

## PSYCHOTHERAPEUTIC METHODS BETWEEN SCIENTIFIC FOUNDATION AND EVERYDAY KNOWLEDGE

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**Abstract** — Several hundred psychotherapeutic methods are actually in use. The question is formulated how to distinguish scientifically founded methods from those that are not scientifically founded. For this purpose psychotherapeutic methods are interpreted as technological rules in the sense of M. Bunge. The relations of technological and nomological knowledge are discussed and minimal criteria for the scientific formation are proposed. Nomological and technological knowledge may be integrated in the epistemic and heuristic structure of the long-term memory of scientific psychologists. Non-scientific psychologists build up their cognitive structure on the basis of private experience. In both cases therapeutic action is influenced by the acquired public or private knowledge. Some ethical aspects of psychotherapy are sketched.

Today there are several hundred different psychotherapeutic methods practiced and propagated by psychologists, psychiatrists, and psychotherapists — some of them self-named ones. The following two tests are examples for descriptions of psychotherapeutic methods.

### *Psychotherapy through model presentation*

The therapeutic method of model presentation is also known as learning by imitation or learning by observation. In its simplest form it means that a person or a symbol (the so-called model) presents a certain behavior that is observed by another person. The observer has to watch the model behavior very carefully and learn it, i.e., assume it. This first step is called the acquisition phase. Optimally, behavior is learned in this acquisition phase completely. The observer then turns his observations into own behavior, inasmuch as he is able to do so, has the ability to do so, is in the proper environment, and is motivated. This second phase of model learning is called the trial phase.

Model presentation is used therapeutically for various purposes. The most common one is for learning new skills, e.g., the demonstration of teachers to students of new academic and social skills. Model learning is also used with patients who have a deficit in social skills and who want to learn new social behavior. Even the mentally handicapped can learn new behavior through model learning. (Perry, 1981, p. 139)

### *Intuition therapy*

I was introduced to intuition therapy through a very personal experience in the solitude of a California desert. There I discovered that my previous way had been the wrong way, and that I should trust not others, but only my own intuition. The cause of much mental suffering lies in a false commitment to

the world. The therapist is basically very simple. The intuition therapist, who has had this experience himself, helps the patient through various means to listen to his own inner voice; the therapist helps the repressed minority voices inside to be heard; the patient learns to register and take seriously the message of his most inner parts. The methods I most recommend are "Guided Introspection," the "Path to World Renouncement," and "Path to Ego Secrets." These three are steps that one must have experienced to fully understand their true character. The goal of intuition therapy is beginning the journey to oneself. No therapist can say in advance where the journey will lead to. (Limani, 1984, p. 32f)

This and many other such texts may be found in a number of books on psychotherapy. The scientific discussion of such descriptions may first take place on an intrapsychological level. In this sense we can e.g. ask: What methods have been used to study these psychotherapies up to now? Are group studies available concerning their effectiveness? Are there process studies available in which hypotheses on the mechanisms of effectiveness have been proposed?

But the discussion may also be held on another level, too: Is it at all necessary to demand proof of effectiveness of psychotherapeutic methods? Is psychotherapy perhaps a much more complex thing than a scientific analysis could ever show? Is there even a connection between psychotherapeutic methods and fundamental psychological theories? And what should be the criteria for the scientific foundation of psychotherapy? These are questions concerning the theory of science.

The following presents a selection of basic ideas from the theory of science which are able to reconstruct rational descriptive systems of psychotherapeutic intervention methods. Three types of knowledge are differentiated: nomological, technological, and factual knowledge (Perrez & Patry, 1982). This inventory of concepts will help in the analysis of the relationships between basic and applied knowledge. All three types of knowledge may be more or less naively or scientifically structured. It is considered scientifically grounded knowledge as long as it meets a methodological check; it is judged as naive (routine, everyday) knowledge when it stems from subjective, accidental, or uncontrolled experience. What is the meaning of these three types of knowledge?

#### NOMOLOGICAL KNOWLEDGE

Nomological knowledge is knowledge of the relationships among variables. It is formulated as statements of lawful principles, viz. deterministic and probabilistic. Deterministic principles have the following basic form: "For all  $x$ : if  $x = A$ , then  $B$ ." Put another way: "In all cases in which stipulations of type  $F$  are realized, stipulations of type  $G$  are also realized" (Hempel, 1977, p. 79). Probabilistic principles contain at some point a probability, e.g., "For all  $x$ : if  $x = A$ , then with the probability ( $p$ )  $B$ ."

Hypotheses on model learning concern nomological relationships, for example, in the assumption that the effect of model presentations is stronger when the model behavior experiences positive reinforcement, or in the assumption that children of anxious parents learn anxious behavior via model behavior.

The above-mentioned quotation from Limani has a nomological streak in it when he says that the causes of mental suffering lie in a "false commitment to the world." This cannot be termed a hypothesis, as it is so vague that it cannot be tested in any way.

#### TECHNOLOGICAL KNOWLEDGE

Besides the theoretical goal of gaining lawful knowledge, most sciences also strive to obtain knowledge for practical purposes: technological knowledge. In psychology, the development of intervention methods belongs to this research goal. Whereas nomological knowledge allows events to be explained, technological research strives to obtain knowledge about how phenomena are effected and influenced. It is defined by its concern with action. Statements like the following describe actions (T) that are, under certain initial circumstances (A), able to reach defined goals (F): "To achieve F, I can, under the initial circumstances A, do T with a reasonable chance of success." Such statements form the basis for technological rules.

In contrast to nomological statements, the technological rules are not characterized by the criterion of truth, but by that of efficiency. A technological rule is considered effective when goal F can in fact be reached via T under circumstance A with a reasonably large probability. When explaining the efficiency, however, the criterion of truth is of interest.

#### FACTUAL KNOWLEDGE

Both nomological and technological knowledge refer to more or less extensive generalizations: in the first case, of a theoretical nature, in the second, of a practical one. Factual knowledge, on the other hand, has a singular character and is based on single statements. It refers to the actual state of certain characteristics of a certain population or of certain individuals at a given point in time, without if-then and the-more/the-more linkages of various characteristics, and without generalizations of situations, places, or time. At most, a characteristic is projected onto the respective population on the basis of a representative sample. Factual knowledge thus has considerably less informational value than does either nomological or technological knowledge.

#### TECHNOLOGICAL AND NOMOLOGICAL HYPOTHESES VS. OPINIONS (ROUTINE, EVERYDAY KNOWLEDGE)

We speak of technological or nomological *scientific hypotheses* when dealing with theoretical or practical action-oriented, generalizing assumptions of relationships that can be tested, that are based on existing data or are not contradictory to these, and that are not semantically void (cf. Bunge, 1967a). For example, the assumption that systematic desensitization is able to reduce fear is initially a technological hypothesis. Only to the extent to which this assumption can be empirically confirmed can it be seen as technological knowledge, which exists only through the confirmation and is continually open to revision.

Technological or nomological *opinions* (routine, everyday knowledge) are present in assumptions of relationships that are, as it were, private, i.e.,



convictions that are not bound up in a scientific network, but in everyday experience. Such opinions are often not verifiable, and the authors may have them with subjective certainty, even though they are not scientifically founded.

Finally, under *doctrines* we understand technological or nomological opinions that are propagated by qualified persons as general evidences, despite their being based solely on private experience or uncontrolled collective experiences (cf. Westmeyer, 1976).

#### PSYCHOTHERAPEUTIC METHODS AS TECHNOLOGICAL RULES

In daily speech "psychotherapy" is normally understood to be either (1) a number of methods that include or suggest psychological means for treating psychic problems or (2) the practical work of those who use such methods. This differentiation corresponds to the difference between technological rules and psychological practice. Psychotherapeutic methods may then be interpreted as technological rules when the description of the methods contains information on (1) the initial situation and diagnosis of the problem, (2) the therapeutic goals, and (3) the suggested psychotherapeutic actions. Differential personality characteristics, environmental conditions, etc., of importance to the type of treatment may also be part of the initial situation and diagnosis. The suggestions for therapeutic action may be simple or very complicated interventions. Suggestions for the use of elementary therapeutic substrategies such as focusing, interpretation, confrontation, etc., also have this structure. In addition, we expect information as to which actions can be realized under what initial conditions within the therapeutic process and with what goal.

The definition of indication statements corresponds to the technological rule structure: "Indication statements are general rules of action that show which measures are optimal under the actual conditions (goals, etc.). This includes predictors that allow the probability of success (prognosis) to be determined for a single case" (Bäumann & von Wedel, 1981, p. 13).

The short description above of the model presentation therapy (see "Intuition Therapy", p. 2) contains information on (1) the initial conditions under which the therapy type, etc., may be recommended (deficit of social skills), (2) the goals (establishment of social behavior), and (3) the therapeutic actions to be realized (learning phase: model presentation; action phase: turning observed behavior into own). The remaining text also contains information on effectiveness and studies of effectiveness. The intuition therapy of Limani (1984) has no precise statements regarding indication. It may be assumed that this therapy, with its enrichment function, is suggested not only to abate disturbances, but also for psychic uplifting. The goals given are so vague (to learn to trust your own intuition, to listen to the messages from your inner self, to begin on the road to yourself) that the question of the effectiveness of this method cannot be answered for this reason alone. It is even more difficult to describe the therapeutic strategies of action. They are described briefly in the above-mentioned book, yet it is also noted that they cannot in fact be described, but only experienced. The question of the effectiveness is thus moot for the simple reason that it is an inherent part of this therapy that the result cannot be predicted. This means that intuition therapy cannot be reconstructed as

technological rules since the description given by the founder contains neither information concerning relevant problem areas nor details about goals nor sufficiently precise statements of the therapeutic measures used.

#### RULES AND META-RULES/HEURISTICS

Grawe (1982) pointed out that in the treatment of psychopathological phenomena we are not dealing with precisely defined problems, and that the intervention methods that govern our practical therapeutic actions are often more of a heuristic nature rather than are simple technological rules. Heuristics may be thought of as complex technological rule systems. They, too, contain directions for action under certain initial conditions and with a view toward certain goals. One characteristic of the initial conditions, for example, could be that the problem itself is not entirely clear. The direction for action, then, may not be to begin with a therapeutic action but with a problem analysis. The logic of action in behavioral modification as Kaminski (1970) described it, or the principles of behavioral diagnostics and intervention planning to which Kanfer (1979), Kanfer and Grimm (1980) or Schulte (1976) adhered, are examples of complex heuristics and procedural directions for action which are not directed solely at well-defined problems. These problem-solving strategies may be found, for example, in seeking or conceiving of an adequate method to solve a given problem in a first sequence of action. Process rules as to how to narrow down a diffuse or complex problem can be part of such a rule system. In this regard, we speak of "meta-rules" (Patry & Perrez, 1982), that is to say, suggestions as to how one can, under certain initial and process conditions, proceed to obtain concrete rules. The concept of the simple technological rule is thus extended through technological meta-rules, rule sequences, and rule systems. They too demonstrate the basic structure of technological rules; they too have to meet the criteria of efficiency.

#### PSYCHOTHERAPY AS APPLICATION OF THEORIES OF GENERAL PSYCHOLOGY?

It is no secret that many of the psychotherapy methods presently in use did not arise under the influence of psychological theories of general psychology but, rather, derive from private (effectively communicated) intuition and experience. In many cases there is no scientific foundation at all. But what does "scientific foundation" mean? Is a method scientifically founded when it has been derived via procedural principles from a basic discipline? In this manner Witmer (1909) and Kraepelin (1895) understood clinical psychology to be an application of general psychology. On the other hand, Bunge (1967b) assumes that, strictly speaking, practical procedural principles can never be derived from basic theories, since basic theories always refer to idealized conditions; the variables whose linkage is described theoretically are usually not concrete actions, but abstract, theoretical constructs. Even concepts such as "authoritarian style of leadership" are initially theoretical constructs (cf. Lukesch, 1979) and do not describe concrete actions, so that concrete suggestions for action may not be immediately derived from a theory of the authoritarian style of leadership.



## FROM THEORIES TO TECHNOLOGICAL HYPOTHESES

Bunge (1967b) sees only a pragmatic relationship between lawful statements and technological rules. Going from the law "If A, then B" (e.g., if reaction class R is reinforced, then the probability of its appearance increases) to the rule "Do A\* to get B\*!" demands, according to Bunge, an intermediate step, the nomoprismatic statement, which we call the technological hypothesis and which may be found in a translation of the theoretical concepts into concepts of action ("pragmatic concepts"). A new hypothesis of the pragmatic relationship is created: "If A\* is done, one can determine B\*." (For example, "If a teacher practices the method of differential attention, the behavior of the students systematically attended to will be reinforced.")

When this assumption of a nomoprismatic relationship (the technological hypothesis) has proved itself in empirical studies, the well-grounded rule may be formulated: "In order to obtain B\*, do A\*!" Bunge (1967b) calls such a rule scientifically "founded."

The relationship between basic knowledge and technological knowledge has been discussed in more detail by, among others, Brocke (1978) and Patry & Perrez (1982).

## TECHNOLOGICAL THEORIES

A pragmatic relationship of this nature is, of course, in need of an explanation — even if it has been derived according to Bunge's algorithm: Effective treatments can indeed be derived from false premises, and in the "translation" of the theoretical concepts of a well-proved theory into concepts of action it is not necessarily guaranteed that the resulting concepts of action are indeed valid realizations of the constructs (cf. Patry & Perrez, 1982). Explanations in a strict sense provide theories of therapy that are based on process studies; these theories are generally called (operative) technological theories (TT) and serve to explain the nomoprismatic/technological statements (NS-E). The latter are

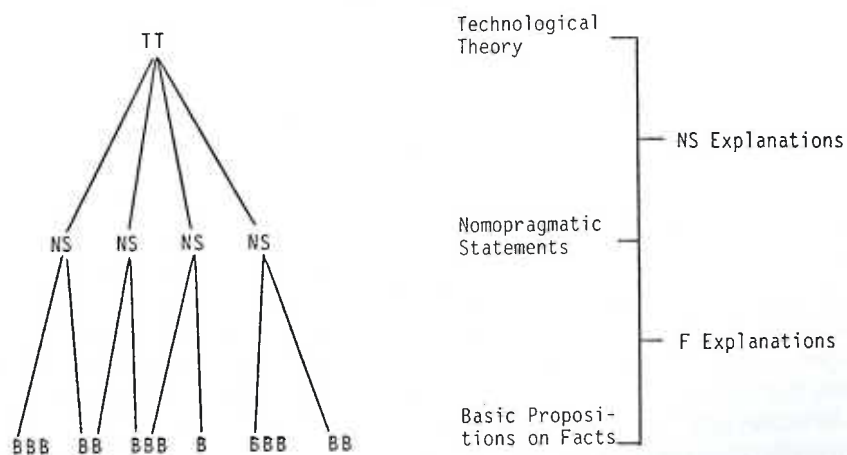


Fig. 1. Connections between technological theories, nomoprismatic statements, and basic statements.

employed to explain concrete treatment effects which are, in turn, described via basic statements (explanation of facts = F-E) (see Fig. 1).

The structure of such explanation is best seen in an example:

1. Why did subject P lose his/her phobia? *Answer:* Because desensitization cures phobias, and P has received desensitization. (Explanation of fact.)
2. Why is desensitization so effective in the therapy of phobias? *Answer:* Because optimal habituation to fear-producing stimuli is possible under desensitization conditions. (Explanation of the technological statement by a technological theory.)

Breger & McGaugh (1965) and Westmeyer (1977) have already pointed out for certain behavior therapy methods that basic theories, as such, are not able to produce adequate explanations of therapeutic effects, but that technological theories are necessary for this purpose. They also proved that the necessary strictly logical derivation of behavior therapy methods from learning theory is not present. Nevertheless, many behavior therapy methods were indeed inspired by basic theories and then tested for their efficacy.

Wolpe (1958), with the support of conditioning theories, developed *systematic desensitization* and carried out animal experiments on this effect. The transferral of this method to humans in order to reduce phobias has shown satisfactory effectiveness. Process studies and theoretical considerations, however, proved the original theory of reciprocal inhibition as explanation of the treatment effects to be less than satisfactory. This explanation was succeeded by extinction theoretical explanations as well as by Lader and Mathews' (1968) theory of maximal habituation, only to be followed by various attempts at cognitive theoretical explanations (e.g., Birbaumer, 1973). Thus, principally, even a false basic theory may inspire an effective method.

In addition, the *model presentation therapy* mentioned above does not depict a strictly logical derivation from the social cognition learning theory of Bandura (1979), even though it takes its origin from this theory. The social learning theory differentiates between the prerequisites of the model and the sub-processes (such as attention, memory, motor reproduction, reinforcement, and motivation), which mutually affect each other. Here, too, similar to the example of systematic desensitization, different theories may be developed to explain the effects arising through model presentation.

## UNDER WHAT CONDITIONS SHOULD A PSYCHOTHERAPEUTIC METHOD BE CONSIDERED SCIENTIFICALLY FOUNDED?

This question is not of a categorical, but rather of a comparative nature: Methods may be more or less well founded. Among the most important criteria are (1) proof of their effectiveness and (2) that they do not rest on suppositions that are contrary to scientific data. These criteria are not fulfilled, for example, by the intuition therapy of Limani (1984), which does not have the makings of a technological dogma or a doctrine. The second criterion excludes, for example, exorcism from the canon of psychologically well-founded methods — even if it were effective in the treatment of hysteria — since its perpetrators ascribe its effectiveness to powers that are contrary to the rational body of psychological



knowledge. Also, such "therapeutic" rituals, the supporters of which usually favor nonpsychological causal attributions, are always open to a psychological reinterpretation and an empirical investigation. Inasmuch as such methods are effective, one should be prepared to encounter the paradoxical fact that their effectiveness is lost when patients and therapists surrender supernatural causal explanations in favor of scientific causal explanations, when the naive causal attribution has been a conditioning factor inducing expectation of effectiveness.

In addition to the two above-mentioned criteria, i.e., proof of effectiveness and the method not resting on suppositions contrary to the rational body of psychological evidence, in ideal cases there is the third criterion: (3) accepted psychological theories of therapy (technological theories) that explain the effectiveness of a therapy method. For Bunge (1967b) it is an important criterion: "Before adopting an empirically effective rule we ought to know why it is effective: we ought to take it apart and reach an understanding of its *modus operandi*" (p. 133). Perrez (1983) has also suggested the following additional general criteria for psychotherapeutic intervention methods: (4) ethical legitimacy of the therapeutic goals for which a method projects success; (5) ethical acceptability of the method itself; (6) quality and probability of the expected side effects; (7) costs necessary to the utility of the method.

#### THE MEANING OF NOMOLOGICAL AND TECHNOLOGICAL KNOWLEDGE FOR PRACTICAL ACTION

The interpretation given above for the relationship between nomological and technological knowledge says very little about the meaning of nomological and technological knowledge for practical matters. An effective solution to behavioral and psychic problems is furthered not only by changes in knowledge, but also by understanding the conditions and dynamics of the problems. This so-called conditional knowledge is part of the nomological basis knowledge. Thus, progress in psychotherapy is partially dependent on progress in pathopsychology, which studies the processes leading to the development and sustenance of psychic problems.

But how does scientific knowledge influence practical actions? This question lies at the boundary between theory and practice, and it no longer concerns the theory of science, but rather the psychology of action. The practical psychologist who seeks out a scientific foundation will try to use nomological and technological knowledge (which has both its scientific and naive parts) in solving concrete problems. This knowledge is represented in the epistemic and heuristic cognitive structure of the person executing practical action. Epistemic structure means the organized knowledge of facts and relationships (of a nomological or nomopragmatic, technological nature) in long-term memory; heuristic structure means the operative knowledge in long-term memory (cf. Dörner, 1976) which we mentioned above under the terms heuristics and meta-rules.

Epistemic knowledge is sufficient to effect solutions of problems when the initial situation, the goal, and the technological rules necessary to reach the goal are known during problem solving. If this is not completely the case, then for problem solving we also need — in addition to the available rule knowledge —

heuristics, procedural ideas to explain the goal or to develop ways and means, etc. — much as is the case in normal psychotherapy.

If we differentiate between a body of nomological and technological knowledge as part of a scientific culture and the body of knowledge of a single, concrete psychologist, then we can say that the art of well-founded psychotherapeutic practice lies in the ability of the active person consciously or routinely to apply proven lawful knowledge, evaluated rules, and heuristics. The use of "art" in this context is not meant to make of psychotherapy something inscrutable; rather, the ability to apply rules is the basic testable result of any teaching/learning process in which teaching characteristics, learning characteristics, and characteristics of the rules to be learned themselves influence the outcome.

Scientifically founded psychotherapy is thus only possible to the extent to which accepted nomological and technological knowledge is available. The active person closes the gap between the available scientifically based knowledge and that which is actually necessary through his/her own idiosyncratic knowledge gathered on the basis of his/her own private experience. Such privately created rules, heuristics, and causal attributions used to explain the effects of action may, of course, be completely false. Yet it would also be false to conclude that he/she could not be therapeutically successful on the basis of this knowledge.

The epistemic and heuristic basis of the practically active person is thus, as Herrmann (1979) has written, ideally a mixture of psychologically founded, as it were "publicly" evaluated, and privately evaluated knowledge. These different types of knowledge are integrated idiosyncratically. The problem-solving ability of the practically active person is scientifically founded and normally also increased only to the extent to which his/her epistemic and heuristic structure is enriched by accepted knowledge. However, that is not necessarily the case: A therapist influenced by private experience to embrace false causal attributions may still be successful in individual cases. Such "natural talents," formed by private experience, carry with them, however, the inherent danger of founding a therapeutic school based on their causal attributions, especially if they also possess charismatic appeal and their "special offer" happens to correspond to tastes currently in vogue. The spread of Limani's (1984) intuition therapy (which was, by the way, my invention) will be dependent on such factors. Through propagation it advances from being a private technological opinion to being a public doctrine. The attractiveness of such one-man conceptions results from, among other things, their theoretical simplicity, their direct plausibility, and their universality of application — characteristics that fill the human need for transparency and simple, cogent maxims. The scientific basics of psychological behavior are, on the other hand, complex, disjointed, open to further developments, and always in need of revision.

#### NORMATIVE ASPECTS OF THERAPEUTIC BEHAVIOR

"If you want to help a patient to gain insight into a relationship with a partner, use client-centered counseling." This conditional norm is grounded in the fact that this type of therapy has indeed proved helpful for relationship problems. It



does not, however, provide the motivation for helping someone else to clear up his/her relationship problem. In many cases in therapeutic practice the question of motivation is moot, as the "pressing problems" suffice for the therapist as reason to become active on a certain level. In other cases, however, this matter is not trivial at all. When a psychologist strives to reach certain therapeutic or preventive goals, he/she makes, implicitly or explicitly, a value judgment not founded in the rational body of psychological knowledge.

One should mention here that "the foundation of a goal" does not mean the same as "the explanation of a goal-finding procedure." Why therapists and/or clients seek out one goal or the other can be explained psychologically by deriving the explanation from the lawful psychological statements and historical conditions relevant to that explanation. With this, the question "Why was this goal chosen?" can be answered. But the question of the general or special norms that support these goals is not answered: That problem concerns legitimation and not explanations. The former explains *why* the therapist acts as he/she does, and the second explains why the therapist *should* act in that manner. Calling a behavior disturbed and setting a therapeutic goal based on this opinion involves value judgments. The conditional analysis cannot as such make any statements about what can be called disturbed or what is to be judged as worth pursuing, since there is a difference between descriptive and normative statements, and since normative statements cannot be derived from descriptive ones. Normative statements are neither true nor false — only valid or invalid. Their validity is determined by their ability to be derived from valid premises. This also means that in the premises, in turn, there are norms that include the same derivation problems. Here is an example of the structure of reasoning for a therapeutic goal via deontological argumentation:

"Why should patient P's frustration tolerance be raised?"

*Argument*

1. Everyone should solve their conflicts without resorting to aggression (a norm that is valid or invalid).
2. A high frustration tolerance furthers aggression-free problem-solving behavior (empirical supposition of a relation that is either true or false).
3. Patient P has a low frustration tolerance (empirical factual supposition that is either true or false).

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4. The frustration tolerance of patient P should be raised (correctly derived norm).

Now one can ask the reasoning for the first premise. This problem can be solved only if this premise in turn is derived from the other premises, e.g.:

*Argument*

1. Aggression-free problem solving avoids interactions that damage self-worth (empirical supposition).
  2. Interactions that damage self-worth should be avoided with all people (norm).
- 
3. Aggression-free problem solving should be furthered (norm).

This method of reasoning leads to regression ad infinitum. To surmount the regression problem the following solution, resorting to the highest norm, is suggested. These highest norms can be universal norms such as human rights, the principle of justice, civil laws, or the norms of a religious community in which a certain factual consensus exists concerning the validity of certain general norms. This consensus can be based on belief in authority or on generally accepted methodological principles through which the norm came to be accepted (cf. Perrez, 1976). Similar to the structure of knowledge one can call the norms that are organized and stored in long-term memory a *moral structure*.

#### IS THERE ONE AND ONLY ONE SCIENTIFIC FOUNDATION?

From a social-historical perspective one might be tempted to call what is considered a scientifically well-founded psychotherapy an expression of the particular zeitgeist. Parallel to the collective mentality, the understanding of what a psychic disturbance is and how best to treat it therapeutically varies with time. Even in modern cultures we can observe characteristic ideas concerning the origin and therapy of psychic disturbances which are bound to certain cultural or subcultural trends, as the examples of intuition and model presentation theories clearly show. Are the so-called "scientific" psychotherapies not signs of the zeitgeist as well? Is psychoanalysis not a system of interpretation that includes many important ideas characteristic of the 19th century? Is behaviorism not a late descendent of English sensualism? Didn't the "cognitive revolution" appear in the shadow of the computer-breeding "cognitive sciences"? Shouldn't a science of psychotherapy better concentrate its energies on the study of collective mentalities?

The above already contains implicitly the answer to the question in the heading. Scientific knowledge is different from routine, private, everyday knowledge and opinions in decisive points. Its reasoning goes beyond private experience; its inclusion in the rational body of a discipline depends, among other things, on its validation through intersubjective experience gained according to the rules of scientific methodology. What the "scientific community" of a particular era deems to be worthy of being included in this rational body depends not only on sociological phenomena, but also on the actual, testable, always correctible steps achieved in the progress of knowledge. After discovery of the conditioned reflex, the scientific world thought differently about certain psychological questions than before.

The scientific foundation of technologies is thus dependent on the dynamics of the progress of knowledge. In this broad sense, of course, a scientifically founded psychotherapy is also a reflection of the zeitgeist, inasmuch as the current zeitgeist integrates the dynamics of the progress of knowledge as well, albeit with a short delay. How a society or particular groups in a society deal with psychic problems reflects the scientific knowledge of the members about the world in general. In the Middle Ages this was different from what it was in the Renaissance. And even different sets of "cultural knowledge" have existed side by side in the same cultures and cultural eras. In the 16th and 17th centuries both exorcism and surgical operations were being practiced. Thus different sets



of cultural knowledge can coexist in the age of scientific psychology. Academic psychology is a subset of our modern-day knowledge about the world. The academic set of cultural knowledge has its own very strict rules, and the role of the university lies in the advancement of this knowledge and of solutions to practical problems on the basis of this knowledge.

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