

The eye block, schizophrenia and autism: a study on interdisciplinarity¹

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*And so in the vessel of the head, they first of all put a face in which they inserted organs to minister in all things to the providence of the soul, and they appointed this part, which has authority, to be by nature the part which is in front. And of the organs they first contrived the eyes to give light, and the principle according to which they were inserted was as follows: So much of fire as would not burn, but gave a gentle light, they formed into a substance akin to the light of every-day life; and the pure fire which is within us and related thereto they made to flow through the eyes in a stream smooth and dense, compressing the whole eye, and especially the centre part, so that it kept out everything of a coarser nature, and allowed to pass only this pure element. When the light of day surrounds the stream of vision, then like falls upon like, and they coalesce, and one body is formed by natural affinity in the line of vision, wherever the light that falls from within meets with an external object. And the whole stream of vision, being similarly affected in virtue of similarity, diffuses the motions of what it touches or what touches it over the whole body, until they reach the soul, causing that perception which we call sight. But when night comes on and the external and kindred fire departs, then the stream of vision is cut off; for going forth to an unlike element it is changed and extinguished, being no longer of one nature with the surrounding atmosphere which is now deprived of fire: and so the eye no longer sees, and we feel disposed to sleep. For when the eyelids, which the gods invented for the preservation of sight, are closed, they keep in the internal fire; and the power of the fire diffuses and equalizes the inward motions; when they are equalized, there is rest, and when the rest is profound, sleep comes over us scarce disturbed by dreams; but where the greater motions still remain, of whatever nature and in whatever locality, they engender corresponding visions in dreams, which are remembered by us when we are awake and in the external world. And now there is no longer any difficulty in understanding the creation of images in mirrors and all smooth and bright surfaces. For from the communion of the internal and external fires, and again from the union of them and their numerous transformations when they meet in the mirror, all these appearances of necessity arise, when the fire from the face coalesces with the fire from the eye on the bright and smooth surface. And right appears left and left right, because the visual rays come into contact with the rays emitted by the object in a manner contrary to the usual mode of meeting; but the right appears right, and the left, when the position of one of the two concurring lights is reversed; and this happens when the mirror is concave and its smooth surface repels the right stream of vision to the left side, and the left to the right. Or if the mirror be turned vertically, then the concavity makes the countenance appear to be all upside down, and the lower rays are driven upwards and the upper downwards. (Plato, *Timaeus*, 45, p.26, translation: Jowett, volume II)*

1. Body techniques and studies on nonverbal communication

Exploring one phenomenon that has been discussed in experimental and clinical literatures is difficult, because it implies coordinating fields and ways of thinking that are generally thought of as being incompatible. In this article I would like to show that although such discussions are difficult, they are not only possible but creative. It teaches a researcher to perceive a phenomenon from different angles, and thus

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prevents him from trying to fit large feet into a small envelope, so to speak. To illustrate the complexities of such an endeavor, I shall review some studies on how schizophrenia influences how eyes are perceived by self and others.

From the point of view of immediate conscious experience, eyes seem to be a clearly defined notion. However, as with all that is experienced as "obvious", the term "body" has had a long life and many meanings that only partially overlap: the body is *anything material or physiological logistics or any aspect of physio-anatomy that can be consciously perceived with the senses* of most humans (e.g., it can be photographed, touched, etc.). In this article I will suppose that the body is somewhere in the intersection of the meanings I have enumerated. The term is not only semantically varied, but it is also used in a central way by a highly varied set of human domains, such as art, sport, social modes of differentiation (Bourdieu 1979), energetic medicines such as homeopathy, allopathic medicines based on biological representation systems, anthropology, psychology, psychotherapy, psychiatry, etc. This long list becomes even more complex when one takes into consideration relevant disciplines that have developed outside of the cultures that have produced science. I am most familiar with extreme-oriental disciplines such as Yoga, Tai Chi, meditation and acupuncture; but many others exist all around the world. If one wants to consider bodily phenomenon with an open mind, one also needs to take these form of knowledge into account, mainly because of their value. The thousands of years of experience that has resulted in a sedimentation of methods that still produces some of the greatest experts of bodily dynamics on this planet. When one reads on "the body" one tends to traverse a wide variety of issues that science has not yet taken seriously.

As Davis (1972:2) notes, the list of scientists who have studied body movements reads almost like a "Who's Who in the behavioral sciences", from Darwin to Bourdieu. Nevertheless, for most who tried to unravel the secrets of bodily behavior, the topic has proven grossly unrewarding:

Writers still defend the relevance of such study or introduce the subject as if it were esoteric or unheard of. It is as if a great many serious behavioral scientists have shown a fleeting interest in body movement and then gone on (Davis 1972:2).

The problem was both theoretical and methodological. At the theoretical level it is difficult to define what is bodily and what isn't. Empirically, the task became manageable with the development of recent technologies such as film, video and computing. This technological development, as well as cultural and ideological ones, has encouraged scientists to flock to the issue in great numbers, when in the early fifties bodily behavior was pronounced a major channel in interpersonal communication. This contention, advanced mainly by the anthropologists Ray Birdwhistell and Gregory Bateson, meant a radical departure from the age-old assumption that what one does with one's body betrays one's most secret thoughts and emotions (Bourdieu 1977:51); and that "we respond to gestures with an extreme alertness and, one might almost say, in accordance with an elaborate and secret code that is written nowhere, known by none, and understood by all" (Sapir 1927: 554). The new operational and methodological insights that followed the assumption that bodily behavior should be approached not only as expressing psychological functions, but also as a communicative phenomenon, "spurred so much enthusiasm among writers in the field, that within a relatively short period of time the study of non verbal behavior developed into one of the liveliest fields in psychology" (Hirsbrunner et al. 1987).

Somewhere between Yoga and recent studies on nonverbal behavior, trained psychoanalysts such as Wilhelm Reich and Fritz Perls promoted a form of psychotherapy that combines the skills of physiotherapists and extreme-oriental

disciplines within a scientific frame. Although such an attempt has proved difficult to manage on a theoretical level, it has also introduced insights and methods in psychotherapy that can be extremely useful. One of the aims of this article is to try to highlight certain articulations that could improve the theoretical status of this newborn discipline, often called body psychotherapy. I am not entirely happy with this designation, because body psychotherapy is really a form of therapy that tries to use all channels of communication through explicit therapeutic methods and models. In some approaches, such as Biodynamic Psychology, touch, gesture and language can be of equal importance. It is however true that end the of his life Wilhelm Reich, who is often considered as the father of "body psychotherapy" developed a form of work on energy that he preferred to call "orgone therapy" or "energetic therapy" than psycho-therapy. This new form of therapy is clearly differentiated from psychotherapy by Reich:

Orgone therapy, as opposed to all forms of therapy, attempts to influence the organism not through the use of human language, but by getting the patient to express himself *biologically*... In this way the orgone therapist learns, understands, and influences the language of living organisms... By unmasking the pathological modes of expression, we get to know human biopathy at a depth inaccessible to methods of cure operating with human language. This not to be ascribed to a deficiency on the part of these methods; they are adequate in their own sphere. *With its distorted expression of life, however, biopathy lies outside the sphere of language and ideas.* (Reich 1945: 361)

One can therefore argue that Reich's character analysis is a psychotherapeutic technique that incorporates bodily dynamics, while orgone therapy explicitly situates itself beyond the scope of psychotherapy, while Vegeto-therapy has an intermediary situation. Orgone therapy seems to operate mainly on the same dimensions of the organism than psychiatric medications today: both have a beneficial impact of psychological dynamics, but they operate at the level of the organic logistics of the mind rather than on psychological and relational dimensions. Body psychotherapists today do not work with orgone therapy, even if they sympathize with the approach; they focus on an integration of body, mind and interaction (Caldwell 1997, Heller 2001). They are therefore psychotherapists in the same sense as a psychotherapist who also prescribes medication.

In this first section I have thus distinguished two domains that focus on the body and the mind of affective life: academic studies of nonverbal communication that mostly focus on the visible body, and psychotherapies that mostly focus on the experienced body.

2. Gaze behavior and schizophrenia

In 1948, Wilhelm Reich published *The Schizophrenic Split*² to describe how he worked with a schizophrenic patient, and to support his hypothesis that psychotics in general have a particularly strong relation with their eyes as an organ, and with the body segment in which eyes are incrustated. He even proposed that his notion of the ocular may be a stage that is active before the oral, anal and genital stages of development of the libido during childhood³. He assumes that when there is birth trauma, the libido remains stuck in the top segment of the head, just as a certain

² Published as chapter XV in his 1945 *Character Analysis*.

³ Although Reich does not quote him, the proposal was initially formulated by Karl Abraham in a 1913 article on voyeurism (Schaulust), published in the *Jahrbuch des Psychoanalyse*, vol. IV.

model presupposes that depressive patients were traumatized orally by poor breast feeding. Poor eye contact at birth would be the key, traumatizing event of psychotic persons, who mostly use their eyes to activate their erotic feelings. I wonder what Reich would have thought if he were alive today, looking at all the people who, every day, spend hours in front of a computer screen, literally enthralled by whatever they are doing there. Siegfried Frey (2000) has recently published research that shows how powerfully images influence our mind. As Jacques Lacan points out, a fascination for images has been observed in many species:

What is the basic mainspring determining the setting into motion of the gigantic sexual mechanism? What is its releasing mechanism, as Tinbergen puts it, following Lorenz? It isn't the existence of the sexual partner, the particularity of one individual, but something which has an extremely intimate relation with what I have been calling the type, namely an image. (Lacan 1954, chapter X:121)

Today, even psychoanalysts have left aside such a simplistic relation between a psychopathology and a single body segment; however, the clinical observations that had supported this type of analysis have sometimes been forgotten for the wrong reasons. There are several layers of questions that can be developed around Reich's observation. The first is whether it is factually correct that such a correlation exists, and, even if it is, whether the phenomenon was well described; the second layer of questions concerns the underlying mechanisms of such a correlation; and the third is on the use of such an observation for psychotherapy and an understanding of human experience. I shall follow this general plan in this article, which means that I will follow a paradoxical chronological path, because the more correlative research is recent, while I have not read anything worthwhile on the relation between gaze behavior, human experience and psychopathology since the publications by Reich and some of his direct pupils' (e.g., Baker, Kelley and Lowen). Siegfried Frey's (2000, 2001) theory on the importance of visual perception for humans and the *power* of the perceiver is certainly relevant, but has not yet been connected with clinical experience.

As all gaze behaviors are used by everyone, evaluating the link between specific psychiatric problems and gaze implies that one assumes that even such an apparently simple behavior has numerous variables that are each context dependent: context dependent within the organism (e.g., in association to posture, breathing, affects, etc.), within a personal relation, and within a broader social context (e.g., customs, hierarchy, etc.). To my knowledge gaze is sensitive to most inter- and intra-organism variables, so that finding a specific association between gaze and any other category requires from the reader a slow initiation into the multiple dimensions that even gaze possesses. This is a good reason to begin with research that tends to focus on a few explicitly defined variables. Although human consciousness constantly perceives a multitude of bodily variables comfortably, researchers are learning that this comfort has the support of unconscious logistics that manage an incredibly complex set of data. My hypothesis is that unless in crisis, an individual's current behavioral particularities 'modulates already existing self-regulation behaviors' (Heller *et al.* 2001). In other words, psychopathology implants "parasites" or "bugs" in what is otherwise current forms of behavior. Research has shown (e.g., Ekman & Rosenberg 1997) that detecting these "bugs" in human behavior, and describing them through explicit formulations, is incredibly difficult.

To describe why it is difficult to conduct research on something such as Reich's intuition that schizophrenic patients seem to share particular gaze dynamics, I shall contrast findings on schizophrenia with those made by observing autistic children. Autism is so closely related to schizophrenia that it once was called the 'schizophrenic syndrome in childhood' (Tinbergen 1972b:175). The most important difference

between these two illnesses is their association with age: a robust diagnosis of autism can be made when a child is two years old, while schizophrenia is mostly associated with the end of adolescence, which is why it was previously called dementia praecox by Emil Kraepelin. The relation between autism and gaze behavior is easier to detect, more widely researched, and yields clearer results than similar research on schizophrenia.

3. The devil is in the details: analyzing behavior

3.1. Methodological issues on gaze behavior

Reich describes impressions conveyed by the eyes, such as 'the remote schizophrenic expression in the eyes' (1945:430). He then situated this detailed impression within a general *systemic* context, mostly within the organism taken as a psycho-physiological and energetic entity; but also in a relational context, notably counter-transferential (e.g., the therapist pays attention to how he or she reacts to a schizophrenic patient's behavior). From that point of view, eye-to-eye contact can be a deep experience for all involved in a dyadic communication, which can stir many dimensions of a soul.

Testing such a qualitative clinical evaluation with methods that can easily be reproduced is impossible. Experimental studies can only use a) behaviors that can be reliably coded and digitalized, and b) behaviors recorded on supports such as films, video and DVD, so that the original coding procedure can be viewed several times and by several people who do not necessarily know each other (e.g., coders should not know what the research project is about). Furthermore, commonly when one studies the body, systematic research on bodily variables has serious funding problems. Most laboratories I have visited use relatively cheap recording technologies, which no television or professional film studio would ever dare to use. This is one of the rare domains where science is only slightly better-equipped than current users.

The implication of poor recording material is that one can reliably study phenomena such as gaze orientation, but not variables such as the radiance of the skin, the clarity of a gaze, the sadness a gaze can convey, or even contractions of the pupil which requires heavy machinery to be reliably recorded. I have, for example, often observed how the texture of the skin can change with affects in a way that can be shown when it occurs in real time. The skin may become redder or yellowish or pale, and the pores of the skin may widen or tightened. Other report similar observations: 'The patient came in a state of complete vegetative shock. Her skin was spotty from blue to red. She trembled and her eyes were severely veiled (Reich 1945:476)'. Similarly, Lowen describes variables that are important for his psychotherapeutic work, but which cannot be reliably studied:

We can determine the intensity of the expression as well as its quality. Some eyes are bright and sparkle, some shine like stars, others are dull and many are vacant. Of course, the expression changes. We seek, therefore, for the typical look. Some eyes are sad, others are angry; some are cold and hard, and others are soft and appealing. These are not qualities one can judge with an instrument anymore that one can measure the beauty of a lovely female or the sense of masculinity in a little and agile male. But if one is unaware of these things psychiatry becomes a lifeless profession. Many an experienced psychiatrist can spot schizophrenia by the vacant, far-away look in the eyes. (Lowen 1958:106)

I am convinced that such phenomena have a strong impact on others, but they do not show on a video recording. The implication of the reliable coding procedure requirement is that one can only code phenomena that can be explicitly and operationally defined which are basically (a) position, (b) mobility, (c) duration, (d) rhythm and (e) orientation. Thus, most phenomena described by clinicians cannot be studied experimentally. One can use "judges" to qualify an impression, but this method also has many limitations. For example, it mostly works with photographs; even films may be too complex for reliable judgments (Exline & Fehr 1982).

Even if research can only scan fairly obvious elements of behavior, they remain useful to check on a wide series of clinical hypothesis. For example, the impression that depressive patients move less than other people can easily be checked (e.g., Frey et al. 1983a). Another finding is that even if one looks at these simple dimensions, researchers have found that their variability and activity is much more important than what was previously thought, and than what can be consciously perceived (Heller & Haynal V. 1997a). Each gaze dimension of gaze seems to have a particular area of activity. For example, Kirkland and Lewis (1976) showed that the *duration* of a gaze oriented towards another person's face is enough to reliably differentiate *glance, look, gaze, leer* and *stare*, in an increasing order. In other words, this type of research has managed to obtain relevant information on dimensions of behavior that clinicians had not considered (Ekman & Rosenberg 1997; Heller et al. 2001). Looking for "bugs" rather than "typical" forms of behavior is an example. Infants need to have frequent eye-to-eye dialogues

3.2. An innate need for eye-to-eye and eye-to-face dialogue

Since the 1930s, Anna Freud supported experimental research on infant affective development, and on how infants interacted with their parents. The basic bias of these researchers was that infants need love and can be traumatized by lack of love.

This was, for example, the spirit in which Spitz (1945) explored how vital physical contact and warmth was for infants. He showed, for example, in his analysis of *hospitalism*, that lack of physical contact not only created pain, but sometimes also death. He also showed in his classic work, *The First Year of Life* (1965), that the primary means through which the personality is shaped is through the facial mirroring between parent and child. By three months, an infant seeks and responds to a particular face for security and identity. The infant seeks that face and smiles. This series of research was well known by academic psychologists and psychoanalysts, who were also engaged in finding nonverbal cues to understand the affects of babies. Spitz also notes that when infants are three months old, gaze provides an aim for reaching movements, and that head movements develop in function of how gaze and neck muscles coordinate themselves (Spitz 1957, p.87). These broad formulations seem robust, as they are regularly confirmed (e.g. Schaffer 1978:113; Rochat 2001, chapter 4: 127-166).

The Papoušek (1979) also stressed that parents tend to experience eye-to-eye contact as a deep emotional experience:

[Parents tend to try] very hard to stay centered in the newborn's visual field and at distance of 20 to 25cm, independent of his own optimal reading distance or belief that newborns can or cannot see him at all. For every visual contact, the parents, mothers in particular, reward the newborn with a typical greeting response beginning with a slight retroflexion of the head, raised eyebrows, widely opened eyes, and slightly opened mouth, followed by a verbal greeting and/or smile.

However, before two months, an infant does not have the capacity to dialogue with the mother. Like a schizophrenic patient in a way, the infant is still struggling with sensory-motor immaturity:

The capability for sustained mutual visual regard is present by approximately the second month. It is a fundamental paradigm of communication that is central to the developing relationship between mother and infant (Stern 1977) and continues throughout life (Robson 1967). Moreover, as Stern (1971, 1977) documented, mothers tend to gaze steadily; it is the infant who "makes" and "breaks" the visual contact. (Beatrice Beebe & Frank M. Lachmann 2002:86)

3.3. Gaze avoidance, autism and schizophrenia

3.3.1. Autism

Technically speaking, observation of an autistic child can only begin once a child is declared autistic. Although the age of onset is of 2.6 years on average, reports had already described the child as "'odd" from birth' (Richter 1980:259). Studies on the bodily behavior of autistic children began during the 1960s. Corinne Hutt and her team (1964) were working with the hypothesis that autistic children were suffering a generally high arousal state. They had the impression that all 'components of the social encounters of these autistic children are those shown by normal non-autistic children', apart from one element: 'aversion of the face' (Hutt and Hutt 1970:147)⁴.

It is this series of study that influenced the researchers carried out by the Tinbergens, which I will discuss in a moment. This research also supported the model of Stroh and Buick (1970), who were exploring the possibility that autistic children had suffered from too much overall sensory input. Researchers also observed that the autistic child's tendency to avoid eye contact influenced adults, who then avoided looking at the child, began to bite their lips and increased the number of auto-manipulative gestures. Autistic children look more often at someone hiding his eyes than at some one hiding his mouth or nose. Comparing autistic children and normal children, authors have found that autistic children interact less with their companions, have less designative gestures, and react more often with defense gestures when someone approaches. They also avoid less and look more at an adult that turns his eyes away from them (Feyereisen & De Lanoy's 1985: 30-31; Richer & Coss 1976).

By 1977 the notion that a form of gaze avoidance could be associated to autism became so robust that psychiatrists began to include the phenomena as an item of their diagnostic procedure (Cook 1977). Richer defined, for normal people, a notion of 'directed communication, ... characterized by turn taking, pausing and looking at the other person at the end of turn'. Such modes of interaction are especially avoided by autistic children (Richer 1980, p.262-263). Richer and Tinbergen followed Stroh's suggestion that gaze aversion could be a way of avoiding the "charge" of a relation, and recommended that adults who want to interact with autistic children should choose an approach that has 'minimal intrusiveness':

The adult should be available to the child should he approach, or should approach with little looking, reactivity, etc. The main criterion is that adult's approaches are not more intense than the child will accept. (Richer 1980, p.266)

Field (1981) suggested that when an infant avoided looking at his mother he could regulate the level of his arousal as measured by his heart rate. Juan Manzano

⁴ Since then Field (1981 & 1988) has confirmed the relation between arousal and eye to eye contact, by showing that eye contact increases the heart rate of those involved. For a recent discussion on the subject sees Beebe, in press).

and Francisco Palacio Espasa (1983:23) noticed that autistic avoidance can be observed on 6-month old children who were considered autistic more than a year later. This observation has since been reported by others:

Moreover, even newborns show a visual preference for direct gaze over averted or closed eyes (Batki, Baron-Cohen, Wheelwright, Connellan, & Ahluwalia, 2000; Farroni, Csibra, Simion, & Johnson, 2002). These findings suggest that there is an innate, cognitively specialized mechanism for processing mutual gaze. Impairment in the use of eye contact for non-verbal communication has been argued as a major characteristic of autism (American Psychiatric Association, 1994). Individuals with autism show a deviant pattern of mutual or reciprocal gaze behavior with their caregivers and other people (Buitelaar, 1995; Volkmar & Mayes, 1990). (Senju et al. 2003).

Senju, Yaguchi, Tojo & Hasegawa (2003) were able to refine this general observation by showing children photographs of a woman looking at them frontally, sideways, or looking downwards:

Typically developing children detected direct gaze better than children with autism, while performance in detecting averted gaze did not differ between the groups. These results suggest that direct gaze has a facilitative effect on the performance of typically developing children ... With regard to children with autism, direct gaze had no effect on their performance. ... Therefore, the children with autism had a problem specific to direct gaze processing, in that they failed to preferentially detect direct gaze. To our knowledge, this is the first report of restricted impairment in mutual gaze detection with intact averted gaze processing. This finding is concordant with clinical and ethological observations, which report failure in establishing the normal course of eye contact behavior, and suggests that the behavioral difficulty of autistic children may have a perceptual or attentional background.

Helen Tremblay et al. (2005) completed this picture by adding that autistic children found it easier to enter in an eye contact dialogue with an "inactive adult than to an interactive one"⁵. In other words, when an adult wants to create a context in which eye contact with an autistic child, he has to put himself in a certain state an autistic child is not afraid of. This sort of "auto-manipulation" is being explored by certain psychoanalysts who hope to influence transference dynamics this way (Beebe 2004).

Gaze avoidance only partially explains the 'unusual quality of the gaze' that is often conveyed by autistic children. The difficulty lies in the description of what activates an unusual feeling in others. Mays & Gillon (1993) contrast their impressions when they are with normal infants, who do not appear to see people and so may not look people in the eye, with that of infants with autism who have a particular form of gaze that tends to be brief and out of the corner of the eye (Mays & Gillon 1993).

3.3.2. Schizophrenia

There has also been a lasting clinical impression that schizophrenic patients tend to avoid eye contact (Feyereisen and De Lannoy 1985: 214-216). Grant (1972, p.352-355) situates this behavior in a general strategy that can be associated with flight, withdrawal, 'and away from those patterns associated with assertion'. Studies from 1959 to 1975 supported this 'clinical impression' at first:

There was considerable evidence that psychiatric patients, particularly those diagnosed as schizophrenic or depressive, generally show less social involvement with others than do normal subjects. Noninvolvement or even avoidance among psychiatric patients may be manifested by larger interpersonal distances, nonconfronting body orientations, and distinctly lower levels of gaze directed at others. (Patterson 1983, p.150-151)

⁵ The diagnostic of autism today includes a wider range of behaviors than in Tinbergen's days.

Perhaps because the world of infant and children is simpler than that of adults, associating schizophrenia to a clear-cut avoidance of contact has not led to robust descriptions. Nothing as simple as gaze avoidance has been associated with schizophrenia. Today researchers suspect neurological deficits linked to scanning and attention procedures, or short-term memory (e.g., Franck et al. 2002). For example, Myles-Worsley & Park (2002) report the following:

Schizophrenia patients and their relatives were significantly less accurate than normal control subjects on the spatial delayed response task but not on the sensory-motor control task. On both tasks, patients and relatives were slower to respond than the normal controls.

Clinicians have the impression that the eye contact they experience with a schizophrenic patient is a direct expression of a feeling, of an intentionality that may be particular to schizophrenic patients. Researchers such as Franck and Myles-Worsley follow another rationale, as they suspect that a schizophrenic patient finds it difficult to handle a neurological deficit they do not understand. This may explain the patient's anxiety, and the particulars experienced when trying to contact a schizophrenic patient with one's eyes.

4. Gaze and inter-organism systems

4.1. Niko Tinbergen and autism

The schizophrenic world mingles in one experience what is kept painstakingly separate in *homo normalis*. The "well-adapted" *homo normalis* is composed of exactly the same type of experiences as the schizophrenic. Depth psychiatry leaves no doubt about this. *Homo normalis* differs from the schizophrenic only in that these functions are differently arranged. (Reich 1945: 401)

Looking for specific behavioral patterns that can be associated to psychopathology is now a work in progress, and sounds promising. However, the current research strategy, based on correlations, has limitations. Detailed observations are precise, but rarely offer relevance. A lot of time has been spent coding (usually more than six months), and even more time adapting computer programs to the questions that motivate a research (often years), so that research teams have little time to observe their films, and form an intuitive knowledge of their subjects. In the days when Nikolaas Tinbergen and his wife studied *shy children*, efficient coding procedures and computer analysis were not available; they therefore had to spend time observing children, and finding ways to become familiar with the phenomena and the subjects they were studying.

I will summarize their 1972 articles in some detail because they describe a turning point between present research methods and previous strategies based on case histories. The Tinbergens became involved because, in the 1970s, the avoidance behavior of autistic children had been well documented, but was poorly understood. Niko Tinbergen wanted to use this phenomenon with the hope that he could demonstrate the methods of ethology, developed to study animals, could become a useful tool to explore certain aspects of human behavior. As autistic children are poor talkers, finding ways of understanding them through their behavior is crucial. Tinbergen's strategy to analyze an animal's behavior has two steps:

1) *Functional behavioral units*: Tinbergen focuses on a distinct behavior that can be explicitly described, and which is explicitly associated to a function such as mating,

greeting, fighting, etc. He then distinguishes functional elements of that behavior that can be clearly described and just as explicitly associated to a functional sub-task.

II) *The impact of behavior*: He assumes that behavior developed because it enhanced the probability that organisms survive in a given environment. This implies that one can understand the function(s) of a particular behavior by understanding its *impact* on the environment. This impact is analyzed as ecological (or non-social) and social. Niko Tinbergen focused on the impact of a behavioral system on other members of the same species (e.g., the impact of the red belly of a male stickleback on other males and on females). This was an ethological formulation of a general trend developed by Gregory Bateson for his communication theory, and by psychoanalysts through their model of how counter-transference can inform a therapist on intimate particularities of what a patient experiences.

For this study, the Tinbergens focused on the impact a human being has when he looks at another person in the eyes. To observe this phenomenon in 'a natural setting', they would select a child and see what happens when they looked at the child's eyes. They would differentiate staring a long time at a child from short glances, and being face to face or looking from the corner of the eye:

E.A.T.⁶ has found that three semi-controlled situations in particular are admirably suited to the type of observations required: (1) meeting a mother and child during shopping in supermarkets, when riding on a shopping cart, a child will unexpectedly come face to face with the stranger-cum-observer; (2) sitting near a mother and child on a bus; and (3) either visiting, or being visited by a family with young children. (Tinbergen 1972b)

As they worked mostly without camera and computer, they could only analyze simple variables. They were already aware that most body segments provide some information, and that 'extremely subtle' behaviors can have a strong impact on others. Specific behaviors are difficult to observe anyhow, because they are always surrounded by a multitude of other intra- and inter-organism activities:

We have already said that the behavior of the stranger is just as important as the momentary state of the child. In addition, the child's mother usually responds, consciously or unconsciously, but often with uncanny perceptiveness, to even slight negative responses of her child, and she will often extend her protective hold on the child, pat or stroke it on its head, smile at it, etc. (Tinbergen 1972:181)

I do not think that they imagined that a body could produce a hundredth of the variables researchers of my generation have found, which is something like a million detectable positions in a one-hour interaction between two persons (Heller 1998). However, they had the intuition that interactions are composed of a vastly complex web of causal chains; hence, their insistence of focusing on particularly explicit behavioral phenomena.

Looking in another's person's eyes and reacting to such behavior probably activates universal human mechanisms that also exist in other species. For example, USA psychologists use the "peek-a-boo" game as a standard routine to explore the reactions of infants who are at least two months of age (Rochat: 148f). This basic mechanism seems to activate a small repertoire of possible behaviors, one of which seems to be particularly frequent among shy humans. The response of shy persons typically displays a continuum of avoidance responses:

- Displaying an 'empty' or 'blank' facial expression.
- 'Letting the mental shutters down', which 'is a vague, expressionless look, often aimed slightly past the adult's eyes'
- 'Partial or complete closing of the eyes. ... When closing the eyes is total, the eye lids look completely smoothed out – not even slightly creased.'
- 'A turning away of the eyes, and moving away'.

⁶ Elisabeth A. Tinbergen.

The activation of this response and the intensity of the response usually depend on personal and situational dispositions. The threshold at which this response occurs can be higher or lower. Autistic children, as described by Tinbergen, illustrate what I mean when I say that psychopathology can often be associated to a usual behavior used in an unusual ways. For autistic children, any form of eye contact is intensely experienced as intrusive.

Tinbergen uses his experience of motivational conflicts among Herring gulls to suggest that autistic avoidance behavior is in fact a confliction behavior, composed of (a) a fright of intrusion and (b) a need to communicate. Once this is understood, the Tinbergens make the following proposal:

In normal children, even those that are 'temporarily autistic', the initial conflict is quickly solved ... if the stranger does a combination of two things: (1) avoids stimulating withdrawal; and (2) positively enhances approach and contact. The extremely variable patterns of behavior shown by such a child are due to moment-to-moment fluctuations in its state (requiring continuous adjustments by the adult); these quick fluctuations are in part due to external situation and may in part reflect quick internal switches, although it is often difficult to be sure that the environment has remained constant. Most adults, including many professionals, fail to see that very slight variations in the behavior of the intimidating partner can influence the state of the recipient, and can tip the balance between withdrawal and approach. A straight look at a timid child, even when one is smiling, may be a temporarily or permanently 'cowed' child eliciting increased timidity, whereas in a less anxious child the objectively identical signals enhances a positive response. All this is a simple matter of fluctuating thresholds, but the social process appears so exceedingly variable because the standard by which the child responds is continually fluctuating. (Tinbergen 1972b: 189)

This type of thinking on interactions has since been developed by currents of research as diverse as those discussed in Beebe & Lachman (2002), Tronick & Adamson (1979), Frey (2001) or Heller (et al. 2001). All these authors describe the complexities of interpersonal dialogues that continuously fluctuate in function of mutual modulations. In the case of autistic children, the Tinbergens noticed that they accept, and even want, forms of modulated interaction through touch and sound of voice first; and it is only when a safe interpersonal contact has been established through such modalities that they gradually accept sensitive forms of eye contact. At first the child may look at someone they know when that person looks in another direction, then he will accept a gaze from the corner of the eye, and immense progress is made when the child accepts a direct eye-to-eye dialogue. An example of the relevance of such a slow approach in some adult psychotherapies is described by Beebe (2004) and Heller (2004). The first conclusion drawn from these studies, is that if you, as an adult, avoid eye contact with an autistic child, he may come into your arm to find comfort. The second conclusion is that one should not expect from others that they can take all the messages you would want to send to them. Having such expectations is a form of intrusiveness.

The observations of Tinbergen have, however, one important limit. Although they claimed to produce a therapeutic for autistic children, they only studied momentary autistic behavior of normal children. Their survey of the literature encouraged them to assume that what they had observed was a mild form of what autistic children experience. Using the resonant term of "autism" to describe personal observations of "shy" children is not my idea of scientific ethics. However, it is true that subsequent research on chronic autistic children was constructively supported by the fame of these observations, which mainly aimed at constructing a research strategy called human ethology, and has since been developed by many research teams. The research summarized in the previous section shows that what the Tinbergen's

attributed to autistic children by observing shy children in buses was finally relevant (Tremblay et al. 2005, p.348).

4.2. Rainer Krause and schizophrenia

Rainer Krause and his team at the University of Saarbrücken have psychoanalytical training and psychological specialization in the nonverbal communication of patients suffering from psychopathological illnesses. Krause is a University professor, a psychotherapist, and the head of a research laboratory that focuses on how head, eyes and face participate in an interaction. Theoretically, he has synthesized the psychoanalytic models of transferential dynamics and the interactive perspective of ethologists. Krause (*et al.* 1989) assumes 'that psychologically disturbed persons may be characterized by their tendency to induce their social partners to reveal relatively stable and constant leitmotivs, inclinations to react, emotions and fantasies; hence, it should be possible to describe psychological illnesses by means of the patient's specific interaction strategies'.

The general perspective is familiar to all those who have read Birdwhistell, Goffman, Bateson, and Tinbergen. However, since the 1990s, the use of video records, coding procedures and computer analysis is becoming a standard procedure in the field. The Saarbrücken team uses the Facial Action Coding System (FACS) developed by Ekman and Friesen in San Francisco as a methodological base for their coding procedures. As with all the teams of this field, they still need to find a robust way of analyzing the data with computer programs. Much time is spent on this issue.

They use an ingenious situation to record schizophrenic behavior and its impact on others:

Two partners see each other for the first time in the video room. They were introduced to each other by name and given the following instructions:

As you know, we are interested in speech behavior, the way people talk to each other. Specifically, we want to know about how people discuss political problems with each other. We would therefore like you to talk about the four most important issues to be solved in the near future in Germany. So discuss political problems and try to come to terms about which are the four most important problems to be solved in Germany in the coming months. You have 20 minutes' time. Afterwards we shall return and listen to the conclusions you have arrived at. (Krause *et al.* 1989)

Ten dyads were filmed this way. In each there was one healthy person and one schizophrenic outpatient. The schizophrenic patients had been matched according to sex, age and educational level:

All of them were being treated with neuroleptica of different kinds. ... In agreement with the psychiatrists, only those schizophrenic patients were selected for the experiment who had some demonstrated ability to communicate and who were not expected to react to the experiment with decompensation. On the average, the last previous admission to the clinic was one year earlier. (Krause *et al.* 1989)

The strategy used is to code the positions of approximately 20 facial units (e.g., raising brows, smiling, etc.), head and eye orientation and the intensity of these units on the complete films (25 minutes in average). Thirty units coded every second for 25 minutes yields a database of 45'000 units per person, which have then to be associated to another person's behavior. A dyad thus yields approximately 135'000 units of information on face, eye and head. The total set of information for 10 dyads is thus 1'350'000 units of information. Programs can extract from this data even more information by computing the number of movements made by one or several units, the average duration during which one or several units have been used, etc. It is through such forms of analysis that research has been able to show the incredible

quantity of information humans spontaneously manage (mostly unconsciously) when they interact.

It is only since the advent and availability of visual recordings and computers in research that it has become possible to extract so much explicit information from the visible dimensions of behavior, and that one is able to construct grids of more than a million items on a few people. Statistics have been created for just the opposite configuration: a few variables collected on many subjects (e.g., a maximum of 2 variables for groups of ten people, 5 variables for groups of 25 subjects, 10 for 50, etc.) The problem is that no statistical procedures exist to manage such a configuration, so researchers use t-tests or Wilcoxon Tests to scan their data and look for detectable patterns, specifying, as Krause et al. does, that these tests are 'used as an inferential statistical method'. In other words, available methods allow one to use "discovery procedures", but only replication studies could transform observations in a robust association. The data I shall now discuss has been shaped by such a "discovery procedure" and will need replication to become something like a fact.

As expected by Tinbergen's model, most behavior that was scanned did not vary significantly in function of how normal, or how schizophrenic, a subject was:

The schizophrenic and healthy subjects do not differ from each other in the sum of their facial activities. True, the healthy subjects show more facial activity (1958) than schizophrenics (1714), but the difference is not significant in the pair comparison proposed by Wilcoxon. ... Neither do the groups differ from each other significantly in the frequency of facial activity while they are speaking or listening. (Krause *et al.* 1989)

Krause and his team observed more asymmetry in the facial behavior of schizophrenic subjects than in normal subjects, but this difference is not specific of schizophrenia, as we also differentiated non-suicidal major depressive patients from suicidal major depressive patients with the same variables. Suicidal depressive patients were the ones that displayed more asymmetry in our study (Heller & Haynal V. 1997). They also observed that schizophrenic subjects used a more restricted repertoire – that is, the number of different units shown - than normal subjects. The difference is systematic but slight (normal people use in average 13 different units while schizophrenics use an average of 10 different units). Such a trend cannot be explicitly detected because the difference is not big enough, and is also observed with other pathologies such as depression. A clearer difference is that the expressions of normal subjects were not only more varied but more complex: muscles would move on different parts of the face, while schizophrenic subjects had relatively static muscles in the upper face. Typical of studies of how behavior associates itself with psychopathology, is that no single upper face unit differentiated the two groups, 'thus the patients demonstrate an unspecific limiting of upper face activity'. In one case, there was no eyebrow movement; in another, no tightening around the eyes; in another, no widening of the eyes, etc. In our suicide study (Heller et al. 2001) we observed an increase of activity around the mouth on subjects that were more likely to make another suicide attempt, but this increase was again "oral" or "unspecific". In some cases, several muscles around the mouth were involved; in others only one, etc.

These remarks are particularly relevant to Reich's definition of the ocular block; because we see here that it is not only eye contact, but the inactivity of muscles around the eyes as well that are unspecifically associated to schizophrenia. It is worthwhile noting the details of these findings to illustrate my notion that, except during dramatic moments of crisis, psychopathology only modulates current forms of behavior in ways that cannot be explicitly handled consciously by perceivers, but which elicit in others than one's mode of behavior is unusual or even obnoxious. Everything happens as if schizophrenic and depressive patients are often able to

erase marked characteristic behaviors, but cannot prevent certain forms of leakage to influence subtle modulations that are uncontrollable by the person who produces these modulations, and cannot be explicitly used as a label of pathology by others.

Ekman and Friesen's Facial Action Coding System is associated with an "emotional dictionary" that assumes that certain facial expressions have a high probability of occurring when a particular emotional feeling is experienced. Using this dictionary showed that schizophrenic and normal subjects were equally emotionally expressive, both groups displayed approximately 650 emotional expressions. This result contradicts the general clinical impression that schizophrenic persons are less expressive than others. However the predominance of negative expressions (disgust, anger, sadness, contempt) among schizophrenics confirms current expectations.

Encouraged by these interesting results, the same team increased the number of dyads (see Steimer-Krause *et al.* 1990), so they could compare dyads where one person was a schizophrenic patient and dyads where both interlocutors were "normal". In all dyads, subjects were presented in the same way, so that a normal subject was never informed that he was interacting with a person who was suffering from schizophrenia. Rainer Krause (1989) also observed that the normal person reacted extremely quickly, in a particular way, without knowing why, when he was interacting with a schizophrenic person. The data confirmed previous studies published by Krause with other forms of psychopathology: the normal person has an extremely fast and particular change of behavior when he is confronted with someone who has a form of illness. This adaptation is too rapid and complex to be initiated consciously. In our own studies on suicide, we have also observed a similar adaptation (Archinard *et al.* 2000; Heller & Haynal 1997).

We thus have, on the one hand, a fuzzy constellation of behavioral traits that can be associated to schizophrenia, and, on the other hand, a quasi immediate unconscious reaction of the interlocutor, who eventually reports something bizarrely strange in the other's behavior, without being sure of why this is felt, and without attributing a pathological condition to the interlocutor.

Krause and his team began to look for indices that might have triggered the normal person's response. One thing they observed is the following: normally, movement and speech correlate roughly, so that one can often (but not always) expect more movement among those that speak the most. This coordination between movement and speech is disrupted in several of the pathologies observed by Krause. More specifically, Krause noticed that normal speakers only rarely look at their interlocutor while they are speaking and much more when they listen. In the dyads with a schizophrenic patient, this rule does not work anymore. Here is yet another dimension of gaze that seems to change with schizophrenia. In this case the gaze behavior, if isolated from the rest, is similar to that of normal people, but the way it is associated with speech is experienced in a non-explicit way as bizarre.

5. Gaze and intra-organism systems

The research I have reviewed until now observes gaze as if it was a bodily entity that is relatively independent from other bodily entities, but which is animated by something like the strings that move various body parts of puppets. I shall now review another set of studies that focus on the assumption that eyes are first of all a part of an organism that is animated by inner cogwheels. Five types of intra-organism systems can be distinguished:

- 1) Physiological mechanisms studied by students in medicine.
- 2) Psychological mechanisms studied by students in psychology.
- 3) Biomechanical logistics of movements as studied by physiotherapists.
- 4) Energetic mechanisms studied for centuries, mostly outside of Judeo-Christian medicine, which is one way of representing how the three previous systems are associated to form the organism as a system. This trend is, for example, used by students in Chinese medicine and martial arts.
- 5) The organism approached as a system, formed by at least three of the previous categories. This approach has been considered (e.g., see Heller 1997), but has not yet lead to a consistent trend in the history of ideas and professional associations.

For this article I will chiefly consider biomechanical and energetic models with their psychological and communication implications.

5.1. The eye's integration in the biomechanical system

The biomechanical approach considers the mechanics of the skeleton in function of the constraints imposed by the gravity field. At every moment of life, the body must deal with gravity, and includes this influence in the set of variables to be managed. The evolution of organisms from unicellular creatures to humans has found various ways of dealing with gravity, be it in water, on earth or in air. Biomechanics was the other topic, after his considerations on autism, developed by Niko Tinbergen during his 1974 Nobel Prize presentation, where he presented the Alexander body technique. The eyes are of course a part of this system:

All movement, whatever its purpose may be, like closing the eyes when remembering or thinking, is, in the last analysis, and antigravity action. Not only is the ocular globe moved as a mass in the field of gravitation, but the rest of the body is set in a special attitude and is thus maintained against a tendency of gravitation to bring it down. There is little awareness of all this constant adjustment to the very stringent requirements, but the nervous system is constantly and without break, responsive to gravitation, as long as there is any life in it. (Feldenkrais 1981: 95).

If, like Reich, one also considers the body segment in which the eyes are incrustrated, one can also consider the relation between the eyes and the equilibration organs situated behind the ears. The psychological implications of this relation have mostly been studied in infant psychology, because the coordination of vision and equilibration is still a work in progress during the first years of human life.

François Jouen and Olivier Gapenne (1995) remind the reader that any specific gesture requires postural support, and that equilibration has a key role to play in this coordination. The equilibration system plays an important role in the construction of representations of space, and spontaneously coordinates vestibular, somatosensory and exteroceptive information. Now, a gesture is regulated from the inside by such senses as the vestibular and the kinesthetic, and from the outside by touch and vision. Thus, the coordination of internal and external senses is crucial for the development of appropriate behavior:

Information from peripheral vision is particularly important for maintaining postural stability. Pope (1984) showed that movement in the center of the visual field did not result in significant postural adjustment, whereas a slight movement in the periphery was sufficient to induce a complete loss of stability⁷. (Jouen & Gapenne 1995)

The relation between vestibular system and eyes has a deep impact on what psychotherapists since Alexander Lowen (1975: 185-186, 193-198) call "grounding". Grounding by the mouth or the eyes can be a difficult notion to grasp by those who

⁷ Pope studies infants.

are not familiar with the corresponding clinical phenomena, but grounding by the eyes is well illustrated by experiments on the interaction between the eyes and the firmness of a postural base in a "moving room":

The moving room is a relatively large enclosure whose side and front walls can be moved backward and forward on rollers. The floor of the room is in fact stationary, so that the research participant is not actually moving. Responsiveness to flow in the periphery of the optic field (peripheral flow) or the center of the optic field (central flow) or both central and peripheral fields (global flow) can be tested by moving the front and side walls of the room either independently or individually while the observer is facing the front wall. (Anderson *et al.* 2001)

The aim of such a room is to measure how movements perceived visually can generate balance problems, such as vertigo. Lee and Aronson (1974) have shown that 'infants with limited experience standing and walking would sway, stagger and fall in a directionally appropriate manner when exposed to global optic flow in the moving room' (*ibid*). Subsequently, Butterworth and Hicks (1977) have shown that a similar event occurs when infants learn to sit: they fall forward as soon as the wall moves away. Thus it takes a while, and some inner regulations, before a child can remain seated or standing in front of a moving wall. When they learn to sit, moving the wall away from them makes them fall in the direction of the wall. Everything happens as if these children grounded some of their weight through their gaze. A similar form of ocular grounding has been systematically observed in newborns (Jouen & Gapenne 1995: 287).

I will not say more on the inclusion of gaze in biomechanics because the topic has not been used in studies of schizophrenia. I have mostly used it to introduce the notion that gaze has an impact on general organismal regulations that can be objectified.

5.2. The Reichian energetic approach

The previous experience introduced the notion of intra-organism organization. You may have noticed that this introduction separates intra-organism causal chains from interactions between the organism and its environment, but assumes that these intra-organism regulations have been structured in function of their relevance for adaptation. Evolution theory will be often referred to in this theory to account for the notion that intra-organism and communicative causal chains are a) separate, b) somehow linked. The idea here is that there is not one history but many, and that biology and economy, for example, have particular histories with particular mechanisms and preoccupations, but that these differentiated dimensions of reality cannot be totally independent (e.g., Bourdieu 1988).

I shall distinguish a minimal energetic approach from a maximal energetic approach. Both approaches assume that any activity uses a form of energy, and that the more activity there is the more energy is spent. A hot hand uses, for example, more energy than a cold hand, unless the cold hand is actively maintained cold by an inner defense that prevents blood circulation in the hands. Somebody has "a lot of energy in the head" if he is particularly active mentally, with eyes, ears, nose and mouth. The underlying assumption is that any behavior, be it mental or physiological, uses the energy available to the organism. From this point of view, communication is also a matter of how a particular organism finds additional energetic resources when it associates with other organisms, and of how the resources of a particular organism are used by other organisms. Eating is one way of obtaining additional energy, receiving help and attention another. Having described the common ground between

the two energetic models I am considering in this article, I shall now clarify their difference:

- The *minimal* energetic model: No particular power is attributed to energy, and current scientific notions on energy (e.g., Popp 2001) are considered sufficient. One has never observed energy, like one has never observed gravity. Gravity and energy are notions with which humans can handle a wide series of causal events. Energies are differentiated by the medium through which they are perceived. Electrical energy is recorded by instruments which detect electricity; organic energy is recorded by biologists, and chemical energy by chemists. It is highly probable that energy is the only notion humans have been able to imagine which can help them to manage what are likely highly complex forms of regulation.
- The *maximal* energetic model: This vision presupposes a) an energy that is particular to all living organisms, b) an active energy that structures matter, and c) an energy that can be perceived by at least some humans without indirect material indices. In other words, energy is something that exists as a substance distinct from matter. This vision is associated to vitalist theories. It is common to most *energetic medicines* such as acupuncture and healers. It is also the model that is spontaneously used by those involved in spiritualistic movement, who consider energy a direct manifestation of a spirit.

I am supposing that not every reader I want to reach with this article is willing to consider the maximal energetic model. The only help I can give to those who despise energetic models is to remind them of Kant's 1766 article on Schwedenborg and other such "seers" who publicly claim to perceive energies and other dimensions. Kant's position is that one can only think on what one perceives. As he does not perceive what Schwedenborg perceives, he cannot appreciate his theories and spiritual engagements. He also specifies that from the point of view of rational ethics, it would also be highly irrational to deny that Schwedenborg can perceive what he describes, unless one has positive proof that such a perception is impossible. As this positive proof did not exist in Kant's days, he pleaded for curiosity rather than rejection. As this positive proof is still unavailable, I have adopted Kant's stance.

My thinking uses the minimal model, as in Reich's early energetic model of the 1930s. Reich's latter orgonomic model can be associated to the maximal model: orgone is a vital energy that structures and creates matter. Reich distinguishes a pulsation energetic model from a longitudinal one. Both co-exist in his theory, but he has not had the time to refine the relations between the two. Because I am more at ease with the minimal model, and because it is sufficient for the present discussion, I will describe Reich's work within this frame, even when I describe observations he made using his orgone theory.

5.3. The amoeba pulsation and the energetics of instinct

In this section I will explore certain developments of Claude Bernard's demonstration evolutionary demonstration that plants and animals share a certain number of central features that can be considered as basic proprieties of life (Claude Bernard (1878).

5.3.1. Konrad Lorenz's amoeba ancestor

Konrad Zacharias Lorenz (1903–1989) and Wilhelm Reich (1897-1957) were both working in Vienna before the Second World War. As their political positions were antagonistic and as these were violent days, they disqualified each other's approach for ideological reasons (Reich 1942:7; de Waal 2002: 97-102). Nevertheless, now

that time has passed, one can only be astonished at the number of similarities between Reich's and Lorenz's modes of thinking. Lorenz created Ethology with the aim of observing the phylo-genetic development of behavior. The perspective was that of the evolution theories of Lamarck and Darwin, as they were currently perceived in the 1920s, which describes how unicellular animals differentiated and became increasingly complex. Lorenz and Reich both thought that one of the mechanisms common to all species is the energetic regulation of instincts⁸. Konrad Lorenz (1950) outlines the ethological view in terms of three successive processes:

1. Accumulation of action-specific nervous energy giving rise to appetitive behavior.
2. Appetitive behavior striving for and attaining the stimulus situation activating the innate releasing mechanism.
3. Setting off of the releasing mechanism and discharge of endogenous activity in a consummatory action.

Lorenz postulated 'that some sort of energy, specific to one definite activity, is stored up while the activity remains quiescent, and is consumed in its discharge' (David McFarland 1993: 303). In his 1963 book *On Aggression*, Lorenz uses a hydraulic model to illustrate how his model works. This model allows him to describe how an instinct seems to accumulate and strengthen as long as it does not obtain satisfaction. This is the sort of thinking that is currently used by neo-Reichian psychotherapists (e.g., Johnson 1976, Boyesen 1976).

In *Behind the Mirror*, Lorenz traces the history of sensory-motor coordination to the basic reaction system of the amoeba, which functions without any nervous system. When an amoeba needs food, the fluids of the organism expand the membrane around its prey. Then, when the amoeba is satisfied, there is a slight contraction as the inner mechanisms of the cell are busy with digestive processes. When attacked, the amoeba contracts, and may produce a sort of protective shell around its membrane. This reaction was currently perceived as the prototype - or evolutionary ancestor - of the fright response. This is more or less what my school teachers taught during the 1960s. Lorenz details this mechanic in a way that is close to some energetic models such as Gerda Boyesen's (Heller 1993):

In most living organisms, ... the capacity to respond to stimuli is closely linked with that of locomotion. The primary and most important function of locomotion is to enable the animal to escape from danger. Possibly an even more primitive function of physical movement is when by maximal contraction of the body the organism exposes as small a surface as possible to the threatening external forces and turns the folds in the surface into a thick protective skin.

Strangely enough, the simplest and most primitive stimulus elicited motion that we know of in the organic world is oriented in all three dimensions of space. The amoeba, consisting merely of a naked mass of protoplasm, moves by reducing the thickness of its outer layer, the ectoplasm, at one particular point; a blunt outgrowth is then formed which, as the ectoplasm becomes still thinner, develops into a so-called pseudopodium ('false foot'). As the resistance becomes less, the content of the cell moves into the pseudopodium, the base of which extends, and the whole cell thus moves slowly forwards. Corresponding to the outgrowth of the pseudopodia, a contraction and thickening of the ectoplasm takes place at the posterior end of the amoeba.

This formation of pseudopodia and the corresponding motion of the amoeba used to be explained by assuming that the principal cause was changes in the surface tension. And indeed, one can make models to imitate the whole process very accurately by using globular drops and varying their surface tension. After observing amoebae in relatively natural conditions for some time, however, I concluded that this was too simple an

⁸ When he received the Nobel prize in 1973, with Nikolaas Tinbergen and Karl von Frisch, Lorenz told the audience that he was already working on this model during the 1930s (<http://www.nobel.se/medicine/laureates/1973/lorenz-autobio.html>).

explanation. On the basis of my direct observations I maintained that the plasma of the amoeba constantly changed from a condition of sol to one of gel and vice versa; within the cell it flows out in the pseudopodium, then, in the way that flowing lava hardens, it congeals when it makes contact with water, soil or some other feature of the environment. What superficially appears as a decrease in surface tension, and indeed, liquefaction of the gelled ectoplasm, begins internally at the point where a pseudopodium is to be formed. This view, based on a series of simple observations, has since been corroborated by the work of L.V. Heilbrunn. When a noxious stimulus touches the surface of the organism, causing it to contract and start crawling away, this is achieved by the gelling of the liquid plasma immediately adjacent to the point of stimulation. The contraction is caused by the fact that the gelling is accompanied by a slight decrease in the volume of the protoplasm, which has a mechanical effect equivalent to that of an increase in surface tension.

If one observes an amoeba in his natural habitat, not on a slide but moving freely in a petri dish, one is amazed at the versatility of its behavior and its adaptability. If it were the size of a dog, said H.S.Jennings, the greatest expert on protozoa, one would not hesitate to attribute to it the power of subjective experience. Still it only has this one, single manner of movement by which to deal with all environmental situations. One must keep in mind that it is one and the same mechanism by means of which the amoeba avoids damage in 'fear' of being injured, moves towards a source of positive stimulation, or, in the optimal situation, embraces an object that emits positive stimuli and greedily consumes it. (Lorenz 1978: 46-48)

Lorenz shows that when in danger, or stressed, all living creatures tend to contract, and occupy as little space as possible; while in more comfortable situations an organism tends to expand and produces a greater variety of expressive behaviors related to a 'reaching towards', a tendency to move towards an aim (a refuge, an enemy, food, a love object...). Furthermore Lorenz shows how the dynamics of such behavior are closely related to the dynamics through which inner plasma and membrane co-ordinate each other.

5.3.2. Wilhelm Reich's amoeba ancestor

Reich's pulsation model is also based on the same current models of amoeba behavior. Reich distinguishes (a) a core, (b) floating in fluids, (c) which are contained by a membrane. I have gone into some detail here, because this discussion assumes a close coordination between behavior and all dimensions of physiology. Reich assumes that the general frame can be observed on all animals, even if the underlying mechanisms have become increasingly differentiated. Humans also tend to expand when they feel well, and to contract when in pain. As in Lorenz's description, during expansion, fluids bring energy to the periphery of the body, while, during contraction, fluids tend to move as far away from the periphery as possible. This movement is regulated by the parasympathetic and sympathetic vegetative nervous systems (Reich: 1942, 197-205; Baker 1967: 31-35; Liss 1979). This alternation is what Reich calls pulsation. When Reich formed his orgone theory, pulsations became a gestalt, a field that organized the elements it contained. Each cell, each organ, each body segment, each organism has its pulsating field.

5.3.3. The longitudinal model and the worm

An amoeba is an organism with one body segment. In such an organism, only the pulsation model is relevant. However, with worms, the body required a mechanism that could coordinate the activities of several well-differentiated body segments. Each segment has its particular pulsative activity that must be coordinated with the requirements of the pulsation of the whole organism. In humans, each body segment has anatomic, physiologic and functional particularities that require complex psycho-

physiological coordination systems. In the 1930s, Reich had thought that this unifying organization could be accomplished by the nervous system; in the 1940s, his thinking changed and he began to associate the basic organizational functions to the organism's energetic fields. To coordinate segmental dynamics, Reich imagined that worms had created a new type of energetic coordination, which can be qualified as longitudinal in the sense that it is no longer a coordination regulating a chore with a periphery, but one which coordinates segments from head to feet (Reich 1945, p.372). This model is close to models I have encountered in dancing and acting courses. Reich was familiar with dancing technique through some of his close friends.

Reich's longitudinal energy model for humans is based on an anatomic and functional analysis of the structure of the body, which distinguishes 7 segments:

1. *Ocular*: the top of the head, from eyes to neck.
2. *Oral*: from jaw to neck.
3. *Cervical*: neck.
4. *Thoracic*: above the diaphragm, and the arms.
5. *Diaphragmatic*.
6. *Abdominal*: all that is between the diaphragm and the pelvis.
7. *Pelvic*: pelvis, legs and feet.

Each segment has a particular set of mechanisms, and can be assimilated to modules, but they are also often included in global actions that require the coordination of several – if not all – segments.

A completely synchronized functioning is rarely required. It is, however, necessary for some important functions such as orgasm and spiritual trance. Such moments are not only esthetically fulfilling, but also necessary from time to time for an in-depth revision of an organism's regulation system, a sort of general cleansing moment that fills the conscious mind with pleasurable and fulfilling sensations of streaming. These streaming sensations are important for Reich because they are consciously experienced manifestations of the physiological logistics of pleasure that occur when the organism's auto-regulative mechanisms are in full repair gear. These moments can only be experienced in a constructive way when a) consciousness, physiology and energy have an in-depth synergy, and b) such experiences form a relevant communicative experience with one's environment. One can only have, for example, a full orgasm with someone who also has a full orgasm, and where deep love is at the root of a mutual need to be with the other. Similarly, spiritually ecstatic experiences require a supportive environment of shared experience. Attempting to have solo orgasms or spiritual ecstasies usually leads to highly destructive intra-organism and inter-organism vicious circles. A long tradition of anti-life ideologies has required from humans that they develop defense systems that allow them to survive at the cost of mutilating the possibility of experiencing such moments.

5.3.4. Vegetative currents

Experience has taught me that the notion of vegetative currents sounds bizarre for most persons, except those who actively work with the relation between body and consciousness. Vegetative currents provide a common-enough conscious impression that seems to be supported by unspecified physiological phenomena, and that can often be associated to pleasures of the flesh. It is often experienced during and after sexual pleasure, but also if one lies down for a while immediately following an important physical effort (e.g., sport and dance). One then feels in one's flesh experiences of organic movements that seem to flow more or less strongly, more or less warmly, and more or less locally in the body. The sensation seems to be an innate connection between certain forms of physiological activity and consciousness.

The mechanics of the phenomenon are still unknown, but the existence of the experience has been observed by many who work with their bodies, and professionals have often heard their patients report something that can be assimilated to the notion of vegetative currents. I can testify that I have often experienced such sensations, and that my patients often understand me when ask them if they have felt such sensations. These sensations have been known for thousand of years, since body techniques have existed, and they have been theorized in many ways. The most persistent series of models have been energetic, and even contemporary citizens of Europe and North America understand a therapist who asks them if they feel their energies moving in their body.

5.3.5. The Reichian notion of block

The general assumption on which Reich works is that all instincts and affects have a mental and a physiological interface, as assumed today by neurologists such as Damasio (2003). The physiological dimension of an affect is experienced as a form of general, unspecific, physiological arousal. When the affect is moderately strong, one feels inner movements that can be associated with inner feelings. The association between pleasure and vegetative streaming is an example. However, as pleasure intensifies, pleasurable streaming tends to become spontaneous, involuntarily movements that more or less follow the worm model. During orgasm, there is a general psycho-physiological arousal that becomes totally involuntary. Reich assumes that there are several general psycho-physiological arousal systems that mobilize all the resources of an organism, as the arousal system of intense anger is different from that of intense pleasure or fright. However, there are also features common to these intense arousal systems which explains how intensely angry persons may also feel intense pleasure and fright.

This vision led to a revision of the psychoanalytic model of defense systems. Defenses are necessarily psycho-physiologic, inhibiting elements of one of these general psycho-physiological systems that can be associated with affects and instincts. Two types of defense systems are then distinguished:

- Local defense systems inhibit a particular muscle, a particular memory, and/or the warmth of a particular part of the body.
- Diffuse defense systems inhibit a system that is required by all affects. For example, chronic muscular tensions linked to breathing may prevent strong breathing reactions, and thus prevent any form of strong feelings.

This distinction is of course approximate. In my summary of the worm model, for example, I showed that a segmental inhibition is able to influence general mobility (Reich 1942: 190-192, 240). Although he did not propose a model that coordinates all of the models he used, Reich never forgot his initial model of character analysis, which assumes that defenses are structured in layers, as in an onion. Reich repeatedly warns therapists of the dangers of believing patients who have ecstatic experience at the beginning of a therapeutic process that uses energetic methods. These apparently wonderful moments are often a manifestation that a person has a) experienced pleasurable streaming in a pleasurable way for the first time of her life, but also b) that the negative defensive feelings against pleasurable sensations are chased more deeply towards the core, and may dam up to create highly dangerous (for the self and one's environment) future counter reactions:

One has to guard especially against the mystical, religious-like expectation on the part of the patient that now has been "freed," "redeemed," "liberated." It is true that the first few breaks through the solid armor are accompanied by feelings of great relief. This

often disguises the true situation in the depth of the biophysical structure. (Reich 1945:412)

The term "expectation" is well chosen to indicate through what door negative transference will appear after these highly positive transferential forms of ecstasy have bloomed. My experience in the movement of Biodynamic Psychology confirms this analysis (Heller 1989, 2003). One can loosen a surface tension inappropriately. In this case the risk is the formation of a tension at a deeper layer of the organism. For example it is easy to massage a neck tension. If the neck tensions are inappropriately loosened, one may find oneself with a tension in the diaphragm instead. The problem is that it is more difficult to work on the diaphragm than on the neck.

Blocks are also defined in function of the pulsation model. It is then defined as something that prevents fluids from reaching the periphery and of influencing it in an appropriate⁹ way. When fluids move towards the periphery of a human organism to accomplish a certain action, and are pushed back, anxiety is experienced (Reich 1942, p.202).

6. The ocular block and schizophrenia

6.1. A case described by Reich

Reich's schizophrenic lady patient is described in chapter XV of *Character Analysis*, entitled *The schizophrenic split*. It is a case of "dementia praecox", which Reich distinguishes from "catatonic stupor" or "hebephrenic". The diagnosis was made by Bellevue Hospital in New York, the psychiatric institution that had already treated her. Her prognosis was disastrous, but her intellectual capacities were still intact. The establishment of a deep positive transference, the trust of the family and of the institution's psychiatric team supported the treatment. All three factors proved crucial.

The basic therapy lasted three months. She then experienced a general collapse that sent her back to the hospital for a year. A year after that, she saw Reich again, as well as other members of his team. Reich's assumption is that his three-month treatment helped her to come out of this crisis stronger than before, as she then lived without symptoms for seven years. This hopefully¹⁰ final crisis broke the trust between Reich and the institutions. From a contemporary perspective, I would say that the patient's split had a negative influence on the cohesion of the therapeutic team. This type of influence on pathology has often been described by Otto F. Kernberg (e.g., 1986). The patient's split activated negative counter-transferences that orient negative feelings of a part of the therapeutic team against another. In this case, Reich's deep mistrust of institutions was awakened. I therefore tend to attribute the good therapeutic results described by Reich to the collaboration between psychiatric institutions and a psychotherapist, and can only hope that such collaborations may become less problematic than they are. For example, today, it is difficult to form a constructive collaboration between the patient's "town" therapist and the hospital team that takes care of the patient during a moment of crisis.

⁹ Reich had a classical medical analysis of how to differentiate health from illness. As a psychologist I do not fully agree with this distinction, but this is the subject of another article.

¹⁰ When Reich wrote his article she was still well, but the case of Mary Barnes shows that spectacular cures are not always eternal.

Reich seems to have lost some of his finesse on transference dynamics. At one moment of her therapy, the patient has the impression that the godly forces she is in dialogue with label her as a traitor and a Jew, even if she is a Christian. Reich correctly associates these associations with the Second World War that is in full swing during the therapy, but seems to forget that he is himself an agnostic Jew, and that the psychoanalytic movement was often associated with Jews. This is relevant, as one of the aims of the therapy was to modify the glorification of these forces, to connect them to movements of the mind and the flesh. From the point of view of the patient's inner conflicts and representations, it is possible that psychotherapy was associated to Jews who want to betray the godly forces. I do however know that a published case can be read by patients, and that in such charged times one should not necessarily say or write all that one thinks.

The patient was a thirty-two-year-old Irish woman, described by Reich as a girl (Reich 1945: 404). His first impression 'was not that of a schizophrenic':

She spoke about her symptoms and experiences in a coherent, orderly manner. One felt great embarrassment in the background of her behavior; she spoke in an artificially eager manner. She seemed very intelligent and gave penetrating answers to most difficult questions. ...Her eyes had the typical far away, slightly veiled look of the schizophrenic character. At times she became confused, but regained her clarity easily. As the conversation proceeded, one could clearly discern certain subjects which she tried to evade. When asked whether she knew of any queer or unusual experiences, her eyes became "dark" and she said: "I am in contact with some powerful forces, but they are not here now." (Reich 1945:p.405f)

Like his colleagues, Reich notices that she behaves like a normal person. Like trained psychiatrists, he notices certain psychological traits, such as momentary confusion, that clinical experience makes one expect. More to the point, the association between a certain manner of looking and schizophrenia is considered common knowledge too, although I do not know where it comes from.

The eyes were an important dimension of that therapy, but not a crucial one. The main focus of the therapy was a) breathing and b) vegetative currents.

6.1.1. Breathing pattern

The patient's breathing was minimal, yet there was - in this case - no chronic muscular tension to explain this:

It was inhibited as if by a strong, conscious effort. ... She responded with severe irritation to every attempt on my part to induce respiration. (Reich 1945:408)

She seemed to resist taking air in, keeping her throat tight. This block was a persistent theme until the end. The emotions that were aimed at appeared in the following order:

- 1) Hate (Reich 1945: 409)
- 2) Murderous rage against others and/or herself
- 3) Fright
- 4) Sexual pleasure

The last point, which was so crucial, was that she had never experienced sexualized love in her life.

6.1.2. Vegetative current

The patient was afraid of "good" and "bad" forces to which she attributed enormous powers: those of God and the Devil. Reich's interpretation is that the good forces were pleasurable melting vegetative sensations, while the devil was any impulse to express hate or rage. These negative affects are associated to defense systems which fight pleasurable sensation away. Neurotics can entirely avoid feeling

repressed sensation. They have a solid defense system, associated with strong, chronic muscular tensions. A schizophrenic patient has no such armor, and cannot avoid feeling pleasure; but she can project these sensations to avoid having to integrate them in the representation she forms of herself, and in her behavior. She can thus have the impression that she personally has no sexual and pleasurable feeling, which explains how she managed to remain a virgin for so long, without having the impression that this was a problem. The involuntarily activated vegetative sensations were projected outside of the body, and were then considered as having a will of their own. That is the core schizophrenic split Reich describes: an impression that one's own physiology is a set of external forces. The therapeutic process focused on helping her to accept that these sensations were those of her body, and the implication that accepting these as her own meant accepting her need for someone she could love.

6.1.3. Schizophrenic eye behavior

Methodologically, I would like to note that what follows is a report of what a therapist could perceive with his conscious perception. This form of perception is problematic because it is poorly understood. On the one hand, it has severe limitations, which are explored when contrasted with what can be found with the more rigorous procedures used in studies of nonverbal communicative behavior. On the other hand, one can assume that unconscious processes guide consciousness, and help it to extract from the other's behavior relevant and meaningful indices. However, we also know that conscious perception is often fully or partially blind to what is meaningful for unconscious process, and that it can invent meanings that allow a coherent conscious perception from the point of view of consciousness. This sort of invented meaning only partially overlaps with what is imagined unconsciously, or with what is experienced by the observed person. However, this is the main tool a clinician has. The whole point of supervision, meetings and publications is that individual impressions can be compared and discussed. This process allows the formation of a common clinical impression, which can sometimes acquire a certain robustness.

After eight sessions, Reich managed to loosen the patient's breathing restrictions. This opening had a series of effects:

The patient came to the ninth session full of joy and perfectly coordinated. Her respiration was physiologically nearly complete that day; her eyes were clear, not "veiled" as usual. She reported that she had had the urge to satisfy herself genitally. The inexperienced physician would have triumphed about the "success". But I knew that great danger was just ahead of us. (Reich 1945:415)

It is mostly from the 17th session onwards that Reich began to work on the patient's way of looking.

A clinical tradition assumes one can diagnose the presence of schizophrenia by careful observation of the expression in the eyes. Schizoid characters and fully developed schizophrenics have a typical *faraway* look of remoteness. The psychotic seems to look right through you with an absent-minded but deep look into far distances. This look is not there all the time. But when emotions well up or when serious subjects are touched upon in conversation, the eyes "*go off*", as it were. (Reich 1945: 430)

For Reich, a neurotic is incapable of feeling his deeper feelings, while the schizophrenic 'becomes enmeshed in them'. One would therefore not expect to see on a schizophrenic patient the 'flat, empty, sadistic or dull' eyes of a neurotic (Reich 1945: 431). The schizophrenic's particular gaze could also be associated with other "brain blocks", as one knows that 'degenerative processes in the brain' have been observed on old schizophrenic patients, and that many schizophrenic patients report

being 'veiled or "flattened" on the forehead at the outbreak of the disease'. (Reich 1945: 432)

The twenty-third session brings another set of observations on the eye block:

The patient had suffered a slight catatonic attack during the previous session. She came back happy and looking very well: she told me that that she had a very good time since the last session. She could move her facial muscles, but was unable to move the skin of her forehead, as in "astonishment" or "frowning." (Reich 1945: 453)

Reich associates this immobility to the patient's difficulty of imagining that women should show emotions: 'I want them to be like nice, slender statues'. This rigid and sexless image of the body is compatible with the notion that catatonia is a generalized deadening, aiming at preventing any form of feelings. It is to contact this generalized fright of affects that Reich concentrated on her immobilized forehead and eyes:

I let her move the skin of the forehead, roll her eyes in all directions, express anger and fear, curiosity and watchfulness. ... We do not "manipulate" mechanically, *we induce emotions* in the patients *by letting them imitate willfully this or that emotional expression*.

She objected very strongly to showing the expression of anxiety in her eyes. This objection is usually more intense in schizophrenics than in neurotics. The reason, based on several cases of schizophrenia, is the following: raising the eyelids, opening the eyelids wide and showing anxiety releases a sensation of severe terror with the feeling of oncoming disaster. Sometimes panic sets in. Some such patients have the feeling that they are dying, "going off", and that they will be unable to "come back again". It is essential to be very careful at this point. ¹¹ (Reich 1945: 454)

As Reich was working in this deep way with what can be aroused when working with eye movement and expression, he began to think of brain issues again. The brain is not the tyrant of the organism, but just an organ among others. One must therefore suppose that organismal mechanisms regulate the brain like they regulate the liver. I am mentioning this point, because it has since been developed by theories that study the function of neurotransmitters in schizophrenia. Reich believed that as schizophrenic persons do not have enough defenses, their perception of themselves is particularly sensitive. He therefore supposed that the information given by the patient about a felt connection between eyes and brain was based on something that was really happening, even if this something is not known: 'When the "veiling" of her forehead set in, *she felt that the convulsions of her brain were tangled up "like entangled intestines"* (Reich 1945: 464)'. Reich began to wonder if, like any other organ, a brain could not have forms of inner movements¹² that could be perceived by sensitive persons:

Some healthy individuals who are used to hard thinking relate that they feel great heat in their brain and in their foreheads when they think with great effort; that they feel a "glow" and that this glow disappears when the effort is over; on the other hand we see pale, immobilized, cold foreheads in cases of mental deficiency and pseudo-debility. (Reich 1945: 464)

As one advances on this case, one begins to contrast the patient's eye behavior when she feels ill with what she displays when she feels better, as in the twenty-fourth session:

The patient came beaming with joy. She had felt very happy and at ease. Her eyes were clear and the look was alert. The color of her face was ruddy and fresh. She had for the first time of her life passed through a menstrual period without psychotic reactions. (Reich 1945: 456)

That is about all Reich had to say about this patient's gaze. When I trained in body psychotherapy (with Gerda Boyesen's team), I was taught that there was a

¹¹ This corresponds to my experience. The feelings described by Reich occur in certain cases with this exercise, at an incredibly powerful intensity.

¹²When I have a strong migraine, I do have the impression that mass of the brain is moving inside my cranium.

direct and dramatic link between schizophrenia and gaze. Reading this case, I noticed that eyes play an important role, but not a crucial one. Reich focuses mostly on breathing and how vegetative streaming sensations are dealt with by consciousness. There is also a general dimming of her perceptions, as if a distance separated her from what entered her senses. Eyes are mostly an indicator of the general state of the organism, as in the following passage on the last sessions. He sees the patient two years after she stopped coming to see him, one year since she had left the hospital:

Her facial expression was mask-like; she could not move her facial muscles: but her eyes were not veiled; on the contrary, they had the glow of great sanity and insight. Her speech, through slow, was clear and orderly, logical and to the point.

She told me in the course of about three hours that she "had fallen into the other world completely" the other day. The "forces" had succeeded in pulling her into this other world against her will. She had finally succeeded in coming back into *this* world. But she still felt far, far away. She had no contact with things and people at all. Everything seemed removed as if into the far distance. She felt completely indifferent to whether it was nine o'clock in the morning or in the evening, whether the people around her were laughing or crying, whether they liked her or not. She tried hard to come close to people and experiences, but was unable to do so.

She stared at a bright spot on the floor where light was reflected from the window. She knew it was light, but at the same time it appeared strange to her, "*foreign*" as it were, and as if it were "something alive". It seemed clear to me that *she perceived impressions clearly, but that at the same time SHE COULD NOT MAKE CONTACT WITH HER OWN PERCEPTIONS.* (Reich 1945: 490f)

During the final recovery period, Reich notes on October 4, 1944, that her respiration was functioning well, and her glottis only slightly restricted; her orgasm reflex was functioning easily and fully, she masturbated in a gratifying way, and the 'eyes were still slightly veiled but considerably improved.' Reich 1945: 499)

Seven years later, the patient is still having a rather nice life, but 'essentially of a social nature.' (Reich 1945: 502); the point being that she can masturbate pleasurably but not live a loving life with some one¹³.

6.2. Neo-Reichian discussions of the eye block

6.2.1. Characterology

Reichian psychotherapists have seldom had the opportunity to work in psychiatric institutions, so there are few published reports that really confirm Reich's observations. For example, I have not found in the neo-Reichian literature much discussion of visual and auditory hallucinations, which are often reported by schizophrenic patients, and that could be yet another example of Reich's notion that the ocular segment plays a particular and important role in schizophrenic behavior.

Another problem of the neo-Reichian approach concerns the developments of "character analysis" models. Psychiatric terms (schizoid, psychopath, etc.) are used as a form of characterology for predominantly normal people, chiefly by Alexander Lowen and Stanley Keleman. I have seen Lowen publicly diagnose a normal business man as psychopath because of his dominant behavior and because the top of the body was larger than the lower half. From my point of view, this use of diagnostic categories is closer to insults than to preoccupations on psychological health. Every human is imperfect and has a difficult life. Associating a person's relational and

¹³ A point already made by Karl Abraham 1908.

emotional difficulties to a medically loaded word is one way of influencing the patient to enter psychotherapy, which I do not respect. Lowen's (1967) psychopath may have some traits that can be observed on criminal and pervert psychopaths, but their intensity is comparative low, like a bit of wine in a lot of water. Freud, as well as most psychiatrists, assumes that psychopathology is an intensification of normal human trends; Lowen already labels these normal trends as pathological. The characterologies of Lowen and Keleman are thus as relevant for psychopathology as astrology.

The second problem of their characterology is that they associate bodily gestalts with psychological propensities. For example, Lowen supposes that all people who have thick short necks and little space between the thorax and the pelvis are masochists. Siegfried Frey (1993) has made a historical analysis of the human need to classify souls in function of body configurations. He shows that this notion is appealing and seductive, as if it corresponded to an inner need of conscious thinking; but that idea has no relation to how humans function, and it has a long history of being one of the tools of social manipulations that support violent forms of prejudice. The basic notion here is the illusion that the soul structures the material body, like God structures clay to shape humans. This way of thinking can lead some people to think that a hunchback has a crooked mind because he has a crooked spine. One can then suppose that people with a crooked spine have a crooked mind. The tendency to prevent this mental illusion from intruding on felt contact between humans has an equally ancient history:

The habit of body reading has been subjected to ridicule even before the time of Aristotle and it has been surrounded by controversy ever since. Despite the pervasiveness of physiognomic judgment in everyday life and despite the never ending stream of publications proclaiming an intimate relationship between the morphological and characterological traits, there has, up to the present day, never been a single society that endorsed the impressions physiognomic features force upon the viewer. In England, there have been times when society's representatives felt it so important to curb the influence physiognomic judgment exerts on human relations, that legal action was taken against people's seemingly irresistible urge to judge their fellows by their looks. Thus, during the reign of Elisabeth I the English parliament has passed a law ordering "all persons faying to have knowledge of Phisiognomie or like Fantasticall Ymaginacions" liable to "be stripped naked from the middle upwards and openly whipped until his body be bloudey". (Frey 1993)

In Reich's system, there may be a way of using the body that can be associated to a psychiatric diagnostic, but not a shape. Reich's character structure does not associate bodily configurations to global configurations of the soul. A character is a structure composed of many small regulations of the energy flow that construct an association between particular bodily features and particular mental functions (e.g., Reich 1945:318). To understand a character structure, one needs an in-depth analysis of patients that allows one to describe the various layers that construct a totality that does not necessarily look like a neat gestalt. In the case of schizophrenia I shall discuss in a moment, Reich combined two techniques:

- a) He focused on blocks that have a general influence on the organism, such as breathing and a capacity to feel one's organism.
- b) He included in this general outlook work on specific segments, mostly throat and thoracic breathing, and the ocular segment.

Reich's perspective is that a segment regulates a general energetic flow. If one loosens a tense segment, one will automatically notice a strengthening of the defenses in the other segments as long as general physiological reactions are experienced as frightening. This is why this type of work requires that one situates

working with a local mechanism in a strategy that takes the whole organism into account (Reich 1945:368-390).

I needed to take this detour because it is important to point out that when authors such as Lowen and Keleman publish confirmations of Reich's association of eye behavior and schizophrenia, they do so in a highly controversial way. For example, they have a tendency to suppose that people who behave in ways that can be associated with Reich's eye block are necessarily schizoid. However, they are people who know how to look at a body, and know how to describe it. Even if their characterology is as doubtful as the diagnostics of the Tinbergens, their descriptions remain useful training material and food for thought.

6.2.2. The orgonomic myth of the eye block

There is a persistent misunderstanding between European researchers and USA professional consumers. The researcher is toying with an idea that is being explored; the practitioner would like a gadget he can use systematically in set circumstances. Gregory Bateson had that problem when Watzlawick tried to sell the idea that when one observes a person who uses double-bind forms of communication, that person is necessarily a psychotic. For Bateson, a double bind is a form of paradoxical communication that is, first of all, a communicative strategy, and secondly a strategy that can be prevalent in certain forms of art, humor or schizophrenia. This was one of the reasons why Bateson left Palo Alto (Winkin 1981:40ff). As already mentioned in the previous section, the same sort of "gadgetization" occurred with Reich's segmentation model in the United States.

Since the publication of that in 1948, most body-oriented therapists have reported confirmation and elaborations on the importance of the ocular block in schizophrenia (Lowen 1958:366; 1975:285; Baker 1967:67, 172; Boyesen G. 1985: 57-58; Jaquet 2003). However, I am not certain that the patients of Lowen, Baker and Boyesen were clear cases of schizophrenia. Most were schizoid personalities, which is already closer to schizophrenia than Tinbergen's shy children.

6.2.2.1. Elsworth F. Baker

The basic model used in training schools is often the one described by Elsworth F. Baker (1967:75ff). Baker's personal position is a reasonable one, because it avoids "gadgetization". He gives a clear definition of the ocular segment:

Armoring consists of a contraction and immobilization of the greater part of all the muscles around the eye, eyelids, forehead, and tear glands, as well as the deep muscles at the base of the occiput - involving even the brain itself. (Baker 1967:76)

He then shows that if there is an association between character structures and segments, one should expect all sorts of eye problems associated to all sort of issues:

Symptoms from the ocular stage are prevalent not only in all neuroses but in the general population as well. Few people seem to have full development and integration of the eye segment. The schizophrenic, however, has certain basic characteristics stemming from this zone which stamp him with specific differences from other characters. ... The schizophrenic, however, has certain basic characteristics stemming from this zone which stamps him with specific differences between the eye block in the schizophrenic and that in other neuroses seems to be a result of the time at which blocking occurred. Reich states that in schizophrenia the block occurs in the first ten days of life, before any development takes place. ... The ocular zone is ... the first contact with the world and the first zone traumatized, probably mostly by hateful eyes. Developmental restrictions in this zone are a severe handicap, because without its full growth no adequate perspective of the environment or even of the self is attained. The schizophrenic lives in a world without perspective, literally in a world that speaks another language and sees other shapes (Baker 1967: 172-176).

For example, Baker (1967:181) distinguishes ocular particularities of voyeurism from those of schizophrenia. The particularities of the ocular segment for schizoid and schizophrenic patients are the following:

Armouring in the ocular segment is expressed in an immobilized forehead (it appears flat) and eyelids. The flesh at the side of the nose is smooth and waxy. The patient is unable to open his eyes wide. Indeed, he will seem to be peering from the eyeholes of a false face. In schizophrenia the expression is empty, or as if the individual were staring into space. The more emotion brought up in looking, the less able is the individual to see clearly. ... One sees patients who, from an early age, have been unable to cry. Frequently one finds myopia and other visual disturbances that are not organic. The pupils may be dilated, particularly in schizophrenia, indicating deep anxiety. Anxiety or suspicion may be overtly apparent (suspicion is seen best by having the patient look out of the corner of the eyes). The eyes may show hate or pleading like a cowed or cornered animal's. The majority of patients have an inhibition against healthy flirting, which leads to a holding across the brows. ... Frontal headaches are the most common symptom, and are caused by chronic raising of the eyebrows to express anxiety or surprise. The patient may complain of a band around the head. (Baker 1967:76-77)

The basic idea of the eye block is that 'the ocular zone is the infant's first specific contact with the environment' (Baker 1967: 45). A chronic tension may establish itself in this part of the body at that time 'by meeting with cold, frightening, or hateful expressions' (Baker 1967: 45). This analysis is close to the hypothesis that psychosis is due to early life trauma that had an impact on the organism before it had the means of constructing more elaborate and efficient defense systems.

Although I can not find a direct quote from Reich or Baker, I remember that schizophrenia is also characterized by an extreme pulsation, where the schizophrenic patient can look at an other person for long periods of time, as if he or she wanted to enter into you through your eyes, which contrasts with the more often described forms of avoidance of eye to eye contact.

6.2.2.2. Alexander Lowen

In the models of Reich and Baker there are many local bodily items that form the general impression that one is dealing with someone with schizophrenic tendencies. Lowen globally has the same attitude, for example, when he shows that (1975:152) schizophrenia is characterized by moments of withdrawal of energy from the periphery, which is to say from head, hands, sex, and feet. Seen from this angle, lack of grounding, lack of focused mobility, and lack of contact with others can be understood as different aspects of a unique phenomenon, which is a general block of the pulsation function. However, he cannot resist stunning simplifications that suggest that gaze is the most characteristic aspect of schizophrenic behavior:

'It is in his eyes that the schizophrenic shows most clearly his illness. One can make the diagnosis, at times from the eyes alone. Reich described it as 'a typical faraway look of remoteness.' They seem to look through you and not at you. When you look at their eyes you feel that you do not make contact with them (Lowen 1958:366).'

Lowen's main contribution to this discussion is his development of Baker's (1967:76) distinction between seeing and contacting others with one's gaze:

He [the schizophrenic] hasn't available in the head segment the motor impulse necessary to "direct" his regard. ... The energy is blocked in the back of the neck and sometimes in the back of the head. It does come through to the front part of the brain or head. It is not an easy task to bring the energy through and to hold it in the eyes. (Lowen 1958:367)

The subjective impression that the schizoid is unable to make contact with your eyes is the most disturbing aspect of his appearance. You do not feel that he looks at you or that his eyes touch you, but that he stares at you with seeing but unfeeling eyes. On the

other hand, when his eyes focus on you, you can sense the feeling in them; it is as if they touch you. (Lowen 1967:57)

6.2.2.3. Therapeutic methods

Another important contribution of Reichian psychotherapies is the establishment of methods that can be used to work on the eye block. Each of these methods is composed of motor techniques (exercises for the eyes) and ways of associating these to communicative, expressive and affective issues. The most refined elaboration of such techniques has been proposed by Charles Kelley (1976), who has combined the methods of Bates for myopia with those of Reich. More recently, Francine Shapiro (1989, 1995) has developed a technique called Eye Movement Desensitization and Reprocessing (EMDR) which can be used easily and efficiently with some cases of "traumatic stress" (van der Kolk et al. 1996). The spectacular results obtained with EMDR confirm how deeply work on the eyes can influence how the nervous system, emotions and representations are associated. Although neurologists have tried to explain the efficiency of EMDR, they have not yet been able to isolate the underlying neurological processes. Robust clinical evidence, however, shows that the efficiency of EMDR is robust, when used in an appropriate way.

7. 7. Discussion

This review of the literature on the schizophrenic eye block has forced me to combine several themes which are important for my way of thinking, and which I would now like to make explicit. These can be grouped around three main issues: the functions of gaze and schizophrenia, the history of psychology and its methods.

7.1. The functions of gaze

The work I have presented here is work in progress. If one considers the immense energy that has been invested on the issue of gaze and psychosis during the second half of the 20th century, one can only be astonished by the fragility of the results. I can explain this by supposing that gaze is a complex phenomenon inserted in the organism in complex ways; and that we do not yet have an adequate theory to frame research in this domain.

The first issue, of course, is that psychiatric diagnosis remains a fragile construction. It is difficult to diagnose schizophrenia and sub types in a reliable way. There is, for example, no clear correlation between a list of symptoms and the efficiency of a psychiatric drug. Then there is the issue of contacting schizophrenic patients, and of knowing them. One can only do this, most of the time, within psychiatric institutions, and with the acceptance of a costly personal involvement that is often not expected by researchers. In this article we have, apart from Reich, mostly discussed explorations that have avoided a consistent personal contact with schizophrenic populations. The implication is that most of the studies I reviewed associate observable behavioral phenomena to the remnants of a myth. The myth of what schizophrenia is about, and then deductions of what schizophrenic traits one can observe on schizoid¹⁴ and shy persons.

¹⁴ Schizoid personality traits are even less clearly defined than those of schizophrenia.

My assumption is that given the intense relationship required by schizophrenia, research tends to focus on two extremes: a) biological (e.g., genetic) and epidemiological research which requires no direct contact between the schizophrenic patient and the core research team¹⁵, and b) attempts to describe the experiences of a clinician who has attempted to contact a schizophrenic patient in real time. The assumption that personal contact with patients may induce biases is really a pseudo scientific argument. Some phenomena may be biased by a personal contact with patients, while others may be biased by lack of contact with patients. For example, counting the number of "true smiles" ¹⁶ on a film may be biased by too much contact, but access to the function of such smiles may be inaccessible for those who did not participate in the filmed situation.

Attempts to study nonverbal behavior of schizophrenic patients requires *points of view* that are situated half way between these extremes. The issue is how relevant that point of view is, and defining what is perceived and what is missed from a point of view. Reich's point of view is that of a clinician who is highly sensitive to bodily behavior. This allows him to isolate *relevant* bodily items and immediately convey the drama that is attached to them. However, there are many "buts" in this approach such as a) there is the risk of generalizations based on a few exceptional cases and b) strong personal biases. Reich's account is typical of other clinical accounts, which show how deeply schizophrenia attracts the attention of certain therapists (e.g. Barnes & Berke 1971). This "romantic" contact with schizophrenia is not something that can be experienced often, which may explain the poetical and/or philosophical stance of authors (Racamier 1980) who had a long-term contact with schizophrenic patients; a poetical stance which leaves room for some human forms of distance which is sometimes tainted by a form of bitterness related to humankind:

I agree that what was to come was dangerous, antisocial, a good reason for commitment; but I cannot agree that it was unintelligible, or that it was any more "crazy" than the deeds, or rather misdeeds, of our dictators or warmakers, who not are committed to institutions, but, on the contrary, are worshiped and honoured by masses of *homo normalis*. ... To put it bluntly, if the worse comes to the worst, he kills himself or he threatens to kill somebody else, but he never drives millions of innocent people from their homes for the "honour of the fatherland"; he does not demand at the point of a gun that millions be sacrificed for his impotent political ideas. (Reich 1945:417)

The impression that schizophrenic patients are in contact with truths lost by others is often reported by clinicians (e.g., Laing & Esterson 1964:41-42).

The point I am arriving at is that the impact of schizophrenia on others has a depth and a power that is often reported, and in which eyes have a role to play. My experience is that most parts of the body are influenced by a variable such as schizophrenia in one way or another... and how coordinated these parts of the body are as well.

7.2. Eyes in psychotherapy

The previous remark draws attention to the fact that it is also difficult to situate what can be done with eyes. I have taken the space and time to detail descriptions to show that gaze can be perceived in many ways, requiring multiple points of view to be captured. But I hope I have also prompted questions about what we know of eyes:

¹⁵ I make a distinction here between those that collect the data, who are sometimes close to psychiatric patients, and those who analyze the data.

¹⁶ For example a 06 + 12 in Ekman and Friesen's FACS system.

What can they do? What mechanisms use the eyes? What is the relation between eyes and the rest of the organism? How are eyes perceived?

Eyes are organs, not mere neurological devices. They have a locus of their own in human experience. A subject may perceive the movement of the eyes, their hardness or softness, their aliveness or deadness, their dryness or humidity. Eyes can move, can be oriented, and elicit the same sensations as any mobile part of the body. Closing one's eyes may make us attentive to a wide range of organic feelings one can also have when one feels any other part of the body "from the inside". Eyes have a wide range of communicative functions. Some eyes are known by many as beautiful, expressionless, hateful, angry, big, small, green blue or brown. The pupil may be more or less tight, the orientation of the gaze can be the same as that of other bodily segments (e.g., face and pelvis) or different, mobile or fixed. When one closes one's eyes to see "inner pictures" as in dreams we do not know if these are formed in one's eyes or in a "third eye" situated somewhere else in our organism. Optical illusions forge our conception of the world, by situating shapes and colors in a virtual space created by our mind as in hallucinations; and imposing on us inferences about others that are often create prejudices, as in racism. (Frey 2000, 2001). To need glasses is not as pleasant as not to need them, and being blind is a real deficit for the mind. There is no model or theory that lists all the possible functions of the eyes, but the practitioner knows that those listed above and many others are of prime importance if one wishes to understand how an individual perceives himself or herself and the environment he or she lives in. One of the reasons why a student of the function of the eyes needs to know a wide variety of approaches of human experience is precisely because no known approach can study more than a few of these functions.

The multiplicity of functions in which eyes are involved can be usefully fitted in the model proposed by Beatrice Beebe and her co-workers (e.g., Beebe and Lachman 2002), which shows how auto-regulation and interaction form a system:

- a) *Auto-regulation* is studied by correlating the coded behavior of one part of the body with the coded behavior of other parts of the body.
- b) *Interpersonal-regulation* is studied by correlating the coded behavior of a part of the body of a person, with the behavior of the parts of the body of another person.

This approach is different from the one used by Reichians, but the results overlap in the sense that both schools show that the role played by a part of the body must be situated in several systems simultaneously (organism, relation, feelings, etc.). As a psychotherapist, I have often found it rewarding to focus on eyes, and always notice that such an approach works to put me in a certain emotional and intellectual frame. In this regard, it makes sense to speak of a psycho-physiological ocular segment. It is undeniable that focusing on gaze raises a set of impressions and issues that might never have been touched upon otherwise. Sometimes "eye issues" are activated when one focuses on other bodily phenomena, which shows that segments are related. For example, I had a patient who always entered in the therapy room by passing on the right side of my body. On a particularly stressing day, I forced her to pass on the left side, and discovered that this led to an anxiety attack. She never stands on the left side of a person. I will spare you the details of a long associative chain, but the chain led us to early childhood memories. She was hospitalized for several months, and could only see her parents through a window. She longed for her parents, and mostly for her mother who often held her, with right side against her chest, and the head near the mother's left breast. This led to a series of adult experiences in which loving gaze could only be experienced at a distance. Today (20.1.04), as I write these lines, I saw a person who was manifestly psychotic (maybe schizophrenic), who was

shouting in the street. As I passed by him, he looked at me and said with a violent tone of voice: "Don't stare at me like that!"

I am giving these personal examples to stress that although eyes cannot be understood if one avoids considering a variety of contexts, eyes are definitely not a mouth or a foot. There are psychological dynamics that require the participation of eyes. An appreciation of eyes as an important part of human experience has yet to be made, and to be situated theoretically in a relevant way. This is one example that shows that as soon as one considers what is accomplished through bodily means one is confronted with the fact that current theoretical frames are not helpful. Eyes are relatively banal as long as one considers them from one point of view. However as soon as one has a form of phenomenological curiosity, as in this article, that wishes to think on the many dimensions of a phenomenon, and the many approaches that bring relevant information, one is constantly brought back to the relative poverty of notions at our disposal. This is probably why psychological models that include the participation of bodily events and sensations in their data-base are often considered avant-garde and exotic. Such approaches cannot be traditionalist because their only hope lays in future human imagination. We need notions that have not yet been imagined. If you are willing to accept – as I do - that all the research reviewed in this article describes relevant dimensions of gaze behavior, and that all work on complementary findings, one has to accept that each of these approaches not only have a partial data-base, but also inadequate concepts for theorization. This is not a critique of the people I have discussed here, as they are all people I deeply admire. But it is a plea to my colleagues for more imagination, deeper thinking and therefore more work. It will take generations of us to just be able to propose a relatively comprehensive image of what something like eyes or touch can do.

7.3. The history of psychology and its methods

I have distinguished three periods of research:

- 1) A Reichian period during which clinical researchers tried to understand how eyes are involved in intra-organic processes that have physiological, energetic and affective inter-faces. The relevant frame for that research is Reich's vegetotherapy and the clinician's explicit impressions. This is the only approach that uses data that can only be perceived during a direct encounter. The data absorbed when one meets someone is of a different sort, and requires different mental capacities¹⁷ than what can be perceived, and analyses when one views a tape.
- 2) A mixture between Gregory Bateson's systemic therapy and Tinbergen's ethological perspective focused attention on communicative strategies, and how eye contact participates in these strategies. Although coding procedures are already used at that stage, a great familiarity with the tapes is also required. Again, no amount of data crunching can replace this familiarity.
- 3) A preoccupation for methodological exactitude, and the advent of manageable visual recordings and computer analysis of coding procedures. The eye is considered as generating an isolated set of variables that can be correlated with any other set of variables extracted from one or several organisms. There is also an attempt to avoid using "typical behaviors" (Heller 2004b, Thelen and Smith 1994: xvii). Finally this set of procedures allows a form of data crunching that can make connections a human mind would not.

¹⁷ For example Edmund T. Rolls, (1999:124f) notes that facial recognition does not use the same neurological paths when the face is viewed on a film (requires more limbic activity) or in real life (requires more activity of the frontal lobe).

Today, one should be ashamed of being a Reichian and Tinbergen's approach is considered old stuff. It is to plead against these disqualification systems that I wrote this article. It is true that Reich's and Tinbergen's endeavors have deep methodological flaws, but it is also true that none of the recent researches have been able to consider the data described by Tinbergen and Reich, and "replace" these "old" approaches. They are therefore still relevant. Data crunching can detect connections the human mind has not been able to imagine in an explicit way until today. This may sharpen the mind when one goes back with more knowledge to films, or when one meets people in life. What we are beginning to be able to do is to accomplish such a synthesis. I am convinced this will lead to new useful theories of how humans function. Here is an example. Research has mostly associated psychosis to gaze avoidance. In my personal experience this avoidance is striking during current social interactions. However, I have also met non-psychotic persons with strong gaze avoidance patterns, as when some European and USA citizens interact with each other. I have also met persons during psychotic crisis who looked at me in the eyes for long periods of time. These long gazes are of two types:

- The *empty fixed gaze*: I remember a probably-psychotic person in the psychiatric hospital where I worked who remained standing, without moving, in the park, dressed like a romantic poet. The day was cloudy, windy and cold. He wore a huge felt hat. It was just after 12 p.m., when everybody was busy coming in and out of the hospital restaurant. He stood there motionless, looking at everybody in the eyes as long as he could. When I stopped and looked towards him, his gaze remained statically fixed on my eyes. I had the impression that his eyes conveyed no emotion.

- The *flooding fixed gaze*: I remember another person during a psychotic episode who was frantically looking everywhere for "energy". He had the impression that life was leaking out of his body, and that he needed to find warmth and love to survive. He constantly touched the heating system and would pleadingly stare in people's eyes, as if to suck all the love that was in them. He wanted me, for example, to establish an eye-to-eye contact with him. If I complied, he would become angry as soon as I looked elsewhere. When I looked into his eyes I felt overwhelmed by a blend of passionate contradictory affects.

I have not found observations of such fixed gaze in the literature on nonverbal communication, but I know that my clinical colleagues are familiar with such experiences. I therefore suppose that experimental situations impose a ritual that elicits highly socialized forms of psychopathologized behavior, and inhibit other forms of behavior, so that only clinicians can have a global impression of vision. In the case of schizophrenia and gaze, only clinicians can really confirm the hypothesis of a polarized gaze strategy, oscillating from ostentatious gaze avoidance to ostentatious fixed prolonged gaze exchange.

The three approaches I have distinguished had some momentum at different times and in different institutional contexts of the 20th century. The researchers of one group often do not quote the others, and they have each produced an important set of information that only partially overlaps with that of the other. In other words, we have three moments that can be ordered chronologically by a historian, but we do not have the expected improvement of our knowledge that scientific ethics would like to find. The more recent form of knowledge does not include what was valid in the previous research strategies. All three strategies are led by people who are not interested in what others do, as they are only interested in innovation. Tinbergen is the one exception I know to this generalization, but it is a personal exception that does not include his colleagues in Ethology.

If one considers the history of psychology, one can show that most of it is structured in this way. New ideas replace others, but they are not necessarily "better" than the older ones, which are nevertheless soon forgotten. Sometimes we see old

ideas pop up again and disappear. For example, since Richards (1980), Crick (1995) and Frey (2001) discussed the notion of *unconscious inference* explored by Von Helmholtz and Wundt in the 1860s, the scientific community suddenly recognized that there had been interesting attempts to explore the unconscious before Freud.

8. 8. References

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