

# Review of MASLOW (1966) THE PSYCHOLOGY OF SCIENCE A Reconnaissance

## Part I: Maslow's Position

A Review from the Point of View of the GCA Paradigm

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### Abstract

In this review I discuss the ideas of the book *The Psychology of Science* (1966) from A.Maslow[Mas66]. His book is in a certain sense *out-standing* because the point of view is in one respect inspired by an artificial borderline between the *mainstream-view of empirical science* and the *mainstream-view of psychotherapy*. In another respect the book discusses a possible *integrated view of empirical science with psychotherapy* as an integral part. The point of view of the reviewer is the new paradigm of a *Generative Cultural Anthropology[GCA]*<sup>1</sup>. Part I of this review gives a summary of the content of the book as understood by the reviewer and part II reports some considerations reflecting the relationship of the point of view of Maslow and the point of view of GCA.

## 1 Reviewing Philosophy

Reviewing a given text can be done in many different ways. In this review the reviewer does the reviewing right from the beginning from the dedicated point of the new paradigm of a *Generative Cultural Anthropology[GCA]*. This delegates the task of reading more details of Maslow's book back to the reader.

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<sup>1</sup>See the different posts on this website <https://www.uffmm.org/2020/04/02/case-studies/>

## 2 Maslow's USP

What makes Maslow's book in some sense to an outstanding book for the reviewer is its unique point of view: Maslow (1908 - 1970)<sup>2</sup> describes his start in science in one respect as strongly inspired by the early *behaviorism* as outlined by John B. Watson (1878 - 1958)<sup>3</sup>, the founder of the empirical paradigm for a behavior based psychology. (cf. Maslow, p.7f). In another respect he was dedicated to a more *psychodynamic* kind of psychology as illustrated by Freud (1856 - 1939)<sup>4</sup> and Adler (1870 - 1937)<sup>5</sup>, a kind of psychology which was not understood as an *empirical science* in the mainstream view of empirical sciences in those days.

## 3 Kinds of Sciences

While the reviewer used already the terms 'mainstream empirical sciences' and 'integrated empirical sciences' you can not find such a clear cut terminology in the book of Maslow. He is using many different terms to characterized different aspects of science regarding the different subjects and methodologies.

**Normal, Orthodox, Reducing, Mechanistic:** For Maslow the so-called *normal* science is a limited philosophical world-view restricting the allowed phenomena to material objects, to rather *mechanistic* processes which applied to biological life and especially to the homo sapiens are *reducing* the richness of the available phenomena so strongly that this implies a kind of *de-humanization* of humans.(cf. p.7f) While looking for similarities and for generalizations, by abstracting away from individual idiosyncrasies, this leaves aside that which could be important.(cf. p.8f)

**Personal, Interpersonal, Holistic:** In case of normal persons, for psychologists, ethnologists, biologists or historians *unique, idiographic* and *individual instances* are substantial to understand events and historical processes which are *not completely* describable only by abstract classes of objects and general dynamics.(cf. p.9f) In these views it is necessary to be able to look to special properties, attitudes and behavior patterns to understand details and partial processes, for to understand the complete dynamics of the behavior of biological (or social or cultural) system; a reductive approach is not sufficient; it deserves a

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<sup>2</sup>See for an overview of his life [https://en.wikipedia.org/wiki/Abraham\\_Maslow](https://en.wikipedia.org/wiki/Abraham_Maslow)

<sup>3</sup>See for his life: [https://en.wikipedia.org/wiki/John\\_B.\\_Watson](https://en.wikipedia.org/wiki/John_B._Watson)

<sup>4</sup>See for his life [https://en.wikipedia.org/wiki/Sigmund\\_Freud](https://en.wikipedia.org/wiki/Sigmund_Freud)

<sup>5</sup>See for his life [https://en.wikipedia.org/wiki/Alfred\\_Adler](https://en.wikipedia.org/wiki/Alfred_Adler)

*holistic* approach seeing the target of investigation as a unit, as *one* system.(cf. p.11f, 13-16)

**Objective vs. Subjective:** While *orthodox* science in those days associated the *objectivity* of empirical data with measurement procedures which are assumed to be *independent* from the *inner states* of the acting observer the *human-centered* sciences had to deal with all kinds of inner states of a person, even with so-called *unconscious* states. Observations of these phenomena had to rely to some degree on *communications* which hardly could be done in a purely 'objective' way as known from orthodox science. Thus the data used in the human-centered science are mixed up with *subjective* data. (cf. p.12f)

## 4 Aspects of Knowledge

**Fear of Knowing:** Every scientist who was in those days encountering more rich phenomena, more complex biological or social systems, was challenged to decide either to *give up* these phenomena, because they didn't fit in the orthodox framework, and then to classify them as *un-scientific*, or to question this methodological framework by *expanding* the scope of science and thereby *rescuing* the interesting phenomena for being overseen and neglected. And such a decision for keeping the framework narrow or expand it to more unknown realms is not a purely *rational, cognitive* one; such a decision involves non-rational emotional settings which often include factors which we call *fear of the unknown*.(cf. p.16f)<sup>6</sup> The reason for some kind of *resistance* to expand the scope of observations can in case of humans as subjects of investigations be even stronger because the nature of the subject can 'touche' the observer itself!(cf. p.18f) Additionally one has to consider that observations including inner states of humans as subjects of investigations are embedded not only in conscious states but also in *unconscious* or *pre-conscious* states whose detection is not straightforward.(cf. p.19)

Maslow concludes from these considerations about the strong – often unconscious – influence of non-cognitive emotional factors onto our behavior as humans and then as scientists that *cognitive psychology* should be a *normal part of scientific studies*.(cf. p.29f)

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<sup>6</sup>This topic of *fear* is for Maslow a very strong point. He dedicates the whole chapter 3 to considerations based on the insight that *anxiety* and *anxiety-free* interests are located at the roots of human behaviour where the behavior can be understood as a *resultant* of these two forces. Depending of which of these two factors are more 'dominant' a scientist e.g. is rather *ego-centered* by keeping things narrow or *problem-centered* by keeping the view 'open', to expand knowledge rather than to diminish it.

**Safety Science:** Another aspect of these mentioned built-in tendencies of humans which are intrinsically being guided by anxiety and non-anxiety results in the pattern of using science as a *defense* by avoiding life, avoiding the unknown, because a dominant internal anxiety supports this.(cf. p.33) Such an avoiding strategy tends to a *dichotomizing* style splitting apart those aspects which are stimulating fear by keeping those which do not. While keeping things simple at a first glance one destroys the exciting phenomena, one discards a possible *bigger view* to stay in a zone of comfort.(cf. p.34)

**Self-Control of Persons:** While the term *control* has a certain and limited meaning in the realm of technology and some parts of empirical sciences it becomes difficult to determine its meaning in the realm of human persons, if applied to *control one-self*. *Self-knowledge* has its focus primarily in *itself*. But insofar the 'self' is from the beginning not a clear-cut object it is difficult to characterize the *adequate content* of self-knowledge. Ending up in some kind of *feeling good* – what does it mean? Are we basically *good* and behavior is only a strategy to find the best steps to improve this 'built-in goodness', or do we have some deeply built-in *freedom* which needs different kinds of 'meta-needs' ('truth', 'justice', 'goodness',...) to determine its individual path of decisions? However this internal dynamics works, a working *self-control* would decrease a *control from the outside*.(cf. chapter 5)

## 5 Experience: Primary or Conceptual or ...

In chapter 6 Maslow is hitting the point of the interplay between primary experience, language and knowledge. He states as a fundamental assumption the priority of *direct, intimate experience* as the key to life, which cannot be bypassed.(cf. p.45) But Maslow avoids a very common attitude to claim a dichotomy between *experiential* and *conceptual* knowledge. For him these two forms of knowledge are *hierarchically integrated* and need each other.(cf. p.46f)<sup>7</sup> He adds that psychologists are very aware of "the shortcomings and even impossibility of a pure and sole introspectionism."(p.47) And from this fundamental insight he infers the methodological claim that in all cases where psychological matters are involved one should (i) always start with *phenomenology* and then (ii) go on toward *objective, experimental behavioral laboratory methods*.(cf. p.47) Nevertheless he stresses the *logical priority* of an *honest knowing of oneself*. Only if a researcher is honest with him/her/it\*self he/she/it can be a *good instrument of knowledge*!(cf. p.48)

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<sup>7</sup>This insight is a cornerstone of modern philosophy clearly stated in Kant's *Critic of Pure Reason* from 1781[Kan81]

Although Maslow warns to split primary experience and conceptual knowledge he keeps the focus clearly on the primary experience as a fundamental form of encountering life in its *unrestricted* form. He characterizes this primary knowledge with the following list of properties (cf.p.53f):

1. One is lost in the presence.
2. Self-consciousness diminishes.
3. All kinds of contexts are diminishing.
4. Melting together with what is experienced.
5. Being more receptive, innocent as usually.
6. Importance-unimportance diminishes.
7. Fear disappears.
8. It happens to you.
9. It is trustworthy by itself.
10. It is non-rational, but not anti-rational.

**Brainstorming:** it is interesting that Maslow mentions in this context the method of *brainstorming*. As a well known and often used technique he interprets this technique in a way where different human persons, triggered by some given stimulus (event, question, problem ...), allow themselves to respond spontaneously by whatever subjective experience is emerging from their inner states to be able to be announced and shared with the others. This is known as the most productive form to produce a manifold of personal aspects of the life experienced by real human persons.(cf. p.54, footnote)

**Tolerant Pluralism:** Maslow is clearly aware of the danger to fall astray by using *direct experience* without sufficient objective methods to check the subjective experience against possible deceptions; at the same time he is aware of the danger to use *objective methods* in a too rigorous way and thereby excluding important aspects of the phenomena. There is no simple, automatic way of science. He speaks in favor of a *tolerant pluralism* rather than a *true faith*.(cf. p.54ff) Maslow illustrates this problem of continuous oscillation between the 'primary concrete' and 'holistic, more general' experience/ understanding with the problem of classifying a piece of art.(cf. p.62ff) The details of an art work usually do not reveal the *new view of something before unknown* if this 'newness' is encoded in the *arrangement* of the details. Although this *whole* can be hidden to some extent by the individual *style* of the artist, within the *individual*

*world view* it can become a *manifestation/ revelation* of something new, if the visitor is looking to a *possible whole* for all the details. But exactly here at this dimension of the problem, the oscillation between a possible – before perhaps unknown – *whole* and the actual individual *concrete* – which furthermore can belong to an idiosyncratic encoding of the individual artist – is that kind of *cognitive and emotional process* inside a human person, which is "still a mystery" and therefore a "rich question for research".(p.64)

**Two kinds of Abstractness?** The wording of a 'tolerant pluralism' sounds good, but it can hide eventually the big problem inside the process. In chapter 7 Maslow discusses the necessity of associating direct experience with abstract knowledge by transforming the individual details in important *relations* forming important *hierarchies* to understand the possible whole. A fundamental manifestation of such abstractions is for him the ability to recognize *similarities* and *differences*.(cf. p.67) For him it holds that "*self-actualization* necessarily implies *abstractness*".(p.67) But this acceptance of 'abstractness' as part of 'good knowledge' is based on the requirement, to *test* this kind of abstractions and generalizations *explicitly* by *experience*.(cf. p.69) The borderline between a *good* empirical theory and a *bad* one is for Maslow then given when the *generalizations* within a theory are only based on purely *a priori* abstractions or generalizations.(cf. p.67f) With this distinction between 'good' and 'bad' abstractions Maslow introduces a *hidden and severe problem* because the cognitive processes responsible for abstractions and generalizations of a human person are generally 'built in' or 'innate'! Whatever we will experience directly our cognitive 'machinery' will process these experiences 'automatically, unconsciously' in different ways of abstractions and generalizations. Thus the *integration* is not a *conscious* process, not a process happening *at will*, but it happens because our whole cognition is by biological reasons built to do this in any case. Thus every kind of abstractness is in this sense *a priori by nature* and the only 'protection' against 'wrong views' is a *constant checking* of abstract concepts against available direct experience. This happens all the time already in everyday life and has since Galileo Galilei (1564 - 1642)<sup>8</sup> become a standard of the so-called empirical sciences.

## 6 Comprehensive vs. Simpleward Science

Maslow uses in chapter 8 the wording 'comprehensive' versus 'simpleward' science. Reading the text one can get the impression that he means with *comprehensive science* a science which does nothing exclude from its scope; *simpleward*

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<sup>8</sup>See for an overview: [https://en.wikipedia.org/wiki/Galileo\\_Galilei](https://en.wikipedia.org/wiki/Galileo_Galilei)

*science* is then the contrary: trying to exclude as much as possible to stay 'simple'.

Although *simplicity* is a long standing criterion to qualify 'good' theories compared to 'less good' theories as long as they describe 'the same' subject,<sup>9</sup> this criterion can become a 'dangerous' one if it is applied without taking the context sufficiently well into account.

In a *comprehensive* science which excludes nothing (cf. p.72) one has the richness of the primary experience located in the *inner (private, intrapsychic) states* of the participating human persons as scientists as well as those parts of this inner experience which can be *shared by different persons* on account of their relatedness to *external events* which are a *common cause for all* which share the same situation.(cf.p.74) It is common to call this part of the internal experience the '*empirical*' or '*objective*' experience, which is assumed to a high degree *independent* of our internal states. But despite its naming as *objective* experience this *so-called objective* experience is still *primary subjective* experience! This *objective-subjective* experience is in this sense a *true sub-set* of subjective experience. And it is exactly this what Maslow criticizes: empirical science in those days was based only on this subset of experience by excluding the rest. In this sense this kind of empirical science was not and is not *comprehensive*!(cf. 74)

One strange consequence of this conceptual construction of empirical science is that *reality* is now *located behind the appearance* and it is *inferred* from the appearance rather than *perceived*!(cf. p.74) This places the human experience somehow *outside of reality*, only given in the abstract definitions of science.(cf. p.76f)

In this context of comprehensive and simpleward science Maslow repeats his distinction between *empirical* and *abstract* theories. His main thesis is that *comprehensiveness* should be the primary driving force which shall be followed by the activity to *formalize* the phenomena as far as possible to make the implicit structure of reality visible.(cf. pp.77-831)

## 7 Meaning - Suchness and Abstractness

In chapter 9 the distinction between 'comprehensiveness' and 'simpleward' returns back under the labels of *suchness* and *abstractness*.

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<sup>9</sup>This principle is well known as 'Occam's razor', cf. [https://en.wikipedia.org/wiki/Occam's\\_razor](https://en.wikipedia.org/wiki/Occam's_razor)

With '*suchness*' Maslow addresses that kind of experience which is rooted in the primary experience of life as it is given to us 'by nature', by the way our body enables for us to experience whatever we can experience. This primary experience is concrete, given. As such it is a '*suchness*' as the primary imprint of reality of which we are an 'embedded part'.

With *abstractness* he addresses the fact that our body enables the automatic organization of '*suchness* experience' into more abstract patterns resulting in structures and dynamics, which embed the concreteness into frameworks, into contexts, whereby the 'concrete', the '*suchness*' is 'becoming more', is 'becoming greater', is becoming 'part of something more', and the like.

The big difference between the two kinds of experiences is, that the '*suchness*' is somehow 'given' and thereby can be an *indicator* of something else being 'such and such'. The '*abstractness*' as ability to transform concrete things into more abstract matters is given too, but the concrete resultants of the abstraction process are as such not 'prewired', not 'necessary'. There is some arbitrariness how an abstraction process can work, which direction, with which conditions etc.

On account of this *arbitrariness* of '*abstractness*' processes one can eventually install 'procedures of comparisons' to judge whether a constructed abstract structure or abstract dynamics has some '*similarity*' with a '*measurable equivalent*' of the 'real life'. But because every kind of '*complexity*' attributed to '*reality*' is grounded in man made abstraction processes it is always to a certain degree a '*self-fulfilling-prophecy*' type of testing.

Maslow uses in this context also the word *meaning*, which usually belongs to the realm of semiotics.<sup>10</sup> In the realm of sign systems the '*meaning*' is given by that matters *about* which a sign-expression is *talking*. Because every possible matter is primarily given in the subjective experience (with their possible correlations to external matters) one can say that the whole of subjective experience is the candidate for a possible *meaning*. And if one distinguishes – as Maslow does – between '*suchness*' and '*abstractness*' in the experience then one has these two main kinds of meaning: *suchness meaning* as well as *abstractness meaning*. It is the *abstractness meaning* which introduces relations, contexts, views into the understanding of reality.

Maslow points here to an important cultural artifact which accompanies mankind since its beginnings: because the *abstractness meaning* is arbitrary, because it can *fail*, there was always a strong tendency that human persons inferred from this built-in arbitrariness that the reality as such, real life, is generally also arbitrary, without any kind of serious rules, laws, without a useful

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<sup>10</sup>See for a good introduction into the field Noeth (1990)[N90]



sense. And it seems that human persons, human populations are somehow 'sense-dependent'; falling into despair and chaos if they cannot detect some 'senses' in the reality they are in.

## 8 Taoistic, less Controlling

As one can see in the preceding chapters Maslow is highly sensitive to the danger that the built-in dynamics of a human person tends to 'destroy' the 'true nature' of nature. Therefore he is continuously stressing this point again and again. In chapter 10 this 'fear' is manifested by the terms 'taoistic' and 'controlling'.

Looking to the measurement methods of empirical sciences Maslow sees the danger to destroy the subject matter by interacting with it by special controlling methods. This dissecting behavior is for him furthermore embedded in one respect in the preceding decision to limit the concept of objectivity to that subset of primary experiences which are correlated with external objects and events. In the other respect the measured data will be interpreted in the light of the accepted abstractness model, in the light of the selected conceptual framework which is not a necessary extract of the measurement but an arbitrary decision of the working scientists, which are free to interpret nature as they think nature is. This can – as we know from the history of science – be completely wrong.

On account of this 'danger of interpreting nature in a false way' Maslow talks in favor of a more 'defensive' attitude in observing and explaining nature. He is labeling this more defensive attitude *taoistic* and the science using such an attitude a *taoistic science* and he says explicitly that this is an 'attitude' and not a "technique in the ordinary sense". (p.96)

But from the possibility, that there always exists this danger of using conceptual frameworks which can interpret nature in a 'wrong way', to infer the general 'rule' *not to interpret at all* is perhaps dangerous too and perhaps plainly false. If the only way to find some 'truth' is to *try again and again* then the *partial wrongness* can not be an argument against the general option. What one can and should do in this situation is to clarify as good as possible which *real chances* we as human persons have to overcome this *built-in limits to learn the truth of nature*.

His examples from psychotherapy and ethology in the past being more 'defensive' in waiting for applying some concepts for the encountered phenomena are not really convincing. (cf. 98f) 'Waiting' for the application of some concepts does not change the final event of 'applying' concepts. Maslows idea of '*finding* an order' triggered by the phenomena rather than of '*inducing* an or-

der' is in contradiction to his own assumptions that the abstractness is 'built-in'. We need this built-in mechanism to be able to think in more general relations and we cannot change the roots of this mechanism; the only thing we can do – hopefully – is, to get some *post-hoc control about our thinking* to check, whether it is in accordance with some 'independent criteria'. If such criteria are available, then we can exercise some control onto our own thinking. If these are not available, then truth is never possible, also not with a taoistic attitude!

## 9 Interpersonal Knowledge as a Paradigm for Science ?!

After pointing to some limits of orthodox empirical science Maslow arranges in chapter 11 a direct encounter of this orthodox science paradigm and that what he calls *interpersonal knowledge*.

While orthodox empirical science in his understanding limits itself to a real subset of personal experience, that what is called *objective* experience, and additionally investigates biological phenomena, especially *human persons*, only insofar as they can be treated *like physical objects*, he raises in this chapter 11 the question, what would happen with the *ideal of science*, if science would accept not only human persons as a full subject of science, but also that there exists a *mutual interdependence* between the understanding between the knower and the known with the particular feature that the known is a knower too! These interconnections include cognitive aspects as well as emotional aspects and the accompanying experiences are in some rare cases qualified as a *unification*.

To clarify the special meaning of *interpersonal knowledge* Maslow constructs a synopsis of two kinds of experiences: one which he qualifies as a typical *orthodox* science method of gaining data (using a microscope or a telescope) and one typical for a science which includes *interpersonal knowledge* (the case of a therapeutic relationship).(cf. for the following pp.104-107)

The main idea of Maslow manifested in this synopsis seems to be, that in *orthodox* science there exists a *split* between the knower and the known (e.g. that what can be seen with the aid of a microscope or a telescope) and that in *interpersonal* science this split is *weaker*.(cf. p.104) The reason for this *lessening the split* is rooted in the fact that the *knowledge* of the observer about the object (another person) has many mutual dependencies with the *self-knowledge* of the observer. To understand fully the object which is a person requires an understanding of oneself and needs a kind of correspondence between the knowledge of the *other person* as well as the knowledge of *oneself*.

This culminates in the vision of a 'focal point' where the *self-knowledge* of the observer and the *knowledge about the other person* is more or less the same because it is assumed that this sameness is a condition for a full understanding, an understanding which beyond cognition includes *love* or *care* for the other person. (cf.p.108) A *non-person* object compared to this *interpersonal* scenario appears to be much more 'simpler'. And, an important consequence of mutual dependencies is further the fact that the interactions between the observer and the (personal) object are *changing the object* and while this is happening the observer with his knowledge is changing too!(cf. p.111) The before mentioned 'unification' of observer and object is repeated here as the idea of a *fusion* between the observer and the recognized object.(cf. p.112f) And Maslow reports examples of researchers which confess that the best way of understanding a person-object and its behavior is in some cases to 'feel and think like the person-object.(cf. p.112f)

All these considerations span a conceptual space where the meaning of *objectivity* can be defined in a different way. In orthodox science one has right from the start this limitation to a true subset of primary experience called *objective* experience which excludes all those aspects from experience which are typical for a person-object. Originally intended as some protection against special subjective feelings and attitudes which could influence the view of the observed object by *non-objective* features, this strict focus on the objective part of experience did not only purify the point of view of the observer but it also purified the object of investigation itself in a way which *truncated* those features of a person-object which are fundamental. And by truncating the person-object one also introduced as a consequence a view of the observer as of being 'free of emotions' which is basically wrong. And Maslow raises the hypotheses that (i) if an observer has *bad* feelings about some observed object then he can require objectivity for his analysis even if the results are showing the observed object in a bad shape (because the feelings of the observer are officially not part of objective science), and (ii) if an observer has *good* feelings than the probability of showing the object of investigation as it *really is* is higher.(cf. pp. 214-218)

## 10 No Value-Free Science

The common picture of orthodox science sees science as *value-free* endeavor. A scientist describes reality as it is and he/she/it has no special preferences which guide this description.

As the preceding chapters are revealing is this picture a strong simplification of what really is going on. The reality which includes person-objects (as part of the bigger biological realm of the the whole BIOM) has radically more features

to be considered as assumed in the simplistic orthodox science paradigm, and this radically different perspective begins with the scientist itself.

As Maslow describes in chapter 12 a working scientist does never a purely automatic 1-to-1 mapping of parts of reality in some symbolic description. Proceeding as a scientist requires steadily to make decisions of all kinds:

1. Shall I work or not?
2. Which phenomena shall I take into account?
3. Which methods of observation and of measurement shall I use?
4. How shall I document my observations?
5. Which language, which conceptual frameworks, which established models shall I take into account within which I will embed the facts derived from the observed phenomena?
6. Is the used framework helpful to interpret the new facts?
7. If the new framework is not helpful, how should I change it?
8. In which sense are the new findings 'new' or 'important'?
9. ...

To that extend that modern science includes person-objects as ordinary objects of investigation in science and does not restrict this openness to the domain of investigation but includes the observer itself, to that extend it is possible to see and to understand step-wise that reality is full of emotional facts which are a substantial part of reality. Reality itself is *by its nature* an emotional something which reveals a *complex dynamics* which points in many possible directions which cannot be understood if this *emotional core* is not taken into account within science.

## 11 Degrees of Knowledge

Including person-objects in modern science as domains of investigation as well as of kinds of observers themselves changes the nature of science radically. Not in the sense that all the valuable tools of science (languages, mathematics, measurement methods etc.) are becoming obsolete, but in the sense that the kind of knowledge and the process of development of knowledge is becoming more richer, more 'normal', more 'empirical'.

As Maslow describes in chapter 13 the widening of the scope of science this allows to take into account the full richness of the internal dynamics of a person, not only with all the cognitive and emotional dynamics but also with the cooperation of *consciousness* and *unconsciousness*. As it is testified by numerous scientists the process of developing, emerging knowledge is usually not completely transparent, not describable by pure logic; it is very common that complex insights, the detection of complex structures is *happening* without that the scientist could explain how this happened. The scientist can observe the result but he cannot explain the procedure how it happened. This points to the dimension of unconsciousness which again points to the dynamics of our brain which always is working in complex dynamic patterns which are not conscious, but which clearly can influence that what sometimes becomes conscious.

This partial *ir-rationality* of science corresponds with the fact that science as an overall process is never in a state of complete transparency, never fully complete. It is rather a process with partially clear, partially fuzzy parts, with many open ends, with many open questions, and embedded in a multitude of preferences what to do, how to do it, or in which direction to continue. Being such a complex process science is part of a bigger society, eventually more than one, which have their *own values independent of science* and which have the *power* to support science to follow a certain direction or not.

Although science as such is probably the most valuable tool of mankind to understand reality as a whole it cannot fulfill this task if the surrounding society is not *fit for science!*

## 12 Desacralization and Resacralization of Science

The problem of *alienation of science from society* is a real one. A major cause for such an alienation is the understanding and behavior of scientists themselves.(cf. chapter 14)

In orthodox science with its severe limitations in what is allowed in science and what not the scientific process as well as the scientist itself has been removed from normal life in a way that for normal people it was and is highly difficult to get an understanding what science is, how science works. Science has been *sacralized* in a way which separated it from normal life, from everyday life. To be *outstanding without arguments* is much more simpler than to explain and motivated the process of science again and again in the realm of normal society.

The separation of religion, of art, of wonder from science has enabled a

dichotomy which is disastrous for all: religion is not really religion, art not really art and wonder not really wonder. ... and science not really science as this process driven by wondering about reality, driven by emotions to live and to understand, embedded in the whole of life.

In the new science everybody is a scientist and society is the overall process to understand and to live together with understanding and in love.

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