining and industrial activities, and so on, have not improved their lives or significantly reduced poverty. Traditional "technology" imbedded in all facets of life, still proves to be the best meaning-giving vehicle for Africans.

Africa can be typified as being simultaneously premodern, modern and postmodern. We can also say that it is simultaneously prescientific (traditional), scientific (mainly Western) and postscientific (critical, integrating many worlds). "Postscientific" here refers to the critical stance towards science where those aspects that are deemed of importance for African life are incorporated and the rest ignored. The postscientific stance critically incorporates that which is the scientific and adds a few new dimensions. Prescientific peoples are often aware of the scientific element but have not lived through it. Although one may be able to find the prescientific, scientific and postscientific element in Africa, the prescientific aspect is still notably present and will significantly influence scientific development in postcolonial Africa (Du Toit 1998:15).

Western culture with its individualism, rationalism and modernism has left its mark on the way science has been and is still practised in African societies. Science is not a transcendental entity which is "incarnated" in a specific culture in an unaltered manner. Science usually becomes part of the cultural fibre of a society. Science itself does not purport to provide a framework within which an entire culture could be integrated. It was often left to philosophy and religion to provide such a framework which indicated the importance and effects of science on the world-view. And philosophers like Hume, Kant and Hegel believed that the history of the Western world was the incarnation of reason as such, and characterised non-European forms of life as irrational. This attitude was only challenged in the postcolonial era with anthropologists and African thinkers and theologians trying to show the rational nature of African life. Many urbanised Africans have been alienated

from traditional practices and disregard African indigenous knowledge systems. The more exposed they become to high technology, the more they experience the same bad effects associated with technocentric culture. Africa can lead the way in developing systems that give a human face to new technologies, ensuring the integrity of personhood and society.

It is not clear how Africans will be able to give a specific African identity to science. This may be codetermined by how it will be integrated into the African world-view. Africa's experience of science is not overwhelmingly positive. The introduction of Western technology has often been detrimental to Africa. "Western" science introduced a split in African personhood as well, although in a different way than was experienced in the West. Many Africans had to earn their daily living in a working place, characterised by Western technoscience. Schools and universities teach "Western" science, hospitals and doctors practice "Western" medicine. Similarly, many Africans converted to the Christian faith still cherish beliefs and practice rituals that are part of African traditional religion. This split in everyday experience in expressed by the distinction made between "Africa by day" and "Africa by night" (referring to the westernised lifestyle when in the workplace and the African-oriented lifestyle when at home). While "Africa by day" proves to increasingly influence the African world-view, the need remains to experience life in "Africa by night" where religious rituals (especially with funerals), initiation rites (for the young), sangoma's (for ailments and to combat bad people and spirits) and the ancestors contribute to make life whole again.

In the words of Senghor (quoted by Pasteur 1982:21) "Europeans think with their head, by concepts and schemes logically connected. Africans think with their soul ... with their heart ... formed intuitively in the style of feeling-thinking subject, that is to say, in feeling, sensitivity is thought." For Sarpong (1991:287) the ordinary African is not "logical" in the Western sense. By and large he has no interest in cause and effect but in actual happenings. Neither does he reason along strict syllogistic lines. This does not mean that he is not a thinker or that he is unintelligent. In fact, he is a philosopher, philosophising in the concrete and not the abstract. African thought is common sensical. The principle tool of common sense is induction, putting two and two together. Common sense thought looks for antecedents of a happening amongst events adjacent in space and time. In contrast, modern scientific theory with its array of causal connections are staggering to the eye of common sense. Horton uses the diagnosis of disease in traditional African communities as an example of how commonsense looks for explanation in its immediate environment. Sick people in Africa consult diviners as the causes of their illness. Usually the answer they receive involves propitiation for a god or other

spiritual agency. The diviner must also give an acceptable explanation of what moved the ancestor or agency to intervene. The explanation usually points to some event in the world of visible, tangible happenings like human hatreds and jealousies. We find in these explanations not only a jump from common sense to mystical thinking, but also from common sense to theory. Common sense and theory thus have the same complementary roles in everyday life. The relations between common sense and theory in traditional Africa are thus essentially the same as they are in Europe, according to Horton (1993:200-215). "Everyday" and "theoretical" sets up a false antithesis.

4.3 African "panpsychic" ontology: Living in harmony with *Seriti* (life force)

For Africans there are no ontological gaps between existing entities. The Western natural-supernatural dualism is foreign to them. God, humankind, extrahumans and subhumans are all regarded as integral parts of a single totality of existence. God's actions are not experienced as extraordinary. African metaphysical thinking is holistic and cannot be severed from what Africans think about knowledge, values, science and common sense. African ontology can be considered to be panpsychic. In this sense, everything that exists has a spiritual cause. And these spiritual causes are ultimately manifestations and servants of God.

Africans believe in a dynamic force (*seriti)* in the form of a personal god or spirit or other agencies, like witches, charms and the medicine man (*sangoma)* which explain the reality of things. This dynamic force permeates everything. African metaphysics finds "real being" in these life forces. The concept of *seriti*, which can be rendered by the words "power", "energy" and "force", is analogous to the Western concept of Being, yet not being as enframing but being as integrated in the totality of life. *Seriti* is not life itself, but that which makes life possible and happy. The lack of this life force is the lack of life. Ultimately life force comes from the upper being, from God, but it is mediated by many agencies. It is not simply at your disposal, you have to wait for it. Life force is the opening of life space and possibility. Life force is a happening, not something tangible. It is explained by a relational rather than substantive ontology. Life force affects the individual as much as it affects the community. When the individual experiences life force, it simultaneously flows into the community and vice versa. The absence of life force in the life of the individual affects the community negatively, like the ailment of a specific organ affects the organism.

The origin of all force, like the origin of the universe, is God. This force binds the universe and all humans together in an intimate ontological

relationship. This force permeates animate and inanimate matter (analogous to, but not the same as animism). It is important for the African to live in harmony with the forces that control all spheres of reality. This is one of the reasons why the African person places high value on a harmonious relationship with his or her social and natural environment. Continued survival can only be ensured when one lives in harmony with nature, the ancestors (those relatives who have passed away) and one's fellow human beings.

There is nothing that this life-giving power cannot overcome. In order to receive this life force the community has to comply with certain norms, rites and traditions. If, for example, the ancestors are not remembered, they may withdraw their blessings, and this influences the individual's life force negatively. The force of everything, and especially that of living things, is continuously being strengthened or weakened. Since life force is mediated by others, the individual is dependent on good and appropriate relationships in order to receive it. Evil forces are as real as life force and are similarly mediated by agencies. Human beings continuously influence one another, directly or indirectly, by way of subhuman forces through the ancestors. These forces can be manipulated and employed for good or evil purposes. Natural and other catastrophes are attributed to evil forces, even if the observed empirical cause is self-evident. For the African person the aim of life is to experience and enhance life force and to become part of it. Anything that diminishes this force is evil and anything that increases it is good.

Many Africans doubt whether technology makes the ultimate difference to human life B in their view fellow humans do. Humans are not necessarily in control of technology. The utilisation of science and technology to improve the quality of life is impaired by the belief that supernatural forces, beyond human control, are ultimately responsible for one's fate. Technology may be "used" by life forces to one's benefit or detriment. Practical issues are resolved with this mythical-metaphysical world view as basis. The AIDS pandemic, for example, can be ascribed to the fact that you are not always in control of your life, and cannot prevent what is to come your way.

4.4   African *ubuntu*-ethic and communal personhood

Generally speaking African culture can be typified as sociocentric and not self-centric. This does not mean that individualism is foreign to African experience. African personhood can be described as "ensembled individualism" which includes more fluid boundaries between self and other, locates control in a field of forces inclusive of the individual, and conceives of a self which includes relationships with others (Teske 2000:200).

Without romanticising the African context it must be acknowledged that, in spite of the peculiar manner in which science and technology are dealt with, the way in which it is used to maintain a healthy personhood and social harmony, is exemplary. The best model to explain the experience of personhood in Africa is the system of ubuntu. Ubuntu is the African concept stressing that "a person is a person through other persons". Personhood is defined through other persons and not through technology. Ubuntu is the principle of "I am only because we are, and since we are, therefore I am". Ubuntu is African humanism. This is Mbiti's aphorism, explicitly expressed in 1969 in opposition to the Cartesian "I think, therefore I am".

Ubuntu limits individualism and stresses that social interrelations and responsibilities are a precondition for human life. It stands in opposition to the Western approach to nature which is essentially rational, pragmatic, fragmented and instrumental. Whereas thought and reason in the West are often detached from culture, community and natural environment, the ubuntu ethic is the exact opposite. Here, people are interdependent and co-responsible for one another. The traditional African world-view is not geared to economic progress, competition and individual achievement, but to subsistence agriculture, social harmony and communal dependency. Individual economic initiatives are viewed with suspicion.

Ubuntu means to participate in a common humanity and can be understood as the African version of the common good. In Africa, a person is identified by his or her interrelationships and not primarily by individualistic properties. The community identifies the person and not the person the community. The identity of the person is his or her place in the community. In Africa it is a matter of "I participate, therefore I am" (Shutte 1993:46-51). Ubuntu is the principle of "I am only because we are, and since we are, therefore I am". Ubuntu is African humanism.

For Africans, to be human is to participate in life and respect the conditions that make life possible. To participate in life means ultimately to participate in the fellowship of the community. African community-based society does not designate a communal or collectivist society, but rather one reminiscent of an organism. The collectivist society inevitably places the emphasis on the individual and his or her needs. African society emphasises solidarity rather than activity, and the communion of persons rather than their autonomy. This is African socialism which differs from European socialism or Western capitalism. Africa rejects Western socialism and capitalism because they produce a society in which the individual is alienated from others (Shutte 1993:48-49, 51).

Although African cultural unity is often typified by the idea of ubuntu, it would be a mistake to limit African society to ubuntu, or to restrict personal identity to communal identity. That personhood is identified by an individual's interaction with other persons does not eliminate personal identity (Louw 2002:14, 16). It simply says that my personal identity comes to the fore in my interaction with, and place in, my community. Ubuntu is an ethic that developed in a context of essential interdependence and severe need. Ubuntu may just as easily be discarded by urbanised and economically independent Africans. Ubuntu is easily romanticised by whites suffering from the isolation and fragmentation that comes along with individualism. Ubuntu Β in the sense of caring and sharing Β was not so foreign to white Afrikaners when they themselves suffered from poverty and oppression.

Ubuntu functions as a tribal, social security system. The much hailed ubuntu system must be seen in the context of a specific tribe, clan and family. Traditionally, members of the clan were dependent on each other for agriculture and general aid (Wiredu 1992:201ff). Depending on the intensity of the need, or the severity of the threat, ubuntu principles of caring and sharing are applied selectively. This is in line with the acceptance of African diversity. In the words of Nyasani (quoted by Basu 1994:6) "The African's surrender to the 'we' is the result of an inveterate psychological disposition largely born out of a hostile environment in which he finds himself." Basu continues that it is equally illegitimate to assume that Africa *has* a collective philosophy. This assumption fails to recognise Africa's diversity. He further distinguishes the economically based European socialism from the ethically related African communitarianism (Basu 1994:8; see also Gyekye 1992:111). The point we wish to stress is not that African society is predominantly collective, but that the African person should not be limited to collectivity any more than a Western person can be restricted to individualism. There is a right to live beyond one's culture, on the border of cultures, to take a step transcending one's own surroundings, one's native culture and one's milieu. This constitutes no betrayal, because the limits of any culture are too narrow for the full range of human potential.

4.5 African science developed as indigenous knowledge systems (IKS), integrated in African culture

The African world-view rejects the instrumentalism embedded in the separation between subject and object, and emphasises interconnectedness, harmony and balance, rather than dualism. In this regard Ntuli (2002:53) remarks that the Newtonian world-view typifies these opposites *par excellence* in offering us a world of "positive-negative", "either-or", "yes-no" options. It

completed the separation between thought and feeling, and between privileging and thought over feeling as guiding principle. The Augustinian notion that we truly know only when we love, combines knowledge with love (emotion). For the African, to remove oneself emotionally from something or someone, is to view that thing or person instrumentally B as something that one can use and exploit. To separate oneself from the phenomenal world is to objectify that world B something Africa rejects (Ntuli 2002:54).

Technology in traditional African societies is part of their *Indigenous Knowledge Systems* (IKS). This is, however, a technology peculiar to Africa and foreign to the Western mind. African IKS should not be seen as a replacement of natural science, or technology. IKS is an important aspect in the restoration of African identity and serves this purpose. This is not to say that IKS cannot contribute significantly to economic sustainability and growth. The most important aspect of IKS, however, is its integration in African cultural life. In this respect IKS serves as an example of how knowledge of local environmental and technical knowhow B in other words, African science B are integrated in the meaning-giving values that form part of the African spirit.

The resurgence of the IKS-debate must be seen in the context of the African renaissance project and the NEPAD programme. Different approaches to and themes in IKS can be discerned:

- The first approach concerns the symbolic worth of IKS in restoring African identity, dignity and autonomy.

- The second concern is to maintain intellectual property rights and to see to it that the profit to be made from IKS, for example medicinal herbs, remain in African hands.

- A third approach, linking up with the first, concerns the question of IKS and language and the possibility of introducing IKS on a more formal level into secondary and tertial education levels. This phase is important, since issues like language, epistemology, the interaction between IKS and Western natural science must be dealt with.

- A last concern is the formal development of IKS systems in the reconstruction of Africa. Here IKS systems will have to go hand in hand with available technological products, like telecommunication, medicine, agriculture, engineering, as well as economic skills.

The NEPAD ideal is impossible without this technological aid. African peoples are wary of any system or policy that would make them dependent again. We cannot deny that affluent culture/s have become dependent on technoscience. Will this dependency on technology destroy the African spirit?

Our present interest, however, is how African science in the form if IKS systems determines African personhood and how African personhood may be influenced by increased exposure to a technoscientific environment.

Perhaps the most important aspect of IKS is its embeddedness in local cultural tradition. African value systems see the world as an interconnected system. Nature is full of forces that interact with each other. Participation in the movement of these forces takes place through rituals which are supported by explanatory myths. All important moments in life are ritually mediated, from birth to initiation, to marriage and funeral rites. In all of these, Africans listen to their mentors which include the forefathers, the sages (council of elders), the mentorship programmes (*amaqhikiza* system), and wisdom encapsulated in proverbs and narratives from the oral tradition. In this system rebirth is essential to Africa. That is why the renaissance programme (to be distinguished from the Enlightenment renaissance which refers to the rebirth of the classics), is not foreign to Africa (Ntuli 2002:58-61).

African medicinal practices serve as example of the integration of IS systems into local culture. According to Maboea (2002:81), disease is viewed as a physical condition and a spiritual matter. Health depends on being in harmony with the spiritual powers and finds expression in harmonious social activities. The metaphysical powers of the invisible world influence the powers of the visible world. The traditional healer is respected for his ability to maintain a sound balance between the metaphysical and the physical forces. Traditionalists maintain that what destroyed African society more than anything else was the rejection of their traditional ways of showing respect to their parents and ancestors. Lack of harmony between the two worlds brings disease and misfortune. Medicine (also called *muti*) is usually obtained from trees, shrubs and herbs. Medicine is inherently potent or becomes potent when traditional healers utter ritual language over it. Medicine is used to heal physical disease, restore social harmony, and in a negative way, to harm or even kill people. Medicine and the "technology" associated with it is embedded in the whole of African life. It is not simply a drug to be taken, but a process of social and interpersonal restoration that must take place.

Diamond (2000) has convincingly shown, as we discussed above, how many technologies were developed because of favourable environmental factors. Unfortunately, African thinkers associate Western science with the legacy of haughtiness, control and oppression that characterise the manner in

which the colonisers viewed and managed Africa. Statements of philosophers and sociologists like Kant and Levi-Strauss about the savage nature of African culture, the negative experience of colonisation and apartheid all contributed to an ambiguous hostility towards Western science in Africa (they depend on it but would have loved to do without it). But science should not be blamed for the way it was implemented in Africa, especially since Western science has tried to be neutral and free from religious, ethical and political control.

There are, however, more factors to be taken into account to explain the state of affairs of science and technology in Africa. The broad biogeographic perspective proposed by Diamond and discussed above may help us to understand the reasons behind the development of some cultures and the lack of progress in others. This is not to shy away from the negative influence exerted on Africa during colonisation. Biogeographical influences are, of course, not the only determinate factor in the development of technology in different cultures. One should consider cultural influences as well as personal choices and values in the development and acceptance of new technology. When the values of a specific culture prohibit people from acquiring available new technology, it follows that they lag behind in the human race for power and control. Diamond (2000:257-258) gives a good example in this regard: the Japanese, who had acquired firearms from Portuguese adventurers in 1543, had greatly improved gun technology by 1600 AD. After this period the samurai controlled government-restricted guns because it threatened the art and skill of samurai fighting. It was only in 1853 that the visit of Commander Perry's US fleet bristling with canons convinced Japan of its need to resume gun manufacture.

Diamond (2000:247-249) identifies four factors that influence the acceptance of technology by a people: The first is the relative economic advantage compared with existing technology. Second is the social value and prestige of new technology. Third, the compatibility with vested interests and lastly, the exposure to and observance of new technology. What is not mentioned is the economic ability to attain new technology and the existing infrastructure to integrate new technology B factors which are often lacking in an African context. For the technological future of Africa one can only hope for the success of the NEPAD programme which stresses the need for technology without discarding African culture.

5. FACING OUR TECHNOSCIENTIFIC ENVIRONMENT TOGETHER

It is uncertain whether Africa will be able to avoid those negative aspects that technoscience displays in affluent countries. Africa's history took a different line from that of industrial countries. We have traced some developments of

personhood in technoscientific countries and viewed them in stereoscopic vision. We also considered some traits of African personhood. The present threat of technology in the form of instrumental reason and the market is clear; it poses a potential threat to Africa as well. This must be addressed in an African version of the science-religion dialogue, which cannot be postponed until the technoscientific values have overridden indigenous values. Technoscientific values are already well rooted in Africa. South Africa, for example, can be typified as a third and first world country, sharing in both versions of personhood we have discussed.

Western values are not normative. What is most of the time taken to be universal, is incidentally also Western. Universals in this sense involve the projection or overgeneralisation of (Western) local beliefs (Robbins 1996:65). Geertz (2000:73, 226-227) warned that difference must be recognised, explicitly and candidly, not obscured with offhand talk about Confucian Ethic or the Western Tradition, the Latin Sensibility or the Muslim Mind Set, nor with wispy moralising about universal values or dim banalities about underlying oneness. Local differences must not be seen as the negation of similarity, its opposite, its contrary and its contradiction. It must be seen as comprising it: locating similarly, concretising it. What unity there is, and what identity, will have to be negotiated, produced out of difference. There is increasing awareness that universal consensus on normative matters is not in the offing. The idea that the world is not moving toward essential agreement on fundamental matters favours localism. Africa's striving for development as expressed in the NEPAD programme is in line with this.

Nevertheless, it is accepted today that despite one's civilisation or belief system, certain values like freedom and equality are universal and may not be transgressed by any government or code of law (Touraine 2000:167-168). Our world has to a large degree identified non-negotiable aspects of personhood which must be protected in spite of cultural and religious differences. The generally accepted traits of personhood are expressed in relatively fixed values like democracy, freedom of association and freedom of speech, which are complemented by ideals like the right to health services, education and employment. To this we may add meaningful relations with our environment, our fellow humans and our God. This seems to guarantee the integrity of the human person, no matter what exact form it assumes.

The African integrity of the human person is unique and challenges technological societies to reconcile their technology with a humane style of living. For affluent countries the challenge is to regain personhood by becoming acting Subjects again through meaningful communitarian life, as Touraine has shown. Communitarian life is one of the strong African features

illustrated in the ubuntu system. Although the system is not without flaws and runs the risk of control, prejudice and fundamentalism, it remains an important model for meaningful human relationships.

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