Health and Medicine in the Light of Philosophical Anthropology[1]

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Samevatting

Die terme 'gesondheid' en 'siekte' vind allereers hul tuiste in die biotiese aspek van die werklikheid. Daarom is dit onmoontlik om 'n suiwer fisiese definisie daarvan te probeer gee. Hierdie onmoontlikheid word negatief belig deur die eensydighede wat opgesluit lê in die teengestelde oriënterings van 'n meganistiese en vitalistiese werklikheidsvisie. Vanuit 'n wysgerige totaliteitsvisie waarin die funksionele onderskeid tussen die fisiese en biotiese werklikheidsaspekte verreken word kan verskeie probleme rondom die tema van siekte en gesondheid in 'n nuwe lig gestel word (w.o. die veelkantigheid van verskillende "oomblikke van die dood" asook die erkenning van die normatiwiteit van die mens se lewe). Die laaste deel van die artikel belig enkele verskille tussen gedifferensieerde samelewings en tradisionele samelewings – waaruit onder meer blyk dat daar 'n noue band is tussen kultuur en siekte.

1. Introduction

The first part of the title of this contribution rests of two terms that are merely indirectly related: 'health' and 'medicine'. A normal person, for

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that matter, is a person assumed *not* to be in need of medicine. It is only when a normal ('healthy') person gets ill that *medicine* enters the scene as a possible *cure* for this ailment. The juxta-positioning of *health* and *sickness* therefore first of all calls for our closer attention.

2. Health and sickness

It does not require a profound insight to realize that the opposition of *health* and *sickness* is only found in *living* entities – such as plants, animals and human beings. But what does it mean to be *alive*?

Living entities have a function in the *biotic aspect* of reality, also designated as the aspect of *organic* life. The earliest forms of *vitalism* even believed that a living entity is alive *through and through*. Just compare the characterization of this stance given by Hans Jonas where he explains that in such a world view *death* is a riddle, a contradiction of what is natural, self-explanatory and understandable, namely the *common life* (Jonas, 1973:20). Jonas here discusses pan-vitalism and the problem of *death* (Jonas, 1973:19ff).

In opposition to this vitalistic inclination, dating back to early Greek philosophy where Thales alleged that everything lives, the vast extension of the *physical* world also succeeded in capturing the attention of one-sided concerns, equally *monistic* in nature. Whenever a mechanistic (or physicalistic) approach enters the scene, phenomena of life turn out to be peripheral and problematic. It is an anomaly within the dominance of 'lifeless' matter in an encompassing homogeneous physical world. Quantitatively negligible in the immeasurable expanse of cosmic matter, qualitatively an exception to the rule of material characteristics, scientifically inexplicable in an explainable physical natural reality, for pan-mechanicism 'life' becomes an insurmountable obstacle. "Life as problem here indicates recognition of its strangeness in the mechanical world, which is the real world; to explain it means – on this level of the universal ontology of death – to deny it, reducing it to a variant of the possibility of the lifeless" (Jonas, 1973:23).

In a course on the philosophical foundations of the natural sciences taught to first year medical students the author usually commenced by asking the question "What is Life?" This question seems to be quite natural, because the educational system in most countries of the world frequently addresses, for example, the problem regarding the "origin of life" (as if 'life' is a 'something', an *entity*).

Students normally respond by mentioning biotic phenomena such as *growth*, *maturation* and *ageing*, *health* (and *sickness*), *adaptation*, the existence of *organs* (and even intra-cellular) *organelles*, *death*, and so on. Sometimes the *genetic code* is mentioned (DNA molecules – *nucleotides*), as well as *proteins* (*polypeptides*), or simply *metabolism* (anabolism and catabolism) in general.

At this point a serious problem arises, captured by phrasing another question: "are molecules alive?" If the answer is *yes* the students have to explain if the mentioned properties of 'life' – such as *growth*, *health* and *sickness* and so on – apply to molecules as well. Clearly this is not the case! Even the neo-Darwinist scholar, George Gaylord Simpson, later in his life pointed out that the expression "molecular biology" is self-contradictory: "Since biology is the study of life (it may rather be "living things" – DFMS) and molecules, as such, are not alive, the term 'molecular biology' is selfcontradictory" (Simpson, 1969: 6)

Surely molecules do not grow, differentiate, mature, age, get sick and die – just as little as this happens to the physical and chemical processes occurring within living things. Von Bertalanffy exposes the flaw in such a view by pointing out:

> These processes, it is true, are different in a living, sick or dead dog; but the laws of physics do not tell a difference, they are not interested in whether dogs are alive or dead. This remains the same even if we take into account the latest results of molecular biology. One DNA molecule, protein, enzyme or hormonal process is as good as another; each is determined by physical and chemical laws, none is better, healthier or more normal than the other (Von Bertalanffy, 1973:146).

The biotic side of living things does not tell the whole story, for it is undeniable that such entities are co-constituted by *physical constituents*. However, since no atom, molecule or macromolecule is alive it is meaningless to refer to "dead matter" for then it is once again presupposed that there does exist something like "living matter"! Von Weiszäcker side-steps this fallacy through his distinction between *living things* and what he calls 'unbelebt' (see Von Weiszäcker, 1993:32).[2]

Whichever way we look at the issue, the answer given to the question: "What is Life?" points in the direction of acknowledging what is usually called 'life' actually is a 'mixture' of the living and the non-living. Emphasizing merely one of the two points of view, either the *physical* or the *biotical*, inevitably ends up in a reductionistic elimination of the other mode of existence. The moment we attempt to explain 'life' purely in physical terms we loose it forever. The converse is also possible, for the holist biologist from the 20th century, Adolf Meyer, advanced the view that physics ought to be derived from biology (and not the other way around). Needham explains:

> Thus Meyer, in his interesting discussion of the concept of wholeness, maintains that the fundamental conceptions of physics ought to be deducible from the fundamental conceptions of biology; the latter not being

2 "Die Steine sind unbelebt. Man sollte aber nicht sagen, sie seien tot. Tot sein kann eigentlich nur etwas das gelebt hat" (Von Weiszäcker, 1993:32, 43).

> reducible to the former. Thus entropy would be, as it were, a special case of biological disorganization; the uncertainty principle would follow from the psycho-physical relation; and the principle of relativity would be derivable from the relation between organism and environment (Needham, 1970: 27 note 34).

Against the foregoing considerations the reference to a person who is qualified to handle the problems of health and sickness as a *physician* illustrates an instance of a one-sided approach to the problem of health and sickness. If *physical entities*, such as atoms, molecules and macromolecules are not alive, why then call a medical doctor – who is supposed to be focused on biotical states of affairs – a *physician*?

3. Philosophical anthropology – a totality perspective

Surely there are many more examples of extra-medical influences oftentimes distorting a proper understanding of health and sickness. For example, a German medical scholar asks the question why there are so many different medical practices in diverse cultures, given the fact that the human body in its organic functioning is the same in all these cultures. He argues for a direct link, for example, between the social, economic and political situation and the conceptions of the human body. He does this on the basis of distinguishing between what is perceivable and invisible in the human body (see Unschuld, 2003:74 ff.).

Amidst diverging assessments of the nature of being human all cultures (in a world historical perspective) were confronted with the vulnerability of human life – constantly threatened by illness (diseases) and therefore in need of a cure (medicine).

Yet from Greek philosophy we inherited a *dualistic* understanding of being human, supposedly constituted by a *material body* and an *immaterial soul*. The *hulèzoism* (zoè = life; hulè = matter) of Greek philosophy is indirectly captured in one of the above-mentioned preserved aphorisms of Thales according to which *everything lives*. Early modern philosophy simply continued this dualistic legacy in terms of the distinction between two mutually exclusive substances, *extended matter* and *thinking mind* (*res extensa*, *res cogitans* – Descartes).

The dominance of the mechanistic orientation of the modern era eventually led to extreme *monistic* views. In the footsteps of Descartes and Hobbes and consistent with the *mechanicistic main tendency* of classical physics, the 18th century witnessed prominent materialist thinkers in various countries, such as Germany, France and England. Particularly well-known are the works of J. Lamettrie (published in 1745), C. Helvetius (1758), D. Diderot (1746) and P. Holbach (1770) (see Nieke, 1980:842, 850).

The level of complexity present in entities that are alive and healthy is so astonishing that Behe more recently introduced the idea of *irreducible complex systems* (see Behe, 2003). Particularly when the nature of being human is considered this awareness of irreducibility becomes more profound, because the human being is constituted by the intertwinement of different complex structural domains fitted into a hierarchical and orderly unity. Any account of the nature of living entities has to incorporate an acknowledgement of the different aspects of reality.

The most important trait of the different aspects of reality is given in their *functional* nature, i.e. in the fact that concrete (natural and social) entities have *specific functions* within the various aspects of reality – aspects that are not things (related to the *what*?) but to *modes* of existence (related to the *how*). Nonetheless the existence of no single entity is ever *absorbed in* or *exhausted by* anyone of the aspects in which it merely functions.

An approach from the perspective of philosophical anthropology must therefore account for the *more-than-biotic* nature of being human; it must develop a *totality perspective* as correctly emphasized by Arnold Gehlen (1971) – such that psycho-somatic phenomena as well as the influence of socio-cultural practices on health and sickness (and their appreciation) could be understood properly. However, this should be done in such a way that we avoid another pitfall, namely the habit of speaking about "life" as if it is a "something," an "entity" – as it appears in the standard mode of expression found in biological literature.

The value of medicine becomes apparent only when the relatively *uniform patterns* of different kinds of illnesses are recognized and defined for future treatment, where the effects of appropriate medication also display a distinct *orderliness*.

Being human does not only stand in relation to the entire temporal reality but indeed also takes part in the various dimensions of reality. This enables us to identify similarities between human beings and other kinds of entities. While material things like atoms, molecules, macro-molecules and macro-systems clearly belong to the realm of physically qualified things, human existence is by no means excluded from this sphere, just as little as it is exhausted by it. Our physical existence, after all, is bound to the four 'organic' elements (hydrogen, oxygen, carbon and nitrogen) and to the variety of inorganic substances that are equally necessary for our bodily existence. Of course we have noted that the entire matter is complicated if we also pay attention to the complex macro-molecular bonds present in the human body, even if it only affirms that being human partakes in the physical dimension as well – in the sense that the bodily existence of a human being has a physical-chemical basis.

These physical-chemical constituents are indeed essential for the equally complex *organic* functioning found inside the human body. It is only from

the perspective of this *biotic functioning* of the human body that its diverse *organs*, in their mutual interdependence, acquire the central position they deserve in our assessment of *health* and *illness*. The first step out of the dilemma between pan-vitalism and pan-mechanism is therefore found in drawing a distinction between the *physical aspect* of reality and its *biotical aspect*. Like all living creatures, the human body is also constituted by cells. When we think about the biotic meaning of the many vital organs in the human body – organs such as the heart, lungs, brain – we have to realize that they have their foundation in the realm of physical entities.

Both these two domains in turn are foundational to the sensitive-psychic realm. This level gives shelter to a person's complex sensory equipment and the equally complicated emotional life of a person. Both are closely interwoven with the sensory and motoric nervous systems of human beings. On this level human beings are obviously very similar to animals.

Yet an account of the unique and distinctive characteristics of human beings highlights a whole spectrum of normatively guided abilities lacking in animals.[3]

4. The normativity of human life

Humans are normative beings by nature. They have the responsible freedom to give shape to the normativity of human life either by conforming to or by violating the norms guiding human endeavors. Humans are able to discern truth from falseness and what is logically sound from what is illogical, just as they are able to know the difference between what is beautiful and what is ugly. This normative fibre of our shared humanity naturally spans across multiple dimensions of normativity, exemplified in considerations such as:

- Humans are extremely sensitive to the difference between justice and injustice.
- They are aware of the benefits of frugality as opposed to the sorrows of wastefulness.
- Their experience of lingual ambiguities is filled with examples of correct and wrong interpretations.
- They know what the value of courtesy is and what the effects of impoliteness may be.
- Similarly, humankind has heroic and heartbreaking stories to tell about what is norm-conformative in a historical sense and what is historically antinormative or un-historical (for example: what is reactionary or what is revolutionary as opposed to what is reformational).

3 See Strauss, 2005, Chapter 4 (pp.164-179).

Every inter-human encounter brings to expression this normative dimension and takes place under its "supervision"; is played out within this cosmic theatre of human beings as norm-observing agents. Although individuals oftentimes have diverging understandings of what truth, logicality, justice, love, frugality, interpretation, courtesy and norm-conformative historical actions are, they cannot side-step this "norm-determinedness" of human life. For that reason even in every antinormative action the human being is constantly haunted by the underlying and presupposed normative awareness of what "ought to be" – aptly captured by an age-old legacy which designates it as the uniquely human conscience. Particularly in the contemporary world the fairness of medical practices occupies a vital place in society.

Human beings are never (exclusively) acting as "citizens", as "church-members," as "partners" (friends), or whatever. They fulfill a multiplicity of roles within diverse societal institutions, and throughout their life these functionally distinguishable social roles are constantly and concurrently acted out.

Of course the recognition of the dignity of being human does not only refer to the legal aspect of reality, since it also points to the coherence between the legal and the ethical aspects. The legal task of integrating diverse legal interests on the territory of a modern constitutional state under the rule of law (democracy) is, after all, deepened when the legal aspect anticipates (opens up its meaning) by pointing towards the ethical facet of reality. Then we encounter deepened legal principles, that are also known as *legal-ethical principles* or as *principles of juridical morality*. They demand the recognition of the dignity of the human personality.

Within Western societies the expanding process of differentiation made it possible to arrive at a more nuanced understanding of the multi-aspectual nature of human existence. However, at the two turning points of being alive, namely *birth* and *death*, it seems as if diverse contexts converge. In her discussion of the sociology of the body Sarah Nettleton remarks: "The role of religion, law, and medicine are especially evident at the birth and death of bodies" (Nettleton, 2001:45).

In what follows we first explore an element of such a unity-in-the-diversity perspective by looking at particular facets related to the *process of dying*.

5. Sickness and death – a multidimensional process

Being ill is embedded within the two extremes of *health* and *death*. But is it possible to say when a sick person actually has died?

Viewed from a biotic perspective "suspended animation" differs from true death in the sense that only in the latter case do we encounter phenomena of decay. The self-demolition of an organism is accomplished by the functioning of its own sub-cellular organelles, known as *lysosomes*. When

the heartbeat and breathing cease, the situation is designated by referring to *clinical death*. However, it frequently happens that victims of accidents still function *biotically* in spite of the fact that the activities of the brain are damaged beyond repair. Amidst on-going developments within this domain one medical practice applied to establishing the "moment of death" is mentioned:

(1) there must be no reception of or response to impressions;
(2) there must be no spontaneous breathing when the respirator is turned off for a period of three minutes;
(3) there should be no reflexes; and
(4) the EEG-test should not register any brain activity.

These four points must be checked by two doctors 24 hours apart. If both tests are completely *negative* the patient is certified *dead* and only after that person has been certified as such, the respirator is withdrawn.

Yet, because the integrity of the human body constitutes a *public legal interest* that should be protected by the government within the context of its duty to harmonize the multiplicity of legal interests on its territory within one public legal order, it is important for the *legal security* of the citizens that the mentioned four points should be checked 24 hours apart. Issues of human life and death should not be subjected to any form of doubt. The confirmation that somebody is dead is therefore an assessment of *administrative law*.

On the one hand it refers to the sphere of competence of *medical evaluation* and on the other hand it refers to the domain of *public administrative law* assigning to the administrative judge the competence (for the sake of legal security) to perform an act of *marginal testing* (as it is called in Dutch and German law). In this act of marginal testing the principle of legal balance (the principle of *legal economy*) is applied, enabling the administrative judge to move, as it were, up to the borders of the sphere of competence of the doctor in order to decide whether the doctor did indeed only act within his/her medical domain of competence or whether in fact he/she transgressed these boundaries. Of course this meaning of the act of marginal testing presupposes an *internal domain of competence for medical decisions* by the doctor that in principle lies *beyond* the equally legitimate domain of administrative law.

The variety of aspects discernable in the process of dying is immediately clear when we come to a more specified assessment of the "moment of death" in terms of the following question:

One 'moment of death'?

Once we speak of 'moments' of death the dimension of *time* already entered the discussion. However, if time is, as it is generally and unjustly

done, identified with *physical duration* (clock time), it will be impossible to answer the above-mentioned question.

Although physical time forms the basis of the determination of *biotic moments* of time, it remains completely *external* as far as the internal biotic time phases of *birth*, *growth*, *maturing*, *ageing* and *dying* are concerned. These biotic time phases are not at all *homogeneous*. In the case of all living entities, measured in an external physical way (i.e. with the homogeneity of *clock time*), the process of ageing always *accelerates* in comparison with earlier phases of the life cycle. After all, the biotic question: *when has somebody died?* is distinct from a purely *physical* perspective, for example when someone looks at a watch. This is certainly not sufficient, for in order to determine the *external physical moment of death* one already must have decided on *internal biotic grounds* that the person *is* dead. This latter determination, however, demands from the doctors assessing the situation the required *medical interpretation* of the relevant phenomena ('symptoms') accompanying the process of dying.

The four check points mentioned above, nevertheless, call forth further burning questions. If all the points checked were negative but the respirator is not yet withdrawn, doctors easily use the following contradictory expression, namely that a person is 'dead' but is kept 'alive' in a merely technical sense. The contradictory affirmation and denial of two opposite predicates, namely *being alive* and *being dead*, is seemingly relativized by adding parentheses to the word 'alive'. In this context we must note that the four control points are not assessed in the same circumstances. Points (1), (3) and (4) are executed while the respirator is supporting the patient, while point (2) is established without the aid of the respirator. In the case where all four points of testing are negative it is said that the patient is dead in spite of the presence of the respirator. Suppose that only point (3) is not negative. In terms of the mentioned criteria the patient should then be called alive, even though it can only be affirmed with the aid of the respirator. In this condition the aid of the respirator enables the patient to display sensitive reflex activities as well as biotic activities. If, under the same conditions, a later state occurs where the sensitive activities (reflexes) disappear it would, in a logical sense, be completely justified to declare that the person in a biotic sense is still alive (even if it is with the aid of the respirator), since in the same sense during the presence of reflexes it was stated (also with the aid of the respirator) that the patient is still active in a sensitive-psychical sense!

'Dead' but artificially 'alive'?!

The seeming contradiction could be resolved by distinguishing between death in a *biotic sense* and death in a *sensitive-psychic sense*.

It is not contradictory to claim that someone is psychically dead but still biotically alive. Thus seen it is also no longer necessary to use the term 'life' in quotation marks. Only after the withdrawal of the respirator does the person die in a biotic sense. In view of these insights we could ask whether medical personnel sufficiently account for the difference between death in a psychic and a biotic sense. If this distinction is posed in connection with the legal question in the context of administrative law (marginal testing) there may turn out to be important implications for the domain of penal law, which takes us to the Euthanasia problem of terminating biotic life considered to be worthless.

Consider the different connotations of the term Euthanasia. It can indicate –

- aid during the process of dying without any shortening of the life-span of the patient (unproblematic);
- aid with a possible (reasonably foreseeable) shortening of life (legally and in other respects problematic);
- actually causing the death of the patient, be it on request of the patient or not (for example in the case of unbearable suffering). (Even when the patient requests it, this form of Euthanasia is highly problematic from a legal perspective in most Western countries); and
- the terminating of life which is considered to be worthless. (This option was practiced in primitive form by the Spartans and ancient Germans who applied it to malformed children, incurable diseases and aged people. In our modern time it recurred in Nazi Germany. This form of Euthanasia does not find any support in present day Western World.)

With regard to the moment of death, however, it is possible to conclude that since the process of dying functions within *different aspects of reality* there are more than one moments of death. Legally seen, a person is dead whenever the medical administrative legal assessment is made (for example after the second test 24 hours later). Since all four points should already be negative at the beginning of the 24 hour period, one can almost state with complete certainty that some time prior to the first test the patient was already dead in a *sensitive-psychical sense*. Because the respirator is only withdrawn after the legal judgment is made at the end of the 24 hour period, the biotic moment of death is after the jural moment of death. In respect of a medical practice such as this one we can – in the case of brain damage and the need of the respirator – conclude that the moment of death is *different* depending upon the question whether we view the dying process from the sensitive-psychical, the jural or the biotic aspects of reality. Of course each one of these moments of death could be correlated *externally* with a particular physical moment in time – which once again confirms that the *physical concept of time* could never be used to determine the moment of death according to its internal biotic, psychical or legal sides.

Although the author did not pay attention to all the modal aspects of the process of dying, the preceding analysis should certainly demonstrate that things and events in reality are not situated in isolation next to each other. Everything has relations with (i.e. coheres with) other things.

6. Medical practices in a differentiated society

The practice of the medical doctor is directed at the *biotical functioning* of human beings. The discipline of *medical sociology* helped us to understand the nuances of sickness and health against the background of *social* perspectives. Although the biotic functioning of human beings is foundational and undeniable, it is also true that different cultures and societies developed their own distinct "socially constructed" images of sickness and health.

Ian Kennedy is critical of the predominance of the "values of production and economic worth" in Western societies (Kennedy, 1981:15). On the same page he alludes to the "search for immortality" (already present in Greek culture) and in particular he argues that the word *disabled* is actually used in the sense of *in*valid, related to in*val*id, like in the case of a bad cheque: "It does not work, it has no force, it has no worth" – thus once more highlighting "the values of an industrial, production-oriented society." In addition to phrases such as "chronically ill" and "terminally ill" ("a product of the modern obsession with death") Kennedy mentions the term "handicapped": "Once again this connotes someone who is less competitive in the market and thereby again reflects the societal views of life as being rooted in economic terms" (Kennedy, 1981:15).

The same applies to notions of health. The latter is not merely the absence of illness, but rather indicates the leading of a healthy life, reflecting connotations of moral well-being as well as political and social overtones exceeding mere "bodily functioning" (Kennedy, 1981:17). But perhaps Kennedy goes too far when he claims on the same page that "health" is "fundamentally a political term" – although it cannot be denied that illness always occurs within a certain societal context from which it cannot be divorced.

It is also true that during the past number of decades the North American and European powers exploited the Third World by importing a substantial number of medical practitioners and researchers. Already in 1979 Taylor characterized this tendency as a form of *medical imperialism*. Mainly during the 19th century the term *imperialism* still had a positive connotation, "for it carried with it the tacit recognition of the function of imperialism in the spreading of 'civilization' and religion to the ignorant and heathen" (Taylor, 1979:228). Yet, as he points out, the 20th century realized what imperialism actually is: "the economic exploitation of the under-developed nations of the world by the rich industrialized powers" –

and he continues with reference to "Medical imperialism" (a term introduced by Schreier & Berger in 1974), that serves as "an appropriate description of the behaviour of the modern medical-industrial complex of the rich nations in its relations with the poor countries of the underdeveloped world." Medical imperialism is predominantly found in the

> net flow of doctors from the under-developed nations to the industrialized centres of Europe and North America … In many industrialized countries, but especially in the USA and Britain, foreign-born and trained medical graduates make up a sizeable proportion of the total medical work-force. Foreign doctors in these countries usually gravitate to posts which local graduates avoid: hospital appointments with little chance of advancement, posts in isolated custodial psychiatric institutions, or general practice in socially deprived and economically under-privileged areas (Taylor, 1979:228-229).

At this point the author may briefly turn to "traditional medicine".

6.1 Isangomas and "Traditional medicine"

Van Rensburg and Ngwena point out that the shape of health systems in colonial Africa was significantly affected by the "relationship of domination-exploitation between imperial powers and the colonized peoples" (Van Rensburg & Ngwena, 2001:366). The effect of this situation was that traditional medicine acquired an inferior status. This subordination of traditional medicine appeared in four different types of relationships:

> (1) *exclusive (monopolistic) systems,* recognizing only the practicing of scientific medicine;
> (2) *tolerant systems,* characterized by *laissez-faire* policies which virtually ignore traditional medicine, yet allow its existence;
> (3) *inclusive (parallel) systems,* recognizing traditional health systems alongside scientific medicine; and
> (4) *integrated systems,* tending to unite allopathic and traditional medicine in a combined system of training and practice (Van Rensburg & Ngwena, 2001:367).

Traditional (undifferentiated) societies do have a mixed legacy, for on the one hand such societies accumulated a wealth of medical knowledge through experience[4] i.e. by means of what was found useful in the treatment of illness.

4 As a part of Africa Egypt already had an advanced knowledge of medicine over 5000 years ago, with Alexandria becoming an intellectual centre of the world (about 300 BC) providing the scientific basis for modern medicine (see Van Rensburg & Mgwena, 2001:365-366).

In Appendices 1 and 2 examples are found of the medical significance of useful plants in South Africa. The work from which they are taken provides information about the *medical use* of various plants and it also accounts for the way in which traditional practices explored the capacities of certain substances derived from plants.

The *Bushman Poison Bulb*, for instance (Appendix 1), finds an extensive use in medicine – these authors mention its use for "headache, chest pain, abdominal pain, and insomnia," while *dry bulb scales* "are applied topically as an anticeptic and pain-relieving dressing after circumcision, and to painful joints, swelling, bruises, abscesses, sores, rashes, burns and septic wounds" (Van Wyk & Gericke, 2003:156).

However, embedded in its traditional cultural context, this plant (the *Boophane disticha*) has a reputation as a powerful hallucinogen and is still sometimes used in male adolescent initiation rites. Formerly it was also used as a poison for arrows. Van Wyk and Gericke remark: "Some diviners administer the bulb scales orally as a decoction or as an enema to patients to induce visual hallucinations that are interpreted … [as] actual past or future events" or these visions are interpreted "in the realm of the ancestral spirits" (Van Wyk & Gericke, 2003:156).

A well-known native plant from South Africa is tobacco (*Nicotiana tabacum* – introduced to Europe during the 16th century). It is sometimes used by diviners as snuff and sometimes it is "sprinkled on the ground in front of an ancestral shrine as a traditional offering to the ancestors" (see Appendix 2 and Van Wyk & Gericke, 2003:156).

Diviners and witch-finders (also known as *isangomas* amongst the Zulu people) were extremely powerful within their traditional cultures. The coincidence of a number of natural events may induce an interpretation that an evil-doer caused them. For example, when Shaka Zulu once returned from Bulawayo he received the 'evil' news that a *tekwane* (hammer head heron) had flown over the kraal, that after that a porcupine had wondered in and finally that lightning at the kraal killed two cows – all in all calling for the evil-doer to be "smelled out" (in terms of the witchcraft practiced).

A woman *isangoma* called Nobela threw her bones and she commanded a general "smelling out." Ritter says that no "one except the chief was safe from 'smelling out' immediately followed by a brutally cruel death" (Ritter, 1976:84). But almost imitating the medieval contest between *emperor* and *pope* Shaka eventually turned against a most powerful *isangoma*, called Ntombaz. She had mounted the heads of more than *thirty* chiefs in her hut. On her trial Shaka asked: "Why did you have all these chiefs killed after securing most of them through treachery?" Shaka was afraid to let her go and sentenced her to an awkward death. She had a good meal while her hut was prepared for her and her (yet unknown) companion

– that turned out to be an outsize dog-hyaena caught alive. Eventually, after more than two days she fell into a deep sleep, allowing the hyaena first to retire with the front half of her one foot and later on with a mouthfull ripped from the calf of her leg. She then asked Shaka to burn down the hut, so that once more she will laugh seeing her last enemy concurrently perishing with her in the flames. Ritter writes:

> When Shaka's consent to the burning arrived most of Ntombazi's legs had gone, but with arms flailing she had kept the brute away from her more vital parts – nevertheless she was dying from the loss of blood … she fell prone a moment before the burning roof collapsed and enveloped her and the hyaena in roaring flames" (Ritter, 1976:173).

Ultimately this traditional society bears witness to the effects of and ultimate and irreconcilable power contest – between its religious and political leaders. However, this societal reality should not overshadow the positive assessment we have for the wealth of medical knowledge based upon diverse plants as sources – even though witchcraft constantly abused certain substances for unjust purposes.

7. Concluding remarks

The multi-facetted nature of human beings highlights functions within diverse aspects of reality. In terms of a totality perspective one should therefore distinguish between the biotic and other (non-biotic) functions of human beings. In its factual 'embodied' existence every human being is many-sided and cannot exclusively be understood merely in terms of any single aspect of its existence.

Although the medical doctor ought to observe the boundaries of its (limited) *medical competence*, directed at the proper *biotic functioning* of human beings, this practice can never be divorced from the other modal functions of being human, explaining why the (biotical) concepts of health and illness are not the monopoly of the medical practice. These terms have acquired a distinct meaning within different societal contexts, from emotional health and illness up to references to a *healthy culture* and even a *pathological society*.

From the perspective of an anthropological totality view it is clear that the multifaceted social existence of human beings underscores the same perspective for every human being. We can assume multiple social roles without ever being fully absorbed (or encompassed) by any one of them. As Hart puts it: "A worker ant is just that – and all its functions are geared to being a worker ant. A human being, on the other hand, has multiple roles to play and is not exhausted in any of them" (, 1984:146).

Bibliography

BEHE, M.J. 2003. Design in the Details: The Origin of Biomolecular Machines. In: Campbell and Meyer. 2003. pp.287-302.

CAMPBELL, J.A. & MEYER, S. 2003. *Darwinism, Design and Public Education*. East Lansing: Michigan State University Press.

COCKERHAM, W.C. 2001. *The Blackwell Companion to Medical Sociology*. Oxford: Blackwell.

GEHLEN, A. 1971. *Der Mensch, Seine Natur und seine Stellung in der Welt*. 9th impression. Frankfurt am Main.

HART, H. 1984. *Understanding our World, An Integral Ontology*. New York: University Press of America.

JONAS, H. 1973. *Organismus und Freiheit, Ansätze zu einer philosophischen Biologie*. München : Vandenboeck and Ruprecht.

KENNEDY, I. 1981. *The Unmasking of Medicine*. London: George Allen & Unwin.

NEEDHAM, J. 1970. *Order and Life*. 2nd impression. London: M.I.T. press

NETTLETON, S. 2001. The Sociology of the Body. In: Cockerham. pp.43-63.

NIEKE, W. 1980. Materialismus. In: *Historisches Wörterbuch der Philosophie*, Eds. J. Ritter, K. Gründer & G. Gabriel. Volume 5. pp.842-850. Basel-Stuttgart: Schwabe & Co.

RITTER, E.A. 1976. *Shaka Zulu*. Frogmore: Granada Publishing Limited.

SIMPSON, G.G. 1969. *Biology and Man*. New York: Harcourt.

STRAUSS, D.F.M. 2005. *Paradigmen in Mathematik, Physik und Biologie und ihre philosophische Wurzeln*. Frankfurt am Main: Peter Lang.

STRAUSS, D.F.M. 2006. *Reintegrating Social Theory – Reflecting upon human society and the discipline of sociology*. Frankfurt am Main: Peter Lang.

TAYLOR, R. 1979. *Medicine out of Control*. Melbourne: Sun Books.

VAN RENSBURG, H.C.J. & NGWENA, C. 2001. Health and Health Care in South Africa Against an African Background. In: Cockerham. pp.365-391.

VAN WYK, B-E. & GERICKE, N. 2003. *People's Plants. A guide to Useful Plants of Southern Africa*. Pretoria: Briza.

VON BERTALANFFY, L. 1973. *General System Theory*. Hammondsworth: Penguin University Books.

VON WEISZÄCKER, C.F. 1993. *Der Mensch in seiner Geschichte*. München: DTV.

Appendix 1

The betel nut is a gracious palm tree of up to 30 metres in height with bright orange-red fruits, each with a single nut enclosed in fibrous husks. The tree probably came from Malaysia or the Phillipines, but its exact country of origin is not known. After the outer husk of the betel nut is removed by hand, the seed (nut) is used for chewing (as a masticatory) in raw or processed form. The nuts may be dried in the sun before storage or they may be sliced and then boiled before drying.

The product is popularly known as *pan* and is commonly sold at oriental markets in South Africa (Cassim Petker, Salaama Ameer, pers. comm.). *Pan* is actually the Hindustani name for the fresh or processed leaf of the betel vine in which the sliced betel nuts (*supari*) are rolled, together with some lime (*chuna*), a brown spicy liquid (*catha*) and spices, often cardamom or fennel. Nowadays, sweets, syrup or even tobacco may be added.

Betel chewing is an ancient social and cultural practice in southeast Asia, comparable to smoking or chewing tobacco. The mouth and saliva of the chewer turns dark red. The red colour results from the oxidation of polyphenols in the nut. The endosperm of betel nut seeds contains fats, carbohydrates, proteins, tannins and several alkaloids that act as stimulants. Habitual use is associated with some forms of oral cancer. The stimulant effects are ascribed to pyridine alkaloids such as arecoline, which is known to act on muscarinic and nicotinic receptors. High doses result in hypotension, vasodilation, increased salivation and numerous other symptoms.

Asclepias fruticosa (Asclepiadaceae) - **MILKWEED.** A snuff of the powdered leaf is sedative, and is used to treat headache. *Asclepias physocarpa* is used in the same way, and *A. decipiens* has also been used as a snuff (Solomon Mahlaba, pers. comm.). *Asclepias fruticosa* root infusions and decoctions have been used as emetics and for abdominal pain.

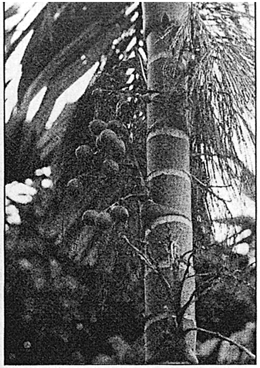
Boophane disticha (Amaryllidaceae) - **BUSHMAN POISON BULB**; *incwadi* (Xhosa); *incotha* (Zulu); *leshoma* (Southern Sotho, Tswana); *muwandwe* (Shona); *gifbol* (Afrikaans).

Boophane disticha grows as a large bulb, partially above the ground, with countless papery bulb scales and a distinctive fan-shaped crown of leaves. The pink flowers are borne in a typical round cluster and are usually produced before the leaves. The plant has a very wide distribution in Africa and occurs throughout the central and eastern parts of southern Africa.

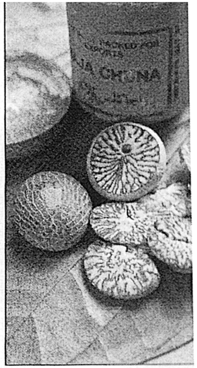
This plant has a reputation as a powerful hallucinogen, and was also used as an arrow poison in former times. The plant is still sometimes used as hallucinogen in male adolescent initiation rites, and in the initiation of diviners. Some diviners administer the bulb scales orally as a decoction or as an enema to patients to induce visual hallucinations that are interpreted. This phenomenon is sometimes called "the bioscope" or "the mirror" when the client is seated in front of a white cloth or a mirror to await the onset of visions. These visions are interpreted as being actual past and future events, and in the realm of the ancestral spirits. Since a small overdose can be fatal, meticulous care has to be taken when preparing the remedy.

A weak decoction of the bulb scales is commonly administered as a profound sedative to violent, psychotic patients, and once the drug takes effect, the patient no longer needs to be restrained, and can be given milder herbal remedies. The bulb is used extensively as a medicine, including use for headache, chest pain, abdominal pain, and insomnia. The dry bulb scales are applied topically as an antiseptic and pain-relieving dressing after circumcision, and to painful joints, swelling, bruises, abscesses, sores, rashes, burns and septic wounds.

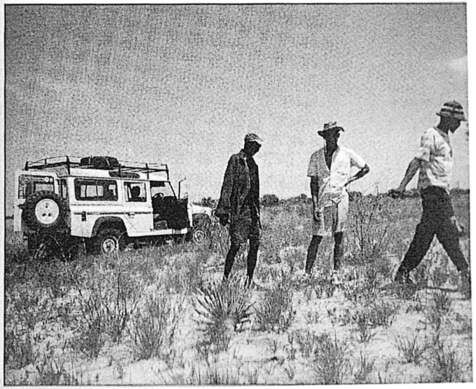
At least 11 alkaloids have been isolated from the plant, including buphanidrine, undulatine, buphanisine, buphanimine and nerbowdine. These alkaloids are mainly neurotoxins and significant analgesic activity has been demonstrated in some of them. Many deaths have been documented from the use of *B. disticha* in South Africa and Zimbabwe. In spite of the real danger of fatal poisoning, this species is still freely available on the urban muthi markets in major centres.



Betel nut palm (*Areca catechu*)



Betel nuts, betel vine leaf and *chuna*



Appendix 2

species are well known creepers with attractive blue, purple or white flowers that only last for one day. The seeds of *Ipomoea pes-caprae* are taken by locals at Port St John's on the Transkei coast of South Africa when catching crayfish in the surf (Ben Dekker, pers. comm.). This apparently makes movement more fluid in the sea. The tropical American *I. tricolor*, a cultivated ornamental climber in southern Africa, has been reported to be hallucinogenic when 200 to 500 seeds are chewed (Gelfand *et al.* 1985). It was used by the Aztecs in Mexico as part of religious ceremonies. Two to four seeds of *I. alba* (another tropical American species) crushed in water and taken at night result in vivid dreams, and the seeds of an unknown Convolvulaceae are used to induce dreams and communication with the ancestors (Solomon Mahlaba & Seth Seroka, pers. comm.). The root of *I. ommaneyi* is used as a decoction taken orally to treat convulsions, and as an infusion taken orally as an aphrodisiac. The active substances in the seeds of various species of *Ipomoea* and other members of the Convolvulaceae are alkaloids such as ergine, lysergol, and various clavines which are well described hallucinogens.

Lannea schweinfurthii* var. *stuhlmannii (Anacardiaceae) - **FALSE MARULA**. The roots are covered with a dense layer of very fine root hairs, that are reportedly used as a sedative snuff, and the smoke of the burned roots is inhaled as a sedative (Million Matonsi, pers. comm.). The powdered root bark has been used as a snake-bite remedy, by being blown into the nasal cavity of the dying victim. The leaf of *Lannea discolor* is used to treat convulsions, and dizziness.

Leonotis leonurus (Lamiaceae) - ***WILDE DAGGA*** (Afrikaans). Leaves of this attractive plant have been smoked for epilepsy, and tinctures and decoctions of flowers, stems and leaves have been taken for headache. The earliest inhabitants of South Africa smoked it and chewed it instead of tobacco. The smoke is acrid, but smoked through a water-pipe produces a mild, sedated type of intoxication. An infusion of the root of *L. ocymifolia* is taken in Zimbabwe to drive away evil spirits, and an infusion is taken for hypertension.

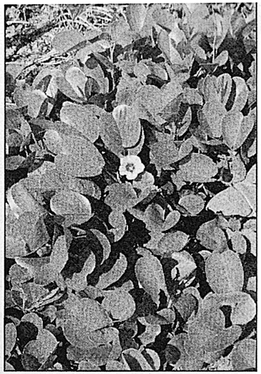
Monadenium lugardiae (Euphorbiaceae) - ***TSHISWOSWO*** (Venda). The plant is a thick-stemmed succulent with irritant milky latex. Diviners swallow pieces of root to see visions and to make prophecies under its influence. Taken in sufficient quantity, the root is said to produce hallucinations and delirium. It is also used to cause an abortion, to treat stomach and chest pains, and ascites, and as a remedy for worms in dogs.

Nenax microphylla (Rubiaceae) - ***DAGGAPIT*** (Afrikaans). The seeds of this Karoo shrublet were used by people of the Karoo as a *dagga* (*Cannabis*) substitute.

Nicotiana tabacum (Solanaceae) - **TOBACCO**; *tabak* (Afrikaans).

The plant is a robust perennial herb, usually grown as an annual crop. It can reach up to two metres in height and has a single thick, erect stem. The leaves are arranged spirally on the stem, and are variable in size, up to 0.6 metres long. Tobacco is a native of South America, where it was cultivated and smoked long before the Spanish conquest. It was first introduced to Europe in the 16th century and is now grown in most countries in the world. Tobacco was reportedly introduced to the Cape by Dutch sailors in 1595 (Von Bibra 1995). Tobacco use was rapidly adopted in southern Africa, and because of the potency and addictive potential of nicotine, probably displaced the use of many local psychoactive plants. The plant is widely cultivated on a commercial scale in southern Africa, where most of the crop is cured and used for the production of cigarettes, and some for snuff. Subsistence farmers grow small amounts for personal use.

Tobacco is sometimes taken as a snuff by diviners at the start of a divination, and it is also sprinkled on the ground in front of an ancestral shrine as a traditional offering to the ancestors,



The *strandpatat* (*Ipomoea pes-caprae*)

The succulent stem of *Monadenium lugar*