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Risperidone in Child Psychiatry[1]

Its Place Withing **Nosology** as a Whole, including the **non**-psychotics diagnosis, the bond with the **clinical experience**, **neurophysiological models** of its actions, including an improvement in the **syntheses of perceptions of the emotions**, **sociological** context, **ethical** and **anthropological** aspects.

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Summary

Some children benefit greatly from atypical antipsychotics. In some cases, their use markedly improves these children's relational and developmental prognosis. The indications for use also include, as is well-known, non-psychotic diagnoses such as: Borderline Personality Disorder, Separation Anxiety Disorder, manic states, and mood swings. This article is the fruit of clinical experience with one atypical antipsychotic, risperdidone, involving more than 230 patients in childhood (80%) or adolescence (20%).

After having briefly discussed the atypical antipsychotics in Section I, we will go on in Section II to specify the conditions of effectiveness (in which psychotherapy plays a part), prescription limits, dosage schedules, and side effects of risperidone in relation to the whole gamut of child pyschiatric nosology, drawing both on personal clinical experience and on relevant studies. Section II concludes with an explanatory metaphor that can be helpfully used to communicate with the child and the parents when the drug is first prescribed.

Section II also serves to introduce the main hypothesis I want to present in this paper. First, the majority of anamnestic elements we will have discussed in the section are connected with a neurophysiological deficit in the capacity to synthesize perceptions, and particularly with a difficulty in perceiving affects (more below). Second, risperidone corrects, or, in conjunction with other atypical psychotics, helps to correct, the above-mentioned neurobiological deficit. Third, this suggests the need for an empirically-oriented research program aimed at identifying precisely the diverse clinical entities often lumped together under vague terms like "psychosis," the exact neurobiological deficits underlying them, and the atypical psychotics---as opposed to the classical neuroleptics---that best correct these deficits. This does not call into question the value of psychotherapy, but rather suggests the

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need for a holistic, multidisciplinary approach that takes account of all relevant factors: neurobiological, psychological, familial, cultural, and so forth.

Section III fleshes out this hypothesis by proposing an original neuropsychological model of risperidone's action that illuminate the clinical experience discussed in Section II. According to this model, risperidone leads to a significant improvement in the synthesis of the perception of emotions and to a better connection between the different neorological zones associated with memory, thus allowing a greater integration of the perceptions. A significant element in Section III will be a critical review of some of the relevant literature.

Section IV brings neurological models into dialogue with psychodynamics in light of some concrete clinical cases. What is offered here is just an initial sketch whose value is above all in the proposed approach, which obviously calls for a subsequent interdisciplinary study. Clinical practise, it is suggested, must attend to the world of feelings and subjectivity as a key to understanding the difficulties of the child and the necessity of psychotherapy in conjunction with drug therapy.

Section V puts the difficulty of listening to one's feelings in the context of contemporary Western society, which is not unconnected with the deterioration in mental health. Section V also tackles the ethics of prescribing antipsychotics like risperidone and of the future research with psychotrophic drugs. Finally, Section V also underlines certain aspects of the human being that the action of risperidone brings to light: man as "a being of perception and receptivity"; man's "faculties"; and the "intuitive intelligence." The article ends with a brief reflection on "the sense of the mystery of the human being" in order to set the question of determinism into a wider phenomenological context at whose center stands the undivided unity of the human being within interpersonal communion.

I. The Atypical Antipsychotics: A Brief Overview

Clozapine was marketed in 1988 (after initially being put on the market between 1972-1975) and risperidone was marketed in 1994 (1).

- The following other atypical antipsychotics are presented here in alphabetical order:
  Clozapine (Leponex) from the Novartis Laboratories;
  Olanzepine (Zyprexa) from the Lilly Laboratories;
  Quetiapine (Seroquel) from the Astra Zeneca Laboratories;
  Risperidone (Risperdal) from the Janssen-Cilag Laboratories;
  Sertindole (Serdolect) from the Lundbeck Laboratories;
  Ziprasidone (Zeldox) from the Pfizer Laboratories.
- The benzamides do not belong on this list, inasmuch as they have no antiserotoninergic action (2): amisulpride (Solian), sulpirirde (Dogmatil), both of which come from the Sanofi-Synthelabo laboratories.

The characteristic of the atypical antipsychotics is that, in addition to the antidopaminergic action of the classic neuroleptics, they also have an antiserotoninergic action as well. The overall action includes a significant affinity for the serotonergic receptors, accompanied by a lesser affinity for the dopaminergic receptors.

These new molecules qualitatively change the clinical picture with respect to conventional psychotics and can be indicated also in non-psychotic diagnoses. This renders the term "antipsychotic" simplistic. We need a broader term: "neuro-analeptics."

Initially, these new drugs were developed to treat patients with schizophrenia, so as to reduce the side-effects of the classical neuroleptics. They proved to be more effective then the classical neuroleptics themselves. They are as effective, or even more so, than haloperidol in terms of the positive symptoms, such as delusions, hallucinations, difficulty in reasoning, agitation, etc., and are markedly more effective in terms of the negative symptoms, such as

introversion, poverty of speech, loss of intellectual capacities, and so forth. They also have anti-deficit, disinhibitor, and antidepressant effects as well. The result is "more awake" patients who are more rapidly accessible to psychotherapy. Certain patients who had lived for years in psychiatric institutions have been able to leave. Patients have regained a social and professional life, and so improved their quality of life (3).

II. Indicated Clinical Uses of Risperidone for Children

This section presents the results of our clinical experience with more than 230 patients (80% children, 20% adolescents), together with the results of relevant studies, and is to be read in conjunction with the next section, which reviews and comments on some of the literature that is pertinent to the picture that emerges from this clinical experience.

1. Uses According to Diagnosis

A. Borderline Personality Disorder, or Oppositional Defiant Disorder with provocation, with or without Childhood Reactive Attachment Disorder

These groups of children respond the most spectacularly to risperidone. Numerous articles report the effectiveness of the treatment of children with Conduct Disorder.

One personal clinical experience includes 12 children (from 5-14 years, mean age 8 years) who had a Reactive Attachment Disorder from infancy or childhood with traits of Borderline Personality Disorder and/or Oppositional Defiant Disorder, and 9 other children (from 9-12 years) with the same traits, but without a previous Reactive Attachment Disorder. Initially, all of these children presented with behaviour problems and relationship difficulties. The majority displayed irritability or frequent outbursts of anger from the age of 3 years.

My findings indicate an important correlation between the anamnestic elements that I will list below and the effectiveness of risperidone. One can detect the following elements by directly questioning the child and the parents regarding the child's different emotional registers: "What do you do when you're angry or sad, or afraid? How do you calm yourself down, or console and reassure yourself? What is able to provoke such feelings?" It should be kept in mind that in what follows I make extensive use of the sort of language typically heard from parents in answer to the types of questions just indicated:

Difficulties listening: "He doesn't listen to what we tell him"; he's got his "head in the clouds"; he doesn't understand straight away what were asking him; it's often necessary to repeat everything; he's shut away in his little world; at school they say that he has a "short attention span."
Difficulties in perceiving context: He charges along, putting himself in danger (e.g. on his bike); he doesn't know how to wait; sometimes he has "emotional outbursts."
Difficulties in being receptive to oneself: The child has little verbal expression; "he doesn't say much"; "sometimes he manages to express his experience in writing."
Difficulties in perceiving connections: He needs to be noticed; he plays the clown to try to make contact; at school he needs visual or verbal contact with others.
Outbursts of anger: The outbursts of anger are generally frequent, flaring up suddenly over something trivial; sometimes the child is "beside himself." Those around him do not understand the intensity of his reactions. The child's self-esteem can be particularly distorted during these outbursts of anger, sometimes with an inner emotional split between "angel" and "devil," which the child cannot integrate, and which disrupts his contact with those around him. Sometimes the child does not know himself why he acts as he does. He does not

understand the impact of his bad behavior. Often he is not able to talk about his outburst of anger, but goes back to the adult as if nothing had happened, as if had forgotten what just took place, without making the connection. Or else the child may actively seek contact, ask forgiveness, say that he would like it not to have happened. Still other children are shut in on themselves: "it's always someone else's fault," they say.

Sadness: Some parents never notice that their child is sad. Other parents can sense that the child is often sad, even when the child does not express his sadness openly. For some sad children, any appreciation makes them suddenly joyful, without any understanding of the preceding state of sadness. Other children describe their reactions when faced with a feeling of sadness in terms of anger, without differentiating this anger from their feeling of sadness.

Projections: The child can react gratuitously or speak woundingly without justification to those around him. When he has his outbursts of anger, he may be convinced that he is not loved. Other children appear to be more stubborn or jealous; they make comparisons, they are always wanting what someone else has; they have a "mean look," they sulk, and they can become a "brick wall" when it comes time to do homework, etc.

Reported improvements after 2-4 weeks of treatment with risperidone (in some cases, these improvements appeared after 48 hours):

The child is observably more serene, less tense, and more receptive. He is less scattered, and no longer interrupts conversations by asking questions at inappropriate times. His outbursts of anger become rare or even cease altogether, and he is slower to complain and is less grumpy. Sometimes the parents report that they no longer have to scold him at all. The child now comes spontaneously to confess mistakes, he can talk about them on the spot, and it is easier to understand what he is experiencing and what he is saying. He starts to develop "common sense," and he "thinks about" what he is doing. His relationships become harmonious, he does what he is told, and he participates more.

At school, almost all of these children begin to get good marks for discipline, and are even congratulated on their behaviour. Some of the children appear more attentive and readier to listen. Some children also report that, in contrast to the past, they have discovered a liking for schoolwork, without being able to explain this change. The majority of them report that they now have a good relationship with their siblings and with the other children at school. They are able to articulate the fact that they no longer complain about other people and even to recognize that they formerly saw everything negatively: "I used to think that everyone hated me, but I didn't know how to say it."

The child has more affective contact with his parents, and, in moments of closeness, the child is more disinterested, without ulterior motives. It is noted that there is more dialogue within the family circle).[2]

In light of the clinical experience summarized here, I would once again advance the hypothesis that the these improvements are at least partly due to an improved capacity to synthesize perceptions, in particular emotions, an improvement that seems correlated with the use of respiridone.

B. Separation Anxiety Disorder

7 children from 3-8 years with a tendency to irritability and mild-moderate behaviour problems presented with a Separation Anxiety. Treatment with risperidone was followed by an almost total disappearance of the irritability and the Conduct Disorder (an improvement was noted equally in the school environment). The parents observed a spectacular change.

[2] It should also be noted that 2 children who presented with tics and 1 child who presented with eczema remarked a simultaneous disappearance of these symptoms.

The children became reassured. Of course, Separation Anxiety Disorder also requires family therapy for effective treatment.

The child's fears are sometimes ignored by the parents even when they interfere with daily life. The child's anxiety about the permanence of his relationships is not always understood by those close to him. This is even truer of some children whose fears are manifested only when they are actually separated from their parents, despite the fact that they can to be very domineering in the presence of those close to them, behaving like " little kings." Some children display significant reactions about emotional bonds from the early age of 8-10 months, or at nursery or primary school. These infants manifest an anxiety of loosing those close to them, if they are unable to maintain visual contact. There is often a disproportionate fear of being alone, or of losing sight of those whom they are close to, or else the child seeks out the company of a sibling, even a younger one. Often such children have presented with a problem keeping track of time. It often turned out that the older children needed frequent reassurance about connection with loved ones during their early childhood. Falling sleep was also a difficulty.

C. The Hyperactive Child (ADHD)

A study by Frazier et al. (1999) reports that risperidone is not effective in the treatment of ADHD (without other associated pathologies): only 8 % of children showed an improvement. The same study demonstrates that risperidone is effective in juvenile bipolar disorder (from 5-14 years): 82% of manic children show improvement, but only 8% of those with ADHD. (4) Mania and ADHD are two independent syndromes (Wozniak and Biedermann, 1995). This last study specifies that some children present with a comorbidity of bipolar syndrome and ADHD that necessitates a double treatment (risperidone and methylphenidate) (5).

This study noted, too, that 29% of the sample of children with bipolar disorder had comorbid pervasive Defiant Disorder. (4) In our experience, 3 autistic children from 10-12 years with a significant hyperactive component showed a clear improvement when methylphenidate was added to risperidone.

D. Hyperactivity (ADHD) Associated with Separation Anxiety Disorder

Some children who present with hyperactivity syndrome show only a relative improvement after treatment with methylphenidate, while remaining irritable and ill-tempered. A thorough anamnesis tends to reveal a history of Separation Anxiety Disorder. A clear improvement was seen (as noted in 6 boys aged 5-9 years) when this treatment was given in conjunction with risperidone. It should be noted that the use of methylphenidate with a sedating neuroleptic (pipamperone) produces an alleviation, but the improvement remains clearly inferior to that brought about by the combination of methylphenidate and risperidone.

E. Juvenile Mania (Bipolar)

It is important to differentiate between ADHD and bipolar disorder in the child while not excluding the possibility of comorbidity. State et al. (quoting Goodwin et al.) both list symptoms common to the two diagnoses: hyperactivity, distraction, reduced attention span; and symptoms exlusive to the manic episode: euphoria, grandiosity, affective changes in "on-off " contrasts. In simple hyperactivity, the symptoms are constant and invariable over time.

In children, a combination of 3 of the following 5 symptoms is highly predictive (up to 80%) of the subsequent development of a bipolar disorder: reduced attention span, grandiosity, irritability, rapid loss of mental focus, and suicidal gestures (6,7). Another

precursor, which may appear from the age of 6-12 months, is a reduction in the number of hours of needed sleep, simultaneous with a "super-energetic" form of behaviour.

In the case of children, comparative studies of treatment of bipolar disorder with lithium, sodium valporate, and carbamazepine show equivalent responses respectively of 38%, 52%, and 38% (more than half of the children show no therapeutic response to monotherapy) (8).

As previously mentioned (4), 82% of the children who present with symptoms of mania (DSM IV – Bipolar) show improvement with risperidone (sometimes in association with antidepressants).

The study referred to above contains the most remarkable example among the cohort studied: a child of 5 ½ years presented with a history of impulsiveness, hyperactivity, high dysphoria, and explosiveness since the age of 2 yrs. The child had already been hospitalised on 4 previous occasions, and had been treated with fluoxetine, clonidine, lithium, valporate, and sertraline, without success. When the child received 0.75 mg/day of risperidone in association with sertraline (SSRI), which he had already been taking, he showed a remarkable decrease in aggression and manic symptoms.

This same study specifies that the mood stabilisers (lithium, carbamazepine, and valporate) are useful for controlling manic symptoms in children, but that they are slow-acting and have a high rate of relapse. Risperidone was more effective than the mood stabilisers (4).

A double-blind study in adults in a manic phase indicates that monotherapy with risperidone has an effectiveness similar to monotherapy with haloperidol or lithium (9). Token and Zarate, in addition to a double-blind study of Yatham et al, show that, in adults, the association of an atypical antipsychotic with a mood stabiliser has a superior effectiveness (10, 11). The rate of remission in acute mania is 46% after 3 weeks and 88% after 12 weeks of treatment with risperidone (mean dose 1.7 mg) in association with another mood stabiliser (11).

In adults, risperidone can be active in manic episodes at low doses (mean dose 2.5 mg/day) either with or without a mood stabiliser (12-14). At higher doses (8 mg/day) risperidone can exacerbate the manic symptoms in patients with schizoaffective disorder or schizophrenia (15,23). When the antimanic effect is obtained, risperidone is then used as a mood stabiliser at doses of 1.5mg-2.0mg/day (16, 21).

In our experience of child psychiatry, risperidone is effective in manic episodes (in a dose of 0.02 mg/kg- 0.03 mg / kg) and it has a real long-term stabilising action. However, in the acute state of manic agitation, the antimanic effect of risperidone alone can be insufficient (it is not necessary to increase the dose), and an antimanic neuroleptic with a powerful sedative effect can be added. The addition of a small dose of clotiapine (etumine) to risperidone, for example, can stop the state of agitation within 48 hours. In children, a recent study confirmed the effectiveness of monotherapy with risperidone in bipolar manic states, with or without associated depression or Conduct Disorder (17). Another double-blind study done over 6 weeks, with follow-up up to 48 weeks, confirms the same result (18). In these studies, risperidone is used in association with methylphenidate in part of the population studied.

A review of the literature suggests that, in the population of children with mania (Bipolar Disorder), there is frequent comorbitity of ADHD and mania (57%-98% according to the studies), whereas in the population of children presenting with ADHD, the comorbidity with bipolar states occurs less often (11-22%) (19, 20).

In contrast to the antidepressants, there is no risk that methylphenidate will induce a state of mania or cause destabilisation (21). In addition, methylphenidate enhances treatment with risperidone, just as it enhances the treatment with mood stabilisers (6). The specific action of methylphenidate on attention deficit has been shown by EEG, in which sophisticated

high-quality analysis demonstrates the modes of fluctuation of attention. After a single administration of methylphenidate, the EEG enables prediction of a favourable clinical response (22).

Methylphenidate acts on attention deficit, whereas risperidone has an antimanic action, improving the synthesis of perceptions in their totality. In the case of comorbidity, prescription of both risperidone and methylphenidate is indicated.

F. Depression

Studies show the usefulness of risperidone in major depressive states (23). In particular, patients who present with a state of depression that does not respond to SSRIs show an improvement within a week after the addition of risperidone to a SSRI (24). A double-blind study in which risperidone (0.5mg-2.0mg) is associated with a SSRI confirms these results (25).

G. The Autistic Child

Different studies confirm that risperidone reduces autistic symptoms, and that it improves communication and social relations after only 4 weeks of treatment. These improvements continue after 12 months of treatment (26, 27). A double-blind study confirms both the beneficial effects and the fact that the treatment is well tolerated (28).

In a clinical experiment with 6 children rangins in age from 3-4 ½ years and presenting with infantile autism, I noted a similar improvement after 4 weeks of treatment with risperidone (0.02mg / kg). Among the beneficial effects observed:

The children understood better what they were told;

They were more at ease, their fears and their stereotypical behaviour being clearly reduced;

They clearly explored their environment more, and were curious;

They interrelated more;

They were more receptive to psychotherapy.

In one case, that of a 4 ½-year-old boy, treatment with risperidone was stopped for 1 month after 11 weeks. During the first 15 days following this interruption, the child was clearly more scattered in his behaviour and more troublesome at home. In therapy he was still able to play a relational game (of the sort: "I'll tickle you, then you run after me"), but he reverted to the stereotypical patterns and the disjointed behaviour which he had presented with initially: gathering his toys in a pile, lining them up, being mentally scattered, pacing up and down along a line on the floor. During the 3rd and 4th week after stopping treatment, the agitation and these behaviours became less pronounced, but the boy's progress in relational therapy was no longer comparable to what it had been. I therefore decided to restart treatment with risperidone.

From the psychotherapeutic point of view, the child's evolution has been extremely rapid for this type of pathology since then. After 5 months of treatment with risperidone, the child's situation is markedly different from what it was at the beginning. He is clearly engaged in relationships, he understands what he is told, pronounces clearly the word "yes," and even seems at times to say other words: his mother has heard him say "mom."

During the last session, in a game with 20 wooden puppets, he systematically picked up a couple of human figures and a couple of animals which he took for a walk; he also seemed to want to put them to bed. He also tries imitation games, and is able to spend a whole session drawing with someone else. More recently, he has spontaneously introduced a

symbolic game where he mimes the activity of preparing a meal. He accepts "no's," including his mother's.

A 7th child with autism, a boy of 6 ½ years, was treated with risperidone (0.045mg/kg). This child had already made significant progress following multidisciplinary psychotherapy – which is still in progress – in a specialist day centre. After 8 weeks of treatment with risperidone, progress was noted, though it was less marked than in the previous 6 children. Furthermore, it was not always easy to distinguish which improvements were due to the drug and which to psychotherapy. The child was calmer, seemed to understand more, and accepted his parents' "no" more easily.

H. Psychotic Disharmony (Misès) and Childhood Disintegrative Disorder (DSM IV)

Different articles report the improvement of pervasive developmental problems with risperidone (29). In my own clinical work, risperidone was given to a boy of 8 years of age who presented with Childhood Disintegrative Disorder. This child had been through several courses of multidisiplinary psychotherapy, all of which had been stopped because the therapists could make no progress with him. He is currently following a specialised education program. Risperidone was introduced (0.045 mg / kg), but there was no notable progress observed after 1 month.

4 children (from 4-10 years) who presented with severe Psychotic Disharmony received risperidone. Each one had had multidisciplinary treatment that had yielded no improvement. One of the children, a 9-year-old with a schizoid aspect, and a second, a 10-year-old with a schizotypic aspect, showed a significant improvement; the first child evinced a relational openness and was able to continue at school; the second child also displayed a more adequate relational contact and was able to avoid expulsion from a special school. The 2 other children, one a child of 4 years who had had severe Conduct Disorder since the age of 2 years, but who tested for an IQ of 114, and the other, a child of 8 years who had had a past history of early childhood Reactive Attachment Disorder and persistent Conduct Disorder, showed no significant improvement.

This relative or variable improvement of pervasive developmental disorders (as compared with childhood disintegrative disorders or psychotic disturbances) is noted in other studies (30,31). This suggests that it is not enough to study the effect of risperidone on "Pervasive Developmental Disorder," which is simply too general a term for the complex clinical reality involved. It is necessary instead to specify the different clinical entities covered by this term as well as the degree of disorganisation the given disorder creates in each child. The correct method would require the attempt to ascertain the possible correlation between starting risperidone at an early age, on the one hand, and a lesser degree of disorder and an improved prognosis, on the other.

I. The Paranoid Schizophrenic Child

Risperidone has a remarkable effectiveness in paranoid children. The literature widely confirms this conclusion (32,33). An example from our clinical experience is that of an intelligent girl of 7 ½ years who had presented with a history of bizarre behaviour since the age of 3 years. She refused to join in the games of her peers, was afraid of boys approaching her, and was apprehensive that they would hit her; she lit a fire at home without any apparent reason; she was afraid of water; she would throw her toys around, cut her hair, would rarely ask her mother for anything, and slept badly. She was, however, well-organised and performed well scholastically. As soon as she started risperidone, the clinical picture became normal, and at the time of the next appointment, a month later, the family said that the

situation had changed from black to white, and the little girl, smiling, used the imperfect indicative to express how she had been before.

J. The Paranoaic Child

We found that paranoiac children who are rather introverted and who may have caused a great deal of strain in their families over many years, sometimes from the age of 3 years, also react well to risperidone: normal family relations reappear (as long as the family environment is healthy), e.g. the child allows himself to be cuddled by the parents.

K. The Disorganised Psychotic Child

These children present with a loss in intellectual capacity, a lack of interest, bizarre and disorganised behaviour, immaturity, and inappropriate or flat affects. They enroll in multidisciplinary re-education programs that often do not help them, and they find themselves failing at school. Risperidone improves their situation: their behaviour is calmer and they are able to express themselves more clearly. They do relatively better in school, and they become receptive to intervention by multidisciplinary teams. They continue, however, to have significant problems.

L. Schizophrenic Adolescents with Negative Symptoms

It should be noted that (contrary to popular belief) adolescents who "develop schizophrenia" may have already had non-specific difficulties during childhood, such as attention problems, poor social skills, or the need for a speech therapist, sometimes even with a psychologist. The early stages of recent onset schizophrenia produce non-specific symptoms; there is an alarming decline in social skills. Often this picture is accompanied by cognitive deficits (the working memory, executive functions, long term memory). It is now known that early treatment can favourably influence the development of schizophrenia (34-36). Recent studies have shown that the evolution of the illness and the social integration of the patient are highly dependent on the improvement of cognitive functions. In this connection, recent research has also concluded that the atypical antipsychotics improve motor and cognitive functions, in contrast to the classical neuroleptics.

The aim of the treatment of a patient with recent onset psychosis is as rapid as possible a social integration of the patient. By contrast, the consequences of a delay in treatment or in an ineffective treatment can lead to a slow and incomplete remission, to an increased risk of suicide and depression, a loss of social integration, a rise in drug addiction, or violence, and a loss of self confidence (34). While the shorter the time the patient remains untreated, the less his risk of relapse within 2 years (37), each relapse is catastrophic for his cognitive profile and increases the danger that his illness will become chronic vicious circle (38).

In a population of patients presenting with recent onset psychosis, one study comparing the dosage of risperidone (2mg/day versus 4mg/day) showed no difference in the improvement of symptoms, global functioning, or cognitive functions. By contrast, the group who received 2 mg/day performed better on tests of motor functions. This same study noted that there was a 50% remission of symptoms after 4 weeks, and an 80% remission after 8 weeks (38).

An original comparative study done over 12 months shows the effectiveness of low doses of risperidone (1-2 mg) in the prevention of the onset of psychosis in patients presenting with a history of several months of pre-psychotic signs) as compared to a control group (39).

M. Schizoaffective Disorder (Affective Psychosis)

If the picture is identical to that of schizophrenia with negative symptoms, with the two additions of a tendency to paranoid over-interpretation, at least during a short period of time, and, especially, a thymic episode during a significant duration of the illness (more often depressive in adolescents and manic in children), then we are probably dealing with a schizoaffective disorder. Diagnostic differentiation between major depression, schizophrenia with negative symptoms, and a schizoaffective disorder is crucially important for the correct choice of treatment and the ascertainment of the child's developmental prognosis.

The use of a mood stabiliser in the case of affective psychoses changes the prognosis radically. An article on adult patients reports cases of wrongly diagnosed schizophrenia in which the eventual introduction of sodium valporate (1000mg/day) clearly improved the outcome. This article looked, however, mainly at the classical neuroleptics, while dealing much less with the atypical antipsychotics (40).

Schizoaffective Disorder (when it does not respond to previously prescribed benzodiazepines and tricyclic antidepressants) is an indication for at least a double treatment: an atypical antipsychotic and an antidepressant. The question of adding a mood stabiliser to this combination remains open, since risperidone itself already has mood-stabilising effect (see the paragraph on Juvenile Mania). Tohen et Zarate, as well as Yatham et al. advocate the addition of a mood stabiliser, as risperidone not only acts as a mood stabiliser in monotherapy, but also improves the effectiveness of mood stabilisers such as valporate or lithium. The combination of these 2 treatments proves to be superior (10,11).

N. School Phobias

Too often, distinct clinical entities are run together under undifferentiated general classifications. In what follows, I would like to highlight a few nuances, without claiming, of course, to be exhaustive:

- Situations in which the child withdraws from his social activities, chooses solitary hobbies, takes little pleasure in what he does, and shows less emotional expression can be indications of an a minima schizoid character. These children or adolescents respond very well to risperidone associated with an antidepressant (even when an antidepressant alone such as a tricyclic is insufficient).
- We need to distinguish the above from the situation in which a Separation Anxiety Disorder appears or is amplified in a disconcerting way. The child no longer wants to be alone, he wants to be cuddled, he attracts attention, or makes a scene when school is spoken of, although he may be quite content at home. He does not know how to internalise his state and gives it a trivial explanation. Often the parents think that the child is trying to test their limits. This could also be true, but without doubt the child feels a lack of well-being, and is unable to understand why. He tries to avoid these feelings at all cost, even to the point of running away or behaving badly. These situations of Separation Anxiety Disorder have already been mentioned; they respond, as we have said, to risperidone from the point of view of the "feeling of uneasiness" (and not to SSRIs with benzodiazepines). Psychotherapy must also of course play a role in the domain of school phobias.
- Also different is the picture of schizophrenia with negative symptoms (see above) with school phobia.
- The picture of school phobia in a child presenting with or developing Conduct Disorder or Oppositional Defiant Disorder (see above) is also different.
- Different, finally, is also the young adolescent presenting with a picture of melancholic depression with difficulties at school. A SSRI may suffice.

O. Obsessive Compulsive Disorder (OCD)

Children who do not respond to monotherapy with a SSRI show a decrease in their symptoms after 2 weeks when risperidone is added (0.5mg-1.0mg / day) (41).

Similar results are seen in adults. 67% of patients show a reduction in their symptoms after 3 weeks with a dose of 1mg/day of risperidone used in conjunction with a SSRI. The uncontrollable thoughts that force themselves upon, and exhuast, the patient disappear after 3 days of treatment (42).

By contrast, at higher doses of risperidone (4mg/day) in patients with schizophrenia, a worsening, or appearance, of obsessional symptoms is observed (43). A double-blind study for OCD resistant to SSRIs confirms the beneficial effects of the addition of risperidone (2mg) in more than 50% of the patients, including those presenting with a schizotypal personality (44).

P. Tics

The literature shows the effectiveness of risperidone for tics. Children who presented with a childhood Reactive Attachment Disorder, or a personality disorder, who also had tics, showed a significant decrease or disappearance of the tics when risperidone was introduced.

Q. Trichotillomania

In one study, 5 patients with trichotillomania resistant to SSRIs received risperidone in addition. 3 of them showed a disappearance of their symptoms, 1 showed a clear improvement, and the 5th showed no response to treatment (45).

R. Tourette's Syndrome

The literature shows the effectiveness of risperidone used in monotherapy (46).

S. Eczema

In our experience, 2 children (a girl of 14 years with Borderline Personality Disorder and Reactive Attachment Disorder since infancy, and a boy of 8 years with Separation Anxiety Disorder) noted that their eczema had practically disappeared shortly after the introduction of risperidone.

T. Mental Retardation

2 double-blind studies have shown that risperidone improves instability and disorderly behaviour in children with mental retardation (47, 48). This is confirmed by double-blind studies conducted over 48 weeks in children from 5-12 years with an IQ between 35-84 (49, 50). Similar results are observed in adults.

U. Borderline Personality Disorder in Adolescents

In our experience, risperidone (2mg/day given in the evening) is astonishingly effective in treating personality disorders, particularly Borderline Personality Disorder. The fear of being abandoned diminishes, social relations improve, the "feeling of uneasiness" disappears so dramatically that the adolescent himself asks for a continuation of treatment.

Psychotherapy must of course reinforce this effect and work towards the development of the patient's identity.

During counselling sessions with adolescents, it is useful to ask them to describe their behaviour in childhood and their attitudes at 6-8yrs. The descriptions they give are often similar to those reported in the previous history of children for whom risperidone is effective (see above). It is also useful to explore this period of childhood with adolescents who come to the psychiatric emergency unit for treatment.

Risperidone is particularly active in the case of personality disorders. A clinical study in adults confirms this (51). A more systematic study on the different types of personality disorder would be useful for clarifying which of them respond to risperidone.

V. Adults with Psychiatric Problems

The same reflection that has with respect to adolescents also applies to adults. Many adults with Borderline Personality Disorder, drug addiction, a history of child abuse, and the like, no longer present with the symptoms specific to childhood psychiatric problems. However, when they are asked to describe their childhood, they may report characteristic elements that seem to indicate the usefulness of risperidone.

2. Two Situations in Which Risperidone was not Effective or Useful

One case concerns a child of 8 years living with his mother and siblings at the time of treatment. After numerous domestic problems, his parents had separated 7 months prior to the first consultation; the father has a history of a psychiatric pathology and alcoholism. The mother brought the child for consultation because he had almost daily outbursts of anger lasting 1-2 hours, with opposition and uncontrolled behaviour. All of the siblings, aged 6-9 years, presented with anxiety, especially in the evenings, when the father, whom they had not seen for 7 months, would telephone. The child in question, with traits of an obsessional personality, began pyschotherapy. Risperidone produced no improvement and was stopped after 1 month. At the same time as the risperidone was stopped, the mother was asked to remove the mobile telephone. 1 week later, the child's outbursts of anger had stopped, and the anxiety of the other siblings was relatively reduced as well.

The second case concerns a child of 3 ½ years living in an institution after having been neglected, and then abandoned, by his mother. His behaviour was arbitrary: he would get up at 3.30 am, rummage in the dustbins, turn on taps, climb on tables, strike out, bite others, eat with his fingers, put bread in his ears, and eat from the dustbin. The child did not suffer from anxiety, his outbursts of anger were not excessive, and he was easily contained. Small doses of a sedative neuroleptic, pipamperone (8mg/day), caused almost all these behavioural problems to disappear. Risperidone, it should be noted, was not tried.

This child had been neglected, was under-stimulated, and had few reference-points, but he was receptive to forming relationships, and did not have a problem with aggression properly speaking. This suggests that the child's problem does not lie in the synthesis of perceptions (see below), so that, in his case, risperidone would not have been more advantageous than a sedative neuroleptic. (The sedative action probably counteracted a manic episode; see the paragraph on Juvenile Mania above).

3. Effectiveness of Risperidone

Risperidone is effective not only in psychosis, but also in non-psychotic diagnoses, notably the personality disorders. The beneficial effect is reported by the child himself, and is

largely confirmed by the family and the school. The psychological and relational prognosis is drastically improved for paranoid and paranoiac children, for children with Borderline Personality Disorder, Oppositional Defiant Disorder, and Separation Anxiety Disorder. An improvement is seen too, in the prognosis of certain pervasive developmental disorders, including autism, and for children with mental retardation.

It should be noted that, in our experience, "regulation problems" in the "zero to threes" (52) respond particularly well to a few months of treatment with risperidone (see IV, 3 below). Psychotic patients with traits of schizotypal personality disorder show only a slight improvement with either the classical neuroleptics or with the atypical antipsychotics. In the case of schizophrenia, the beginning of an improvement appears after 10 days of treatment with risperidone and a significant improvement is seen after 2 months. For children presenting with a personality disorder, or Conduct Disorder, an improvement can be seen after 48 hours.

In these situations, thanks to the improvement brought about by risperidone, the child recovers an adequate perception of himself, of others, and of events. He has a better self-esteem and a unified affective identity (assuming that there is simultaneous psychotherapy). The child recovers, or develops, a lived experience adequate to the circumstances, so that his emotional responses become appropriate to the situation. In this way, the child gets over his suffering and/or the distortion in his social functioning.

Before risperidone, numerous children have a history of psychotherapy or multidisciplinary treatment that fails to produce any improvement, or that must be interrupted due to the child's lack of receptivity. Similarly, stays in hospital, or in therapeutic institutions, also often fail to helps such children.

In our experience, children who responded to risperidone became more receptive to pyschotherapy. Certain children were able to avoid expulsion from school, or placement in a special school, by the improvement brought about by risperidone. Re-education or institutionalisation thus become possible for the child. In one particularly noteworthy article, Simeon et al. show that such children have often received numerous drug treatments without any clear success (tricyclics/SSRI/incisive neuroleptics/sedatives/methylphenidate, etc.), but that they markedly improve with the introduction of risperidone (32).

All of this seems to support the hypothesis formulated above: these children present with, among other things, a problem in the synthesis of perceptions, which is rapidly improved with risperidone. This hypothesis will be developed subsequently.

4. The Parameters Conditioning the Effectiveness of Risperidone

The first parameter is the quality and stability of family relationships. It is obvious that, if the family environment is chaotic, or provides no affective stability, no drug therapy by itself can help the child. In certain cases, the child has to be kept in a therapeutic environment. Even in a good family setting, it is necessary to start psychotherapy simultaneously with the introduction of risperidone. The initial improvement can be unstable, and it is psychotherapy that enables the child to interiorise it.

Some children respond only slightly, or not at all, to risperidone, notably some children with Psychotic Disharmony or Childhood Disintegrative Disorder. Further research is needed to define better which diagnoses do not respond to risperidone. Comparative studies on the effectiveness of risperidone in function of the age at the time of initial treatment are needed to determine if this would limit the degradation of psycho-affective development. In the meantime, one can hypothesize that children with a marked regression in multiple areas of functioning, or who are too schizotypic, are already too "damaged" in their psycho-affective development to benefit from risperidone.

It is also necessary to specify the comorbidities associated with Pervasive Developmental Disorders. ADHD and the bipolar disorders, when better identified, need double medication for treatment effectiveness (e.g. methylphenidate, a SSRI, or a thymoregulator should be added to the atypical antipsychotic according to the comorbidity).

Some children diagnosed with Psychotic Disharmony who also have ADHD show little response to risperidone, but show improvement if methylphenidate is added. The diagnosis for these same children may be bipolar mania with a psychotic component, and often a "sped-up," manic temperament, associated with reduction in amount of sleep, is found among the family members (siblings, parents, grandparents).

N.B. Methylphenidate (in association with risperidone) is very beneficial for these "psychotic" bipolar children with an attention deficit. Such children should not be compared to psychotic children with a fear of being dismembered, for whom methylphenidate is contraindicated. This underscores that the term "psychotic" has many meanings and encompasses very different clinical entities. New research based on comorbidities is clarifying the scientific criteria for reconsidering the nomenclature and so opening the way to new aetiological studies (19).

Finally, we can advance the hypothesis that some children who have suffered from severe neglect or inadequate affective ties during infancy will develop early childhood Reatcive Attachment Disorder, which, while greatly interfering with their psycho-affective development, is not due to a neuro-biological deficit, and so will not be improved by risperidone.

5. Long-term Action

Risperidone does not heal the neuro-biological deficit, but simply corrects it during the time that the drug is taken. In certain cases, then, long-term treatment with risperidone will be necessary.

Certain cases of Oppositional Defiant Disorder accompanied by provocation and a minima pre-psychotic mechanisms remain improved after 4 years of treatment, but the (sudden) discontinuation of risperidone directly induces the reappearance of the problem.

Risperidone must never be stopped suddenly. After 24-48 hours behavioral problems and borderline relational difficulties reappear, lowering the child's self esteem and causing perplexity among those around him. If discontinuation of risperidone is attempted, it must always be done in progressively diminishing stages. Further research is needed in this area.

For schizophrenic patients, stopping risperidone is not an option. Even when the patients have been asymptomatic on antipsychotics for 5 years, the risk of relapse is 75% in the first year following the discontinuation of treatment (37). In the case of Separation Anxiety Disorder, where the introduction of risperidone leads to immediate impovement, the treatment can be discontinued progressively over 2-3 months while continuing psychotherapy.

Experience shows that a good number of children can progressively discontinue risperidone after 6-12 months of treatment while remaining in an improved state. The same is true for infantile regulation problems, for which a few months of treatment can be sufficient. (It would be useful to dedicate a study specifically for children aged 0-3yrs). In the future, longitudinal studies are needed to specify the necessary duration of risperidone in each diagnosis, so as to lay a basis for determining whether or not treatment should be continued until adulthood.

6. Effective Therapeutic Dosage in the Child and the Adolescent

For the majority of children treated, the following doses were used:

3yrs: 0.3ml (=0.02mg/kg up to 15kg);
6yrs: 0.4ml (=0.02mg/kg up to 20kg);
9yrs: 0.7ml (=0.025mg/kg from 27-30kg);
12yrs: 1.0ml (=0.025mg/kg from 38-40kg);
18yrs: 2.0mg maximum.

The *minimum* effective dose, though it is often sufficient, is 0.02mg/kg. It is entirely unnecessary to exceed a dose of 0.03mg/kg. This dose should be the end-point of a gradual increase; there should be no rapid increase in dosage (even in the case of an apparent emergency), so as to spare the child any unpleasant side-effects.

Risperidone can be prescribed in either tablet or liquid form (0.1mg=0.1ml). It is useful to prescribe a syringe graduated in 1/10 ml increments to draw up the risperidone solution, which is available in bottles of 100mls and 30mls.

A single dose is given with the evening meal. If drowsiness occurs after the meal, the risperidone can be taken a little later. The dose is increased progressively over 2 weeks to avoid drowsiness first thing in the morning:

3yrs: 0.1ml for 4 days then 0.2ml for 8 days then 0.3ml;
6yrs: 0.2ml for 2 days then 0.3ml for 8 days then 0.4ml;
9yrs: 0.4ml for 2 days then 0.6ml for 8 days then 0.7ml;
18yrs: 2mg tablets: ½ tablet for 8 days then ¾ tablet for 8 days then 1 tablet.

The minimum effective dose should be sought for each child. Decrease of dosage often reveals, by the appearance of behavioural problems, the threshold under which the drug ceases to be effective.

Psychotic patients with traits of schizotypal personality disorder who respond poorly to medication – and for whom it is useless to increase the doses – must not be confused with patients who have schizophrenia with positive symptoms. Higher dosages are used only for adolescent schizophrenic patients, for whom the risperidone is increased by 1 mg every 15 days, until the most effective dose is found. The necessary dose is higher for positive symptoms (4-6mg) and lower for negative symptoms (2mg).

7. Side-effects

The side-effects of risperidone in order of frequency are:

- Drowsiness: The most frequent, although by no means universal, side-effect is drowsiness. In general, this drowsiness disappears after a few weeks. The disappearance of drowsiness requires, however, regular intake of risperidone. Restarting treatment after several days' hiatus causes the drowsiness to reappear, especially if the drug is re-started at the therapeutic dose, rather than the initial dose.
- Weight gain: Frequent stimulation of the appetite leading to weight gain occurs, but usually only mild weight gain is noted. However, 3 children (from 7-10years) gained 4-5kg (in 2 months) even though their weight stabilised after that. To reduce this side-effect, it is necessary to look for the lowest effective dose from the beginning, though it is possible that the problem is not dose-dependent. Studies in adults after 1yr of treatment show that 95% of patients gain an average of 2.6kg (1.8-3.3kg). Only 0.4% of patients spontaneously mentioned this weight gain as a side effect (53).
  Weight *loss* is also seen with risperidone. 3 children from 8-10 years of age who were obese at the start of treatment lost weight with the introduction of risperidone when prescribed for Borderline Personality Disorder. The children described an improved "well being." Obese adolescents hospitalised for dietary purposes can continue the regimen when risperidone is started (for other indications).

No increase in appetite seen in patients with anorexia when risperidone is prescribed for paranoid traits. Clozapine and olanzapine induce weight gain more than risperidone; ziprasidone has no effect on weight. In schizophrenic patients, quetiapine and sertindole cause a weight gain similar to that noted in connection with risperidone (54). A review of the literature on the atypical antipsychotics by Taylor and McAskill confirms these results (55).

- Extrapyramidal Symptoms (EPS) and Tardive Dyskinesia (TD): Studies demonstrate that the atypical antipsychotics cause few or no EPS. Clozapine, olanzapine, quetiapine, and sertindole have a profile comparable with the placebo. Risperidone causes clearly fewer EPS than the classical neuroleptics, but EPS remain a dose-dependent side-effect. In our experience, only 4 adolescents presented with (dose-dependent) EPS, of which one was linked to a simutaneous use of metoclopramide. The studies show identical conclusions for TD. Risperidone is a recognised treatment for TD caused by treatment with classical neuroleptics (56).
  In only one of our samples, a child of 4 yrs treated, did risperidone correlate with TD. It was only after several months that the parents reported buccal spasm, worse at night after the evening dose of risperidone. The buccal tardive dystonia disappeared progressively over 3 months after the reduction and subsequent discontinuation of risperidone. After a gap of several months, quetiapine was introduced without the subsequent appearance of dystonia.[3]
- An increased prolactin level: A girl of 7 years presented with an oedema of the nipples (which was not problematic), 2 adolescents of 17 years presented with galactorhoea, and 2 others with fullness of the breasts. Risperidone induces an increase in the prolactin level, which then falls after 8 weeks of treatment, eventually returning to within normal limits after 1 year of treatment. It is observed that the highest levels of prolactin are not associated with side-effects (in children from 5-15 years) (57). Clozapine, quetiapine, olanzapine, and ziprasidone raise prolactin levels to a lesser extent than risperidone.
- Hypotension: an adolescent of 13yrs presented with chronic hypotension. Before starting risperidone, he already had low blood pressure. In the studies among adults, hypotension is found in 1.2% of patients particularly at the beginning of treatment.

No other side effects were noted in our experience of 230 patients (80% children, 20% adolescents).

8. Association with Other Drugs

The association of risperidone with neuroleptics is not recommended. It can interfere with the desired equilibrium of neurotransmitters, by increasing the antidopaminergic effect, when the desired effect is in fact a weaker antidopaminergic action coupled with a strong antiserotoninergic effect. The dose of sedative neuroleptics can be reduced over 2 weeks after the introduction of risperidone. Carbamazepine reduces the plasma concentration of the active part of risperidone.

9. Model Metaphor for Explaining Prescription of Risperidone to Child and Parents

[3] These conclusions demonstrate that children should be treated with the atypical antipsychotics, and that the classical neuroleptics should no longer be prescribed. Their prescription is really an instance of medical negligence.

This metaphor was developed from experienced gained in clinical situations. It is presented here schematically, as a model to be adapted to each child's particular clinical situation. It is helpful if both parents are present and can participate in this explanation.

Before speaking of the drug treatment itself, an explanation of the physiological aspect of the child's problem is given. Addressing the parents, the therapist says something like this:

Some children have a difficulty that can be described as follows. Let's say you're with 3 or 4 people in a room and only one person speaks at a time. If you remain silent and listen carefully, you'll hear street noises in the background, but, on the whole, the eyes and ears take in only a small amount of information at the same time. Then say you're downtown with lots of people and buses, and you're looking for a particular bus; now the eyes and the ears take in more information at the same time. Then suppose you're at the supermarket on a Friday night, with lots of people, music, and announcements; if you're at the check-out, and you're trying to listen to what the cashier is saying to mom, and there's someone you don't see pushing into you, a lot more information comes in through the eyes and the ears at the same time. For some children, it's harder to keep track of what's important in all this information coming to them at the same time. When something happens around them, these children don't always understand everything that's going on; they may get only half of it. When someone asks them a question, they don't understand it. So they don't feel at ease. And they clam up or play the fool, monkeying around so they don't have to answer the question.

The parents often recognise their child in this description and are able to give other examples themselves. It is also not rare for a parent to say that he or she has the same problem, for example, that he or she can not work while listening to music (this suggests the hypothesis of a hereditary physiological factor, to which we will return later). The therapist then continues, still addressing the parents:

Now, this problem has nothing to do with the child's intelligence. Some very intelligent children have it. It can also appear when you're in a quiet place, because the information you take in doesn't just come in from the outside, through the eyes and the ears. There is also information from inside: the emotions that we experience. When we experience anger, sadness, and fear, that's also a form of information. I may be mistaken, and the child may not really have this difficulty, but many of the things you have told me are found in children who do have it.

Now, there's a medication that helps you pick out what's important in all of this information. When you do that, you can manage the information better. What I propose is that the child take this medication for 1 month, and then come back to review the situation. Either the situation will be improved, in which case the medicine should be continued for at least 1 year, or else there will be no clear improvement, in which case the medicine will be stopped.

How can you tell if the medicine works? It's not easy to say, because it doesn't act on just one point. Neither is it a sedative. If the child is calmer, it's because he processes information better and feels calmer as a result of that. You'll know the medication works if the child understands you better. Moreover, surprisingly, you'll understand him *better, because he will become more receptive to himself, and so will be able to explain himself more clearly.*

If the medication works, why is it necessary to take it for at least 1 year? Well, it doesn't cure the problem. It acts only during the time it's taken, and so, when it's stopped, the same physiological difficulty reappears. The really therapeutic aspect is the positive experience that the child gains of himself without the difficulty I've described. He'll have a more positive image of himself, his relationships, and of his his world, his school, his friends,and his family. He needs to have this experience for a long enough time to be able to integrate it.

Addressing the child, the therapist then aims to explain to him that the changes that will appear will reveal who he really is deep down, and that he must be actively involved in bringing this deep identity to light. This is even more important when spectacular changes occur. They are always very welcome to the child, who discovers an improved self-esteem:

You are really going to show who you are, your goodness and your qualities. It's you who'll be at the helm of your ship. It's as if you were the driver of a car. The medication makes you more receptive, like when you wash the windscreen, so that you can see more clearly where you are going. But it's you who have the steering-wheel in your hands and who are doing the driving. Medication doesn't drive cars, it's you who drive your car.

Of course, the parents and the child are also informed of the 2 possible side-effects of the medication: drowsiness, which disappears after a few weeks, and the potential weight gain. This allows the parents to be co-participants in the evaluation.

III. Neurophysiological Models

1. "Risperidone versus Haloperidol for the Perception of Emotion in Treatment-resistant Schizophrenia," Kee, Kern, Marshall, and Green (58)

Accurate "social perception" necessitates integration, as seen, for example, in the ability to read others' emotional expression. Different studies have underlined that patients with schizophrenia identify facial and vocal emotions with less accuracy. The deficit in correctly reading these non-verbal signs of emotion contributes to these patients' inappropriate social response. It has been proven that the classical pharmacological treatments do not improve deficit in perception of emotions in patients with schizophrenia.

The authors of this article compiled a double-blind trial in patients with schizophrenia, comparing the number of errors made in a test of emotional perception before treatment with either risperidone or haloperidol and after 8 weeks of treatment. The authors deployed 3 tests in which the patients had to choose from one of 6 proposed emotions: happy, angry, afraid, sad, surprised, or ashamed. In the tests, patients were asked to identify the emotions displayed on the faces of leading actors in short movie or TV scenes set to music or dialogue.

The conclusions of the study were varied. First, treatment with risperidone improved the capacity to perceive emotions very significantly, in comparison to treatment with haloperidol, which did not lead to any such improvement. Second, in comparing patients with more positive symptoms with those with more negative ones, the authors note that there is no correlation between the improvement of negative symptoms and performance in emotion perception, while there is only a small correlation between the improvement of positive symptoms and the same performance. Emotional perception is a unique entity that has to be considered in its own right; its improvement is independent of the simultaneous improvement or lack thereof in positive and negative symptoms of schizophrenia.

On the basis of these results, the authors propose that risperidone has a specific effect on the perception of emotions, either by directly or by an indirect mechanism. Risperidone might indirectly influence perception of emotion through its effects on basic neurocognition (i.e. on the processes that result in knowledge, such as perception and thought). Risperidone has, in fact, a beneficial effect on the working verbal memory. But the perception of emotions involves both memory and basic visual and auditory perception. Risperidone possibly acts on the perception of emotions through these neurocognitive connections.

As for the candidate for the indirect mechanism, even though risperidone has a significant affinity for the 5-HT_{2A} receptors, it has been suggested that its action on the 5-HT_{1A} receptor is actually what determines its effect on social activity. Kee, Kern, Marshall, and Green formulate the hypothesis that risperidone and clozapine have a beneficial effect on

social interaction because their fixation on the 5-HT_{1A} receptors is equal or superior to their fixation on the D_1 receptors (59). (In rodents, both risperidone and clozapine increase the social interaction time between pairs of unfamiliar rats, while haloperidol reduces this social interaction.)

The authors conclude as follows: the deficit in emotional perception can have detrimental social consequences on account of false interpretations of others' affects that lead to inappropriate reactions (60). This problem contributes to the relative poverty of interpersonal functioning in many patients with schizophrenia. The improvement of emotional perception is perhaps a first step towards a better social outcome and a greater quality of life for these patients.

2. "Is Cognition Influenced by the Second Generation Antipsychotics?" Gallhofer (61)

The reading of this dense and informative article is highly encouraged. We can offer here only an all too rapid summary of the neurophysiological mechanisms at the centre of Gallhofer's reflection.

Gallhofer cites Bratt and Geyer (1990), who observed that the mechanism for processing the numerous stimuli entering the brain was severely impaired in patients with schizophrenia. They developed the hypothetical model of a "filter," localised in the thalamus, that regulates the stimulation of sensory pathways projecting onto the cerebral cortex. This gate filters the enormous quantity of stimuli down to a more manageable level for the brain to process. This same filter also hierarichizes stimuli, so that the more essential can be processed more rapidly than the less essential. The result is that, in normal conditions, a human being exposed to a significant amount of stimuli can handle them positively (62). This capacity is weakened in patients with schizophrenia, because the thalamic gate does not adequately process the stimuli.

Gallhofer goes on to underscore the economy in the simultaneous resolution and realisation of different tasks in the brain. As the tasks are being performed, the brain skillfully changes, juggles, and shifts between sequential and parallel treatment processes of multiple stimuli. As a specific account of this economy, Gallhofer describes the "Dubois Paradigm" (1994), which involves the thalamus, the pre-frontal cortex, and the basal ganglia. A new stimulus gets processed by the dorsolateral prefrontal cortex and the result is an adequate response. Once the brain has learnt this response, it transfers the task to the basal ganglia, where this process becomes automatic. The prefrontal cortical zone can thus stay ready for the entry of new stimuli (63) see figure 1.[4] In sum, there are cortical tools (strategy making – prefrontal cortex) and subcortical tools (co-ordination of multiple reactions – basal ganglia) that are involved in coping with sudden changes in circumstances.

Now, the thalamic gate for the sensory stimuli is composed of D_2 receptors. The stimuli that are filtered and hierarchized are processed within the dorsoloateral prefrontal cortex, which consists of 5-HT_{2A} and D_1 receptors.[5] This zone produces a motor response. The basal ganglia co-ordinate this motor response. The supplementary motor cortex then inhibits an excessive motor response.

All the atypical antipsychotics have, in addition to their affinity for the D_2 receptors, a great affinity for the 5-HT_{2A} receptors. Clozapine and olanzapine also have a great affinity for

[4] Daily life offers numerous examples of this, e.g. when new information, once repeated, enables us to respond automatically. This task-solving economy can be disturbed by noradrenergic excitation (e.g. being nervous) that blocks the basal ganglia. This blockage is transient, and the automatic responses are restored after a few minutes.

[5] Many cognitive models feature the 5-HT_{2A} receptors. LSD, which produces a schizophreniform disorder, causes an enhanced turnover of 5-HT_{2A} receptors.

the histamine and muscarinic receptors, which gives them their sedative effect. Quetiapine has a powerful anti-histamine effect and therefore also has a sedative effect. Risperidone and sertindole, which are non-sedating atypical antipsychotics, have a great affinity for the 5-HT_{2A} receptors and a modest affinity for the D_2 receptors. They therefore act at the level of the thalamus and the basal ganglia to reduce the intensity of the "noise peaks" induced by the D_2 receptors. Simultaneously, they have a great affinity for the 5-HT_{2A} receptors of the dorsolateral prefrontal cortex, and so they equally decrease the intensity of this "noise."

I will not consider here all of Gallhofer's conclusions. I will merely point out that he highlights certain neurophysiological mechanisms by an analysis of performance on the maze test by patients with schizophrenia under treatment with different atypical antipsychotics (as compared with haloperidol). Now, his results show that the patients treated with haloperidol are slow, continue to make errors, do not recognise a new difficulty, and make many strategic errors. With clozapine, they are fast, but make numerous errors and have difficulty in putting a new strategy in place. With risperidone, they need more time, but they clearly improve their results. With sertindole (which has an even lower affinity for the D_2 receptors) there is an equally good result with a reasonable speed. There are few studies that have been done with sertindole, and these results should be verified (61).

3. "The Effects of Clozapine, Risperidone, and Olanzapine on Cognitive Function in Schizophrenia," Meltzer and McGurk (54)

One of the decisive questions about schizophrenia is whether or not the cognitive functions are affected. A past history of an impairment in cognitive functions is evident in childhood. Only 30% of patients with schizophrenia are capable of taking up a job again (part time or full time). Only 51% of patients having had a first episode of schizophrenia regain their functional capacities 1year on.

The cognitive functions: executive functioning, verbal learning, and memory are very useful predictive indicators of the possibilities of regaining a working status, independently of the positive symptoms. The improvement in positive symptoms is not predictive of the improvement in cognitive functions. However, changes in cognitive performance are associated with changes in the psychopathology.

This enormous article, of which we can pick up only a few elements, incorporates the results of the scientific literature with respect to the action of different atypical antipsychotics on cognitive function (motor processing, attention, speed of reaction, executive functions, verbal memory, verbal learning, visual learning, visual memory, verbal fluency, spatial and visual organisation, and fine motor control).

Some results: Clozapine improves attention and verbal fluency and, to a more moderate degree, different executive functions. There is little effect on verbal and spatial memory. Risperidone has a positive effect on the working memory, executive functions, attention, verbal learning, and verbal memory, whereas it does not improve verbal fluency (this is reported only by one study and must be confirmed). Olanzapine improves verbal learning, verbal memory, verbal fluidity, and the executive functions, but not attention, the working memory, visual learning or the visual memory.

For patients, return to previous activity and social functioning are particularly linked to verbal learning and memory. The 3 atypical antipsychotics have an effect in these areas. Risperidone appears to have the most significant action on the working memory.

Risperidone could be prescribed in preference for patients who have a deficit in the working memory and in the executive functions, and clozapine and olanzapine for patients with a deficit in verbal fluidity.

4. Action on the Memory

One study demonstrated that, when a working verbal memory task is given to healthy subjects, specific zones of the brain increase their activity (as measured by changes in cerebral blood oxygenation): the bilateral dorsolateral prefrontal zones, the lateral premotor cortex, the supplementary motor area, and the posterior parietal cortex. In patients with schizophrenia, the same experiment, performed before and after 6 weeks of risperidone treatment, shows that risperidone, during execution of working verbal memory task, increases the functional activity in the following zones: right pre-frontal cortex, supplementary motor area, and the posterior parietal cortex. Risperidone therefore acts on the different zones of the memory (64).

5. Discussion

Many other neuromolecular studies could be quoted. We will limit ourselves to those we have mentioned above, the first two of which are very original. These studies have fruitful implications for neurophysiological models that can guide clinical practice in a cross-fertilization with psychotherapeutic psychodynamics (see below). It is here that I will flesh out more the main hypothesis of this paper, a hypothesis that I will argue merits further empirical research.

The atypical antipsychotics have neurophysiological actions either wholly or partly lacking in the classical neuroleptics. 3 should be noted: First, they have an obvious action on the perception of emotions. This action---and this is the content of my principal hypothesis---may have to do with a direct or indirect effect on the mechanisms of the synthesis of perceptions, which are as yet unknown to neurophysiology. These mechanisms, on my account, involve the memory and the visual and auditory perception. Second, the atypical antipsychotics improve cognitive functions, among them the memory, with different characteristics according to each atypical antipsychotic. Third, in patients presenting with a deficit in comparison to healthy subjects, the atypical antipsychotics rehabilitate the capacity simultaneously to process different tasks, and to shift simultaneously to different forms of memory, either in reference to new learning or to automatic patterns conserved in the memory.

Now, it should be noted that the first point---action on the perception of emotions---seems to have been demonstrated only for risperidone. A comparative study of the effects of different atypical antipsychotics on emotional perception should be undertaken. This would be very useful, since my clinical experience in child psychotherapy shows that the substitution of risperidone with another atypical antipsychotic (among those that can be used in child psychiatry and that are available in Belgium) leads to a partial loss of the improvement obtained with risperidone. In fact, it is this clinical observation that led to my working mainly with risperidone in the first place. My hypothesis, which is that affinity with the 5-HT_{1A} receptors is correlated to the improvement in emotional perception, could explain the variation in effectiveness among the different atypical antipsychotics. Only sertindole has a greater affinity for the 5-HT_{1A} receptors than risperidone (54). From the neurobiological point of view, the action at the level of the 5-HT_{1A} receptors is specific and differentiated from that at the level of the 5-HT_{2A} receptors (65). All of this must be analysed in new studies.

The difference in action between the classical neuroleptics and the atypical antipsychotics would also explain why the latter are active in non-psychotic pathologies, whereas the classical neuroleptics are not. The article of Schweitzer helpfully lays out all the non-psychotic indications of risperidone cited in the scientific literature (23).

By extrapolation from point 3, and in reference to the Dubois Paradigm (see above), it would also be interesting to consider a neurophysiological model of emotional memory, with

centres for processing "new" emotions and others for conserving both the old memories and the expected patterns corresponding to them. It is obvious that conceiving and executing a cognitive study of affectivity is not easy. It is complicated to get clear about the tasks (which come in different emotional registers) of the emotional visual memory or the auditory emotional memory, or to define rigorously what the emotional memory does as opposed to emotional learning, emotional attention, emotional association, and so forth. One method might be to circumscribe the disturbances that occur during dysfunction of these mechanisms. The field of research is open. At the moment, it is difficult to advance further, but psychodynamics may be able to highlight certain elements that are significant in this regard.

It would be interesting for child psychiatry to look again at the different clinical entities discussed above in connection with the 3 areas which have just been mentioned: perception, cognition, and integrative association of memories. From the clinical point of view, it is clear that improved ability in synthesizing perceptions is one, if not the only, factor in the improvement seen with risperidone: children with Borderline Personality Disorder, "pre-psychotic" children with Oppositional Defiant Disorder, and autistic children all become more "receptive."

On this score, we suggest that pathological anxiety due to a separation and the affective split seen in emotional outbursts (as in Borderline Personality Disorder, Oppositional Defiant Disorder, or infantile Reactive Attachment Disorder), which are improved with risperidone, may be due to a defective capacity for integrating affective memories. The improvement of this integration with risperidone allows the child to take a stand against the feeling of discontinuity and to acquire an affectively unified self-image. Similarly, clearly operatory children with flattened affects and a poor capacity to internalize their emotional life can be understood as having a neurophysiological incapacity to read emotions, their own and others'. (Alexithymia in non-psychotic patients could be helped by risperidone.)

The above suggests the need for further reflection on the role of inheritance and genetics. Clinical observation raises the question of a genetic component, e.g. in operatory children with operatory parents. Mood disorders seem to involve a genetic aetiology: chromosomes 4, 9, 10, 12, 18, 21 and 22 are implicated. Studies using genomic scans attempt to specify which genes are involved (66). Concordance in monozygotic twins is several times higher than in dizygotic twins. A multifactorial origin is suggested for ADHD. Concordance is much higher in monozygotic twins than in dizygotic twins (67).

In Schizophrenia, chromosome 5, 6, and 22 are implicated; studies during autopsies show that the density of 5-HT_{1A} receptors in the pre-frontal cortex is 40% higher in schizophrenics (68,69).

IV. The Dialogue Between Psychodynamics and Neurophysiology

This section seeks only to sketch some preliminary hypotheses about the relationship between the genetic and neurophysiological components of some childhood psychological disorders, on the one hand, and the relational and affective dimensions dealt with in psychotherapy, on the other. It does so by presenting concrete cases that illustrate a kind of model method for correlating the physiological and the psychic in actual clinical situations.

1. Spontaneous Associations in a Clinical Situation

Let us begin with a concrete case:

The parents of an 8-year-old-boy bring him in for a consultation. The child seems generous and good-natured, but also nervous and irritable. He has relational difficulties: few

friends and low self esteem. At school he is capable of learning, but he is constantly getting bad marks for his behaviour. When the boy first manifested these problems, at age 5, the parents took him to the school psychologist, who concluded that he was normal. The family is united, with the parents attentively involved in their children's upbringing. A more recent paraclinical examination by a neuropediatrician concluded the absence of anomaly or hyperactive syndrome, but noted the presence of low self-esteem, which could benefit from a psychological follow up. The parents describe this child as having "his head in the clouds," as taking risks when he goes cycling, as being nervous, always fidgeting, unable to settle down. They often have to repeat their instructions. At school, the teacher explains, he learns easily, but has trouble listening in the classroom; when alone, he can concentrate with interest for long periods of time.

Now, this child's behavior might reflect a physiological component: a difficulty in synthesizing perceptions, in extracting the essential from incoming stimuli, and in being receptive, although, once he has understood the information, he can process it intelligently. In order to understand the role of this physiological component, though, we need to consider the following piece of information about the child:

When the child was 18-months-old, the father had to be away from the house for 2 months for work reasons. When he came back, the child was very jealous. He no longer wanted to be held by the father, and when the father was relaxing, the child would bite or pinch him.

Even though the child was surrounded by other family members, then, this separation may have been traumatic for him. A major attachment figure in which he had an affective investment was lost, and the child had to live with affects that he was not able to understand or integrate. He lost the permanence, not only of the father himself, but also of the father's affective investment in him and of his own inner experience with his father.

Now, in normal life, the stable knowledge that others have an affective investment in one is acquired through a rhythm of encounters with them. The child has an experience of harmonious shared affects, and during short separations he exercises his affective memory to maintain them alive in his psyche. They are then re-confirmed by the next encounter. The child's psychic life does not emerge from some "lack," but from these alternating cycles of lively encounters.[6] By the same token, difficulties appear in 2 opposing situations. On the one hand, there are traumatic separations: either the major attachment figure is absent, or, even when he or she is physically present, the affective contact is out of tune. On the other hand, there are relationships which are too "fusional": the permanence of the maternal tie, for example, prevents a rhythm of alternating contact and (brief) separation that would allow the child to exercise his affective memories and his "representations of himself" so as to integrate his affects.[7]

With respect to the concrete case we are discussing, we find that, at 18 months, the child experienced the distress of abandonment, in which he lost the figure of the father as giver. The child experienced mixed feelings of disorientation, anger, and sadness that he was unable to integrate with the feelings of well-being and harmony that he had had when in the father's presence. This inability to integrate his contrasting feelings leads the child to alternate between them, to the detriment of his own "affective identity." Moreover, on his father's return, the child is unable to perceive his father's feelings for him; his affective memories of

[6] It is important to see that the stable permanence we are discussing here concerns both the child's own affects, which he integrates through memory, and his feeling that the other has an investment in him, which he likewise stably acquires through memory. The child integrates the whole figure of the giver and the affective gift that he receives from him. This permanence, and the affective memories associated with it, give an affective stability to the child.

[7] Several authors have produced studies in this area: D. Marcelli, M. Berger, and D.N. Stern (70-72).

disorientation and anger interfere with, or call into question, his earlier perception of paternal love. This is why he bites his father.

This child has hardly any friends. He has a tendency to speak cruelly to his peers and he explains "they're not nice because they don't want to play with me." He also says that his brothers and sister reject him: "no one loves me." He has a friend, but their time together ends in an explosive manner, and if his friend annoys him, he perceives him as a "monster."

This last example shows that the child is unable to integrate his perceptions of opposite affects in the same person. The nice friend becomes a monster, and he over-interprets and projects, as if his friend had definitively rejected him. He experiences a split in his affective identity.

Several times a week he has outbursts of anger, often because he has the impression that he is not wanted. He sulks with a "mean" look on his face, and if anyone makes a further remark, he shouts that he wants to be left alone, slams the door, or remains in a stubborn mood. It's always someone else's fault. Afterward,s he comes back, looking for contact with his family, he asks to be forgiven, but is unable to make a real connection with what has just happened. Later on, when he's calm, he's able to say that he doesn't know why he acted like that. His parents explain that he does't always understand the impact of his outbursts.

In this affective split, the child loses access to his different affective registers. True, he remembers the facts, but he centres his attention on the negative memories, while "losing" the positive ones. He "falls into" a negative identity, with a loss of self-esteem. Certain children can say "I'm bad" when the rupture becomes intense enough, because they cannot elaborate their negative affects.

The problem, then, is that the perceptions (which necessitate the help of different memories associating different affective registers) are deficient, and he "sees" entirely through the "colour" of his present affect; he thus projects, but lacks any means of corecting the projection. The result is a pathological projection, which then creates an uneasiness in the interlocutor, who is unable to correct the problem in the immediate dialogue. In the same way, the child "doesn't understand" the relational impact of his misbehavior, because he fails to perceive the emotional value that it has in others' inner world. Since he cannot perceive himself in his own overall affective identity, he cannot perceive others in the depth of their overall affective figure (*Gestalt*), either. (This is true in healthy families and, *a fortiori*, in chaotic or pathological families.)

The parents note that the child does not express himself very much. When he is sad, he cries alone, he waits for someone to come and find him, drawn by his tears. However, he himself explains that often he does not know why he is sad. His schoolteacher explains that he can sometimes express what he is experiencing by means of the written word. In contrast, it is clearly more difficult for him to express himself verbally. He looks elsewhere, changes the subject, jokes around. Furthermore, the teacher regularly notes that this child is capable of using other means (than direct verbal communication) to make others like him, e.g. sharing sweets, explaining how the computer works, giving up his place, helping out. These "positive" behaviours, even if they are often followed by other, clearly "less effective" ones, are encouraging for him and for others, who are often very patient with him.

The child is not lacking emotions, then, but he has difficulty in evaluating, qualifying, and differentiating them, in associating, elaborating, interiorising and expressing them, and in understanding their circumstances. It should be noted that he is a good student; his problem is not intelligence per se, but "emotional intelligence" He is deficient in verbalizing his feelings, but he can express his emotions through the written word.

Feelings can be expressed by different channels: the auditory channel with sound and word; the visual channel with drawing, writing, modelling clay, doing "living sculptures" with the family, and so forth. This recalls the different neurophysiological zones of the

working affective memory, by way of analogy to the experiment already quoted from Honey et al (64). There seems to be a working verbal memory that activates different cerebral zones that then get integrated in the course of their operation. With that, we return to the hypothesis, advanced above, about emotional memory in all its aspects: visual and auditory affective memory; affective learning; affective attention; patterns of affective response; affective association. Research on this hypothesis would also open up clinical practice to the inter-subjectivity which is at the very heart of the human being.

At school, the child seeks to attract attention; the means he uses are varied: shocking words, untimely laughter, or noises, subtle physical aggression. His rhythm of work is often slowed down by his need for visual or verbal contact with other people.

The child's need for visual or verbal contact expresses a search for reassurance. It is as if he had no permanent memory, which he could simply take for granted, of the feeling of being invested in affectively; it is as if he could lose the feeling at any moment, especially if he is not in direct visual or verbal contact with another. He has not acquired the "affective pattern" of knowing that he is appreciated.[8] He must always re-start from zero the whole process of "affective learning and reasoning" (by analogy to the Dubois paradigm).[9]

Sometimes he has difficulty falling sleep; he has fears that he does not express, but that the parents are able to feel. He often has nightmares. These are more frequent if there were several outbursts of anger during the day or if his father has been absent for a few days for professional reasons. The parents suspect that, when he does sports, he sometimes loses deliberately to get attention. The father organises children's activities in their neighbourhood, and when he is with other children, his son becomes jealous and possessive of him.

The child's jealousy towards his father should not be interpreted only in terms of a "neurotic desire" for his father (and of the child's potential guilt), but rather in terms of a feeling of emptiness, of insignificance, of feared loss of affective memory if he loses his father's support and positive commitment. Although interpretations in terms of neurosis are always possible and useful for undersranding the role of parental and other relationships, they should not be given a one-sided preference. The child may also be struggling against the feeling of "uneasiness" linked to his loss of the representation of affective bonds. The child can anticipate this "uneasiness" without being able to work through or integrate it, and he reassures himself by remaining in a concrete tie or by creating one.

This child is seen 5 times in the psychotherapy department over 5 weeks, either with his parents or alone. At the end of the 5th consultation, risperidone is prescribed. After 15 days, the child is interviewed alone, and he explains "it's better." "My friends really want me to play with them, they didn't used to before." "It's because I'm nicer to them now, before I used to kick them because they didn't want to play with me." "Before, I used to play for a minute with them, and then I goofed around." "There are 2 children who annoy me, but it doesn't matter, they don't often upset me very much, so I don't need to tell the teacher." When someone upsets him, he kicks out or pulls faces at the others. "At home, my brother and sister don't push me away any more." "Before, they didn't want to play with me, now they say yes." "And I'm happier with myself." Currently at school: "I like maths and reading more." But the child doesn't know why.

[8] The necessity of constantly re-starting the learning process, without retention of the learning strategy finds its clinical analogy in adolescents suffering from schizophrenia with negative symptoms. They lose their intellectual and mnemonic capacities. Being unable to retain learning strategies, they must always start again at the beginning for each similar exercise.

[9] This hypothesis also applies to children ith a non-neurotic Separation Anxiety partially lacking the permanent feeling of the affective bond. When they are alone, they have a feeling of uneasiness that they cannot integrate or understand. Transitional objects (such as a teddy) can foster the "feeling of permanency" and so avoid its loss.

There is a clear decrease in the child's projections and in his feelings of being rejected and unloved. He better perceives the true interior affects of those around him, without tainting them with his own feelings and affective outbursts, and without dramatising them either. He integrates his different affective registers without wild emotional swings. "They no longer upset me" is the indication of this. In his inter-subjective relations, he more accurately perceives his and others' part; he is thus more in "the truth," a truth which is neither in him nor in the other person, but in the encounter itself. His self-esteem is clearly improved.

The second part of this consultation takes place with the parents and the child. The parents explain that he is calmer, that he is more actively present, that he participates more in what he is doing, and that he catches on more to what is going on around him. At school, he no longer annoys the teacher, he plays more calmly during recreation. He more rarely misbehaves, his outbursts of anger are much less frequent. He comes to find his mother to tell her when he has done something silly, which is something new. On one occasion he comes crying to tell her about what he has done. He is not anxious for attention. The parents report that he thinks before acting.

The foregoing is compatible with an improvement in the synthesis of perceptions and of their integration, with an enhanced ability to read feelings and emotions. It is as if child's "affective cognition" were getting better. He gains a more "integrated affective identity" and a corresponding assurance about the affective tie. 8 months after the first consultation, the child is still being followed up by the psychotherapy department.[10]

2. Infantile Separation Anxiety Disorder

A mother brought her child of 3yrs 4months in for consultation, even though the rest of the family found him normal, because he had been grumpier for a few months. He is the 2nd of 3 siblings, the family is stable and united, and both parents work. The mother went back to work 8 months after the birth of the child, who reacted very well when he was looked after during the day by his grandparents. When he was 1, his parents moved house, and when he was 18 months old, the 3rd sibling was born. He never had a transitional object. The mother, being a schoolteacher, was able to take him with her to class at the age of 2yrs 8 months, which he was very happy about. Since then, however, he has became grumpier, especially on getting up in the morning. He wriggles about, acts stupidly, is never satisfied with what is proposed to him (it is never the right bottle, the right cup, the right slice of bread, the right article of clothing, etc.). He has 2-3 outbursts of anger every day, lasting 5 minutes each. He showed a 2-month improvement from the age of 3yrs 1 month, in that he no longer had temper tantrums, although he remained grumpy. Afterwards, the parents went abroad for 5 days, leaving the 3 children with the grandparents, whom they get on very well with. When the parents returned, the other 2 children reacted well, but the child in question initially ignored his mother on the first day, then frequently called out to his mother, and finally became as difficult as in the period preceding the 2 months of improvement.

At the time of the first consulation, the child was afraid that his mother would not come back when he was dropped off at his grandparents, whom he loves very much. When his mother had to be absent for 15 minutes at midday, it was a complete drama, "like a wrench for him," "as if he were going to lose his mother." When his little sister was on his

[10] The neurophysiological models we discussed above raise the question (which would have to be specified for each clinical diagnosis): is it the case that the child merely has a *constitutional* neurophysiological deficit in the mechanisms (including memory) associated with the synthesis of perceptions, so that, being more sensitive to the affective bond, he ends up with problems with "affective representations of himself" and with false projective interpretations? Or does the lack of balance in the rhythm and in the harmony of his original affective ties induce developmental disturbances in his neurophysiological maturation (e.g. in the quantity and the proportion of different types of neuroreceptors)?

mother's lap, he felt bad and wanted to be close to his mother (this should not be interpreted in terms of oedipeal jealousy, but in terms of fear of the loss of the tie with the mother). If the mother had to go away for a short time and the father remained to look after the children, he wanted to say goodbye to his mother several times, embracing her, even kissing her on the mouth (this is not necessarily an oedipal seduction, but the seduction of an insecure person seeking to be valued by another, to be reassured of their interest and of the permanence of their bond with him). The rest of the family trivialised the situation, and there were never difficulties at his grandparents, who spoil him.

Risperidone was prescribed, and the child was reviewed with his parents 1 month later. The parents said that they had recovered the child they had known before their trip abroad. Furthermore, he is in a good mood in the mornings, he easily accepts what is proposed to him, and he is no longer grumpy. He spontaneously says "hello" to another teacher at school, which he would never have done before. His mother can leave him without difficulty, he no longer unceasingly asks to sit on her lap. He still has temper tantrums, but they are rare.

Should risperidone be prescribed in "minor" clinical situations in young children? This child is 3years 4months old, and the stakes of his current psycho-affective development are high. Risperidone was prescribed so that the current difficulties with which he presented would not compromise his future psychological development and personality traits. This poses ethical questions (see below). But we can also ask: would psychotherapy alone have yielded the same result?[11] In any case, it is clear that clinical practice confronts us with analogous, or even worse, situations, which intensive and prolonged psychotherapy has failed to improve. Child psychiatrists and therapists are often still treating similar situations dating from well before the existence of risperidone. Only longitudinal studies will make it possible to ascertain the extent to which risperidone can be helpful to children.

3. Regulatory Disorders in Infancy

The multi-axial classification of diagnoses "Zero to Three"[12] characterizes so-called "Regulatory Disorders" as follows: "They are characterised by the baby's or young child's difficulties in regulating behavior and their sensory, attention, motor, or affective physiological processes, and in maintaining a calm, wakeful, or emotionally positive state (52).[13] The term "physiological processes" in this context refers to deficits in processing the

[11] It should also be noted that the parents were told that risperidone does not heal anything in the neurophysiological domain, and that this medication should be progressively reduced and then stopped, which was done after 3 months.

[12] This classification was published in the USA in 1994, and was then translated into different languages. It is the result of a multidisciplinary working group created in 1977, which is made up of clinicians and researchers coming from children's centres in the USA, Canada, and Europe (52). It aims to present a simple snap-shot of the present state of the art, which remains open to modification and evolution. This classification is multi-axial, relational, supple, and dynamic with respect to the knowledge and treatment of babies, young children and their families (73).

[13] We will not describe here the different types of Regulatory Disorders which correspond to different clinical pictures in their richly nuanced diversity ("Zero to Three" devotes 12 pages of theoretical presentation and 16 pages of clinical examples to Regulatory Disorders alone). With respect to this diversity, "Zero to Three" notes that "the clinicians have used general terms, such as 'overly sensitive,' 'difficult temperament,' or 'reactive' to describe the sensory, motor, and integrative patterns that they presume to be either of a 'constitutional' origin or to be 'biologically' based, but without delineating specifically the sensory pathway or the motor functions involved. There is growing evidence that constitutional and early maturational patterns contribute to the difficulties of these babies. But it is also recognised that early caregiving patterns can exert a considerable influence on the way in which the constitutional and maturational patterns develop, and on the way in which they become an integral part of the development of the personality of the child. As the interest in these children

sensory, and sensory-motor, information or its organisation, such as problems in regulating, integrating, and responding to different types of sensations (including auditory and visual ones) and types of affects. Such problems have an effect on the child's adaptation to daily life, his interactions, and his relations. His sensitivity can also vary during the day. Most often, the sensory input tends to accumulate, such that the child has no trouble initially, but then meets with significant difficulties by the end of the day. Furthermore, the child's reaction to sensory input seems to interact with the base level of alertness. If the child is stressed or tired, less sensory input is likely needed to trigger a hypersensitive reaction.

"Zero to Three" also takes emotional organisation into consideration. It observes the predominant emotional tonality (e.g. calm, depressed, or happy), the range of affects (e.g., wide or narrow), the degree of modulations expressed (e.g. the baby changes suddenly from a completely calm state to frantic screaming), and the capacity to use and organise the affects within the relations to, and interactions with, others (e.g. types of evasive behaviour, oppositional behaviour, grasping and demanding behaviour).

Clinically, Regulatory Disorders range from the mildest to the most severe cases lying just inside the boundary with Multisystem Development Disorder (MSDD). In these latter cases, Regulatory Disorders resemble infantile autism. In these situations at the boundary between diagnoses, clinical experience must differentiate between "MSDD with traits of Regulatory Disorder" and "severe Regulatory Disorders with mixed characteristics." Clearly, both states will be very sensitive to severely stressful situation. Differentiating them will thus depend more on the degree of relational difficulties, of language and communication problems, and of positive initial response to therapeutic interventions.[14]

Regulatory Disorders can develop in a favorable direction. As their difficulties in processing information diminish, and their sensory reactivity improves, the affected children also relate better and develop affectively. Therapeutic interventions are very helpful and have an initial positive effect in children aged 2-3 years. In our experience (with 10 children), in fact, the "Regulatory Disorders" respond particularly well to a few months' treatment with risperidone. Of course, they often respond well to therapy. Nevertheless, in the severe clinical cases, the addition of risperidone---for a limited time---directly and signifcantly enhances the effect of psychotherapy, even when the latter has been in course for several months. It would be useful to undertake a study that fleshes out the picture just sketched for each of the different types of the Regulatory Disorders:

- Type I: Hypersensitive (Fearful and Cautious; Negative and Defiant).
- Type II: Under-reactive (Withdrawn and Difficult to Engage; Self-Absorbed and Dreamy).
- Type III: Motorically Disorganised ; Impulsive.
- Type IV: Other

A diagnosis of "Regulatory Disorder" requires, in addition to the behaviour corresponding to one of the clinical pictures, at least one sensory, sensory-motor, or information-processing difficulty. This last point may be disconcerting to the clinician who is seeking to educate himself in this nomenclature, inasmuch as psychotherapists are unaccustomed to looking for such difficulties, much less to reading them in neurophysiological terms. The "Zero to Three" classification lists 16 types of possible difficulties, including over- or under-reactivity to noise, light, odours, temperature, pain, contact, touch, feelings of gravity, buccal sensitivity, muscular tonicity and stability, motor

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increases, it is important to systematise the description of the sensory, motor and integrative patterns presumed to be involved" (52).

[14] It should be noted that, with MSDD, the relational difficulty is not considered as a permanent and relatively fixed deficit, but as being susceptible of modification and of evolution.

organisation, fine motor activity, articulation of words, attention and concentration, processing audio-verbal information, and processing visual-spatial information. To give a better feeling for the clinical picture, we present some concrete examples that were met in our experience:

- Over-reactivity to noise:
  The parents of a boy aged 3yrs and 3 months explained that when he was younger he could not bear loud noises, (planes, bottles thrown into the recycling bin, etc.) and he was afraid when he heard the noise of the rain. A girl of 18 months was afraid of certain noises, e.g., she cried if someone blew their nose, if she heard the blender, or if someone rang the doorbell. She remained very fearful.
- Feelings of being overwhelmed:
  This same girl, during certain crying episodes, had behavioural outbursts: she would howl, become aggressive, cling to things with rage, and bite. Only putting her to bed would calm her. This child was overwhelmed by too much information. She reacted with fear to intense noise and was overwhelmed by the internal information that her affects represented---hence the crying episodes. She needed to be put to bed with the maximum amount of calm to avoid overstimulation.
- Processing audio-visual information:
  A boy of 3 years would stop paying attention to anything said in his vicinity when he was in the middle of doing something else. He was sensitive to surrounding sounds, easily distracted, and slow to grasp what was going on, even as he anxiously tried to understand what he was hearing. Another boy of 3 ½ years, due to an under-reactivity, could listen only fleetingly, was only half-attentive, and needed loud noises or intense music.
- Visual under-reactivity:
  The parents of a 3-year-old boy (who tested negatively for neurological problems) noted that, until the age of 2, he sometimes had a blank expression and would stare into space: "he would have his head in the clouds," "he was always miles away," regardless of the circumstances. For example, sometimes in the car he would go one staring blankly even after his parents had tried to catch his attention. At other moments, however, he was fully reactive.
- Over-reactivivity to light:
  Since birth, a boy of 2 years 8 months had needed total darkness to sleep. The parents had to install a special system to keep any light from coming through the windows of his bedroom.
- Processing of visual-spatial information:
  The same boy, seeing an object on a shelf, was afraid and started shouting in a state of panic "there's a monster," although it was in fact only a puppet. He was usually afraid of all masks. This reflects a difficulty in decoding faces, both in terms of form and of affective content, and in integrating these 2 aspects (connection between the temporal memories and the limbic system).
- Visual evaluation of the movement of objects:
  This same child was from a very early age insecure in the car whenever he saw other cars, sometimes shouting "watch out for the cars." Some children have difficulties in evaluating space and distance and in judging the visual trajectory of objects. This difficulty can cause considerable stress.
- Auditive evaluation of the movement of objects:
  There can also be a difficulty in evaluating the trajectory of an object by sound. Hearing an object moving noisily, the child can not determine if the object is coming towards him or moving away from him. A boy and a girl of 3 years presented with the same reaction: if they were in the street and heard, but did not see, a car passing, they would cling to the

person accompanying them on the sidewalk or else stay close to the buildings.

- Visual evaluation of analogous messages and signals:
  A girl of 2yrs 10 months was frightened when anyone approached her suddenly, but she was at ease when she took the initiative to make physical contact and be cuddled. This difficulty was even more obvious if the person who approached her was expressive in their attitudes, gestures, and analogous expressions. She had trouble decoding visual messages, both at the level of their form and of their affective contents. This same child responded generally to questions about her games, but when she was addressed by signs and gestures, she did not interact spontaneously. She was unable to understand signs and gestures unless they were simultaneously verbalised.
- Gravitational insecurity:
  A boy of 3 years 1 month was afraid of situations that subjected his body to rapid changes of kinetic movement such as being pushed on his bike or on a swing.
- Difficulties with respect to the buccal zone:
  A boy of 3 years 1 month, and a girl of 4 years, both with retarded language development, presented with the same symptoms:
  - Weak muscular tonicity and lack of coordination of the buccal zone: they had a tendency to dribble and they articulated their words very badly.
  - Tactile hypersensitivity of the gustatory zone: they avoided foods that were too solid. The girl still had a bottle in the evenings.
  - Deficit in the capacity to organise articulation: they had difficulties reproducing correctly verbal phonemes; they tended to shorten their words. They had difficulties producing complete sentences.
  - Sensory-motor hyposensitivity in the buccal zone with a search for stimulation: they liked talking gibberish /humming.
- Gustatory hypersensibility:
  A boy of 4 years 4 months continues to refuse sweets, sweet things, coca cola. He prefers liquidised food, and always has a bottle at night, but he likes pasta and rice.

The "Regulatory Disorders" respond to a few months' treatment with risperidone. It would be useful to determine which regulation problems are found most often in which populations of children. It seems that children born prematurely accumulate more of these problems. Clinical studies should specify the longitudinal evolution of such children according to the different types of clinical picture.[15]

4. An Approach to Children Based on Lived Affectivity

My aim here is to sketch a model for observing the child in his capacity to perceive, and so express, his own affectivity (feelings and emotions) and to perceive the deep, unified affectivity of those with whom he interacts, i.e. to know the soul of those whom he is close to and to enter into a profound, harmonious dialogical relation with them. To this end, I present in what follows a few situations that suggest a link between psychodynamics and neurophysiology. These domains, though distinct, are interrelated, and they should be seen as a whole. Such an integration will enable us better to perceive the child's whole figure: body,

[15] A correlation remains to be established between Regulatory Disorders in infancy and studies on the cognitive limitations of psychotic patients. It is worth considering whether these patients are not in fact incapable of distinguishing the signal from the noise, pertinent information from non-essential information, in the flux of social interactions. They are drowning in signals that cause them to isolate themselves. Moreover, the patients are often disturbed by associative digressions and this overload disturbs communication (74).

psyche, spirit and liberty, among other things (see below).[16] My method will be to suggest how deficits in affective perception may be related to certain mental disturbances conventionally approached from other points of view.

Children Who are Unexpressive about their "Inner World":

Some children poorly internalize their affectivity and function in an operatory mode. They enter into dialogue only by listing the events of their day in sequence. Such children have flat affects and are rather "dull" or "simpleton-like" in a way reminiscent of psychotic destructuration. Pre-psychotic children have difficulties in perceiving their affects and those of other people, and they often present with conduct disorder.

Some children express few feelings from their deep inner world and, in moments of relational difficulty, conclude that "it's someone else's fault." They perceive the other person superficially, failing to penetrate to his deeper affectivity, or if they do, they have difficulty in expressing their perception. They project malice and injustice, and they cannot correct themselves, because they lack right perception of the other's soul. This might correspond to Paranoiac Personality Disorder.

Children Who are Expressive about their "Inner World," but Affectively Split:

For example, a little girl who feels abandoned forever by her friend, just because the friend reproached her, or preferred to play with another little girl (although the friend in fact gave no sign of breaking off the friendship). The child passes from a positive feeling to a negative feeling without making a connection between them. For her, they represent "2 memories," 2 separate affective moments, which she is unable to integrate. Although the child is calm and maintains good social relations between the episodes, they are likely to reappear during the course of the week. These are "borderline" children who sometimes also have Conduct Disorder.

Children Who Cannot Express or Integrate their Inner Experience of Uneasiness when Alone of During Separations:

The child remembers the experience of uneasiness associated with a separation or a situation in which he was on his own.[17] And yet, he cannot say anything about the qualitative aspect of this feeling, and he is incapable of explaining the reason for his anguish, apart from insisting that he does not want to be separated or alone. This resembles an experience of emptiness, but, when he is with others, he has an inner experience of well-being.[18] We have already suggested some hypotheses on this score.

General Reflections:

The foregoing suggests an approach to clinical practice from the angle of receptivity to oneself and to others. Certain children are deficient in this receptivity, especially in affective receptivity (on account of a lack of integration of their different affective registers). The child has trouble understanding his own inner affective experience, or he wrongly interprets that of

[16] I exclude neuroses—among other things---from consideration here. (My initial hypothesis is that the neurophysiological domain has little or nothing to do with neuroses.)

[17] Now, some of these children may be able (thought not always) to express their feelings in all other situations.

[18] This highlights that not all nursery school-aged children are ready for "field trips" with the school. These separations can traumatise certain children.

others. He may also project his own inner emotional experience (which he is not able to integrate in an adequate perception) and ideation. There is, it seems, a "screen" that blocks the child's receptivity and, so, his interrelation with others. This "screen" interferes not only with his perception of others, but equally with his perception of himself and of his "inner world".

This "screen" can be approached both from a neurobiological and from a psychodynamic angle. Each "pole"---the neurological and the psychopathological---is in "dialogue" with the other. Neither of the poles is absolute, each represents a limited field, and only together do both converge towards the uniqueness of the child (see the discussion of anthropology below). In this uniqueness, the neurobiological and the psychological form an undivided whole that cannot be reduced to either one of the poles alone.

5. The Necessity of Psychotherapy

The human being is above all a being of relationships, and inter-subjectivity is an important key to mental health in children and adolescents. The following clinical case illustrates the importance of the relational dimension---and the necessity of psychotherapy. In this case, in fact, risperidone could have been beneficial, but it would not have sufficed to remove the origin of the child's difficulties or improve her prognosis. The progress made with her has been due to psychotherapy alone (at the time of this writing, the therapy has been underway for 4 months). Only the initial situation is reported, since it illustrates subsequent reflections (see the discussion of sociology below).

On the advice of the school, the parents presented with the 2nd of their 3 children, a girl of 8 years. She is intelligent and performs excellently at school. She is sometimes "withdrawn" at school, is anxious, and often dramatises situations with her family and friends, which leads her on occasion to outbursts of anger or tears. For a few months she had frequent abdominal pain without a somatic aetiology.

Furthermore, she expresses herself clearly, she has different hobbies, plays sports, and meets with different friends. The parents are united and attentive to their children, although the father has taken on new professional duties that keep him away from home except on Sundays. The child is unhappy about this: "he's only interested in work." She has frequent disputes with her older brother, saying that she finds him too dominant: "he gives out orders and that annoys me"; "he's the king and I'm the servant." She is verbally and physically aggressive with her brother, more so than his own behavior seems to deserve. She sincerely believes "he would really love it if I didn't exist." On the other hand, her dream is that they will stop fighting. She wants to come to a session with her brother to talk to him about their problems so as to be on good terms with him. She has similar relations with friends, whose friendship she constantly questions.

With her parents she has temper tantrums, shouts, or gets annoyed over trivial events, but then comes looking for contact, asks forgiveness, draws pictures of hearts, and writes "thanks for giving birth to me." When she is claim, she tells her mother that she does not want to get married, that she will not have children, that she will build a house next to her parents', and that "if you die, I'll kill myself." During another session, she was asked to recount a happy memory, and she recalled that she had a good time at school: "I feel really loved by my friends"; "I love my friends more than myself"; "if I didn't have my friends, it would be terrible." She explained the worries she has in the evening alone in her bedroom, e.g.: "Will my parents always love me or do they hate me? I don't know anymore."

During the first session of psychotherapy, the following was said to the child in the presence of her parents.

Usually, children know that they are little kings and queens for their parents, they have no doubt that they are loved, even if sometimes they do silly things and get scolded. They

know that they're loved, whatever happens. But you seem to doubt this tie: it's as if you had to ask yourself each time, "am I loved, yes or no?" So, instead of trusting and abandoning yourself into the arms of mom and dad when you are worried, instead of giving them your worries, you become anxious and you feel insecure. Usually, children know very well that they're loved in an unconditional and disinterested way, but when they start doubting, they invent a funny equation: I am loved =....., eg. I am loved if I work hard at school and I get a good repor card, or if I win in sports, or if I make myself really pretty. Life then becomes complicated, you always feel insecure. Whenever you feel unloved, you believe that you must be "garbage" and that you are an ugly duckling who is rejected.

This child has a negative self-image: she thinks that she is an idiot, a good for nothing. She likes doing her hair, but then she pulls on her hair and says "not beautiful." At school, she decided not to eat, and she threw her sandwiches away, because she wanted to lose weight (even though she is already thin). When her father made a trivial remark, she exclaimed angrily "he didn't need to have me," as if she felt rejected, and then added, "they don't want to cuddle me." Underlying the child's problems is a doubt about the filial relationship. It's as if she were saying:

Did those who brought me into being do it as a free gift of love? If not, why did they have me, why do I exist? So I doubt the goodness and the love of my friends and family, and I lose my carefree attitude. My insecurity makes me look at myself rather than at those who gave me life. In losing the evidence of the gift to be received, I see myself – through their eyes and in my own eyes – as not having enough value for them to maintain the relational bond with me. I even see myself as ugly, as being rubbish, and I must make an effort work to find security in myself, by myself. I lose the evidence of the filial bond. To reassure myself about this bond and about my own worth, I try to increase my standing and centre myself on my individual achievements (to echo the values of society: profitability, efficiency, productivity). At school, I'll only be reassured when I have top marks and I can look attentively into dad's eyes when I give him my report card and be reassured that he notices and loves me. I am always anxious to see myself through the eyes of my friends and my family, to see what opinion that they have of me and what sort of relationship they are offering me. But I can't be sure about this bond of love except thanks to achievements that give me value. So a speculative and activist attitude replace the welcome, receptivity, and surprise of childhood.[19]

V. Sociological, Ethical and Anthropological Aspects

1. The Sociological Context

Since this article focuses on risperidone, it emphasizes the neuropsychological pole in the child's lack of receptivity. It is obvious, however, that the lack of receptivity can also be associated with other poles, for example, that of the culture. The aim of this section, then, is to point out a few aspects of the cultural dimension that interfere with good mental and relational health, and that the prescription of medication must neither misread, nor mask, nor replace.

[19] Initially, I wrote this text and conducted the psychotherapy thinking no drug treatment would be needed. 1 year after beginning psychotherapy, seeing the persistence of moments of uneasiness, even though the therapeutic path was very positive, risperidone was prescribed and brought about a very clear reduction in the uneasiness. Afterwards the question of the possibility of stopping risperidone was posed. 5 months after starting it, its progressive decrease was simultaneous with the return of the uneasiness, and the treatment with risperidone was continued. After 10 months of drug treatment, the risperidone was reduced progressively and definitively. 3 months later, the psychotherapy was concluded (25 months after it had been initiated). Follow-up 3 years after the initial referral revealed that the improvement had been maintained. The child has just turned 11.

As Bernadette Bawin-Legros, professor of sociology at the University of Liège (Belgium) points out, the "1970's were a turning point. . . . A turning point in the private sphere, which brought with it the break-up of the family unit, liberalisation of moral standards, unfettered sexuality coupled with a democratized, female-dominated family. A turning point in the social sphere. . . . Finally, an enormous turning point in the ideological sphere, since the 1970's witnessed the dawning of contemporary, narcissism accompanied by a social disengagement and a loss of elementary solidarity. The 1970's were the triumph of the 'me'" (75). What impact does this narcissistic turn have on the perception of affects?

The first section (A) begins to answer this question by focusing on how cultural narcissisim upsets the filial bond within the family (here we will refer to the last clinical example discussed just now). The second section (B) then argues that the child cannot appropriate and display his subjectivity unless that subjectivity is respected by, and integrated into, the core if his schooling and educational formation. The third section (C) complements this discussion of education with a philosophical reflection on the way in which "receptive openness" displays the "being" of the person and the meaning of the reality he perceives. Now, since results-oriented learning forbids interiorisation, we can expect today's accelerated pace of work to generate pathologies and familial relational difficulties, as we will explain in the fourth section (D). Finally, section five (E) will present some alarming WHO statistics on the deterioration of mental health in the world, particularly in children---surely an at least partial reflection of the decline in the quality of family life.

A. The Filial Tie Undermined by Social Values

Society celebrates individual achievement and autonomy, supposedly the key to a secure future, which people are encouraged to "take into their own hands." The young are supposed to make and achieve plans for their education and beyond, all in a spirit of "productivity, profitability, and efficiency." One's identity is self-produced, one becomes one's own mother and father (individualism). One then relies on technology to attain the goals that one sets outside of oneself, outside of what *is* (the impersonal).

The ethics of performance can have no interest in the person for his own sake. What counts is the achievement, the record, the "superman." The child who is loved in an environment where autonomy and achievements are overvalued feels "conditionally" loved---for what he *does*. He cannot appreciate himself unless he can see himself as an achiever. He loses the roots of his affective identity, because he loses the "affective filial tie," which presupposes the experience of being unconditionally loved. As a result, the child can become "turned in on himself." The clinical example concluding the previous section illustrates this point.

The child is, before anything else, a being who receives, indeed, receives himself, in the refuge that his parents' custodianship gives him. This benevolence gives the child to himself in his autonomy and his personal dignity. The child discovers himself in his affectivity, which is in tune with the affectivity of his parents. Philosopher Gustav Siewerth draws this out in his *Die Metaphysik der Kindheit* (76):

> By their love, the parents ensure that the nature of the child, who is given to them in his being, becomes his personal property, and they empower it in a respectful attitude of concern for a legacy received: that of the human-being of the child. All that the child wants, desires, and begins to accomplish is displayed henceforth in the life and space of the existence of the parents or their representatives. Filiation is, at its origin, a pure spiritual conception, and its exercise is an unfolding of oneself and a path towards oneself and towards existence, a path that begins with the parental world that

supports, helps, awakens in an archetypical way, and leads onwards. At it is origin, education is always "paideia," i.e. the interior realization of the filial bond in the house of love that the father disposes and the mother manages.

B. Learning and Subjectivity

From nursery school to university, the educational system seeks to communicate more and more information more and more quickly. A genuine learning experience is one that a child can subjectively appropriate and interiorise. Subjective appropriation co-constitutes the truth; in this sense subjectivity is (part of) the truth. An anecdote illustrates what is at stake.

A nursery school I am acquainted with does all of its teaching by "immersion" in a foreign language. Organisational problems over the last few months have made this impossible, however. Several parents have therefore asked whether they ought to arrange foreign language classes for their children before they start the 1st year of primary school! Mothers enroll their children in this same school as soon as they become pregnant. When these mothers think of the child in their womb, are they thinking of the "brain" which will be able to speak a foreign language, or do they see the "heart" of the child who will "receive himself in his subjectivity"? Imagine the opposite scenario: a child of 7 years spends a winter afternoon at his grandmother's. The grandmother sits and sows, replying to the occasional reflections of the child who watches her, while the snow slowly falls in the garden. All this occurs in an atmosphere of intimacy between the child and the grandmother.

The intellectual coefficient is composed by convention of a performance IQ and a verbal IQ. There would be more than just scientific interest in developing an "affective IQ." Such a development would make parents and society aware of the importance of subjectivity for learning and for psychological equilibrium. In a humorous way, one could imagine the astonishment of parents who would be told that their child has an excellent performance IQ, and an excellent verbal IQ, but that he is deficient in the "affective IQ".

C. Extracts from Gustav Siewerth on Learning in Children (76)

> Work and the act of learning are, for the child, the beginning of true processes of maturation. This means that one doesn't learn something out of curiosity and then set it aside once the learning is over. No, much more is going on: one appropriates what one learns as something bodily, and interiorises it in the form of a deep sensation. It's in this profound sensation that the child assures himself of the thing. It becomes "familiar" to him, because it's incorporated into his love or into his bodily power of action and movement. Depending on the different forms of what is there to be incorporated, the activity of gathering towards the center may have to be exercised and repeated at length (p.161).
>
> He then (re)cognizes something new, and the depth of his soul, from which he understands, starts "shining"; a creative enthusiasm is born, which orders anew, and potentially transforms, the whole circle of his interior life (p.162).
>
> The "sense" is simply the reality which is sensed, touched with the fingers, tasted, lighted up by the eyes, and listened to; the "sense" is the gift of being of the conception. Because the "sense" of man is simply open to being, and doesn't have any content of its own, its proper act of life is always an appearance, a disclosure, a pressure, a resistance, or, better: it's the gift of oneself which gently adapts to the thing itself. This is why the word "sense" has the same metaphysical charge when it means

man's "sense" and "conception" or when it means "essence," the meaning of a thing or of a mission. All that is immediately perceived is "sense" and has "sense"; creatures are full of "sense" and are in themselves a "symbol," pure connection –"symbolon"-- of perception and of appearance, in which the one gives of oneself in the other, the one enlightens the other, and, finally, the one is the other" (p.164).

Because all acts of learning essentially take place in finding and perceiving, they enter into a familiarity which acclimatises, gathers and orders, and recovers its powers in exercising them. Prematurity (in learning) is in its essence nothing other than an interior and exterior distancing from things that the child can neither look for nor find and, therefore, can neither perceive nor familiarise himself with. Instead of an ingathering that creates order, he falls into a confused interior spin within a meaningless emptiness, he dries out in a desert of absurdity, because his sense powers can't become sharp and penetrating except in finding. Essentially, there is no such thing as a stupid heart, a stupid reason, a stupid sense (p. 169).

Premature learning always occurs, even for gifted children, when the formation they receive is inconsistent and poorly suited to them. Such a "formation" always comes too early, because it tries to pile up quickly a mass of unimportant information by means of torture and in a state of exhaustion. It's an insipid and pedantic cramming, inflamed by ambition and fear, without the joyful and detached inner harmony that comes from the essential and familiar depth of things. From highschool on, the overload of subjects makes our classrooms a forced labour camp,where the inmates endure a prematurity without end. The exam material, learnt by rote, is thus quickly and totally forgotten, if the students haven't finally shaken off the yoke of teaching altogether. Anyone who has questioned students 6 months after they've left school can verify this. The children themselves describe such a manner of learning as "cramming" or as "working like a dog," terms that express very precisely the draining effect of this type of education" (p.170) (76).

D. The Rhythm of Work[20]

Preoccupation with profitability, and a corresponding rhythm in the world of work, have been constantly growing since the 1990's. "Work harder in less time" has become our culture's motto. The same period has witnessed an explosion of work-related musculo-skeletal fatigue pathologies such as tendinitis, etc. (statistics from France and Holland). Now, given automation and information technology, one would have expected these pathologies to decrease. In fact, it is precisely workers, such as secretaries, who do not perform heavy physical labor who present with these problems. Clearly, the accelerated rhythm of work has psychosomatic repercussions.

Sickness and disability due to moral harassment are on the rise. Moral harassment is a phenomenon that has always existed, of course. But, whereas in the past, one could have said "have you seen what the boss is doing to you?" or "have you seen what the boss did to me?" moral harassment is now borne in solitude, and it is this solitude that increases moral suffering and induces illness.

Information technology means that it is not just the profitability of an enterprise that is tested, but that of each worker individually. This new situation, coupled with a difficult job market, erodes the sense of solidarity among fellow workers. Individual pressures, back-

[20] The following draws liberally from a talk by Dr. Dejours, professor of Occupational Medicine and Psychiatry at the University of Paris (given at the University of Liege, April 2001).

stabbing, the "each man for himself" mentality, rivalry, the elimination of the weak, are reinforced by individualised evaluations in all sectors of work. In reality, such evaluations are misguided, for there is no way really to evaluate the work done.

Work is originally masculine, and the definition of work remains masculine. Even female executive managers work in this spirit and must be measured against men. The same jockeying for position is also found at home and between the sheets. Marital difficulties can be the consequence; sexual problems are common in occupational medicine (impotence, vaginismus).

Difficulties in the workplace have repercussions on family life. When the father comes home, the children are told "leave your father alone." Parents are often less available for their children, especially as activism is encouraged during free time. What place is left for the affective and for the temporal unfolding of family relations?

E. The Evolution of Mental Health

"International reports mention a clear deterioration in the mental health of children and young adults, at the same time as their physical health has improved in a spectacular manner from a few decades ago. Several studies from different European countries reveal that children and adolescents suffer major disruptions, both on the familial and the individual levels, at rates of between 15-25% (the numbers vary according to the researchers) with respect the general population. A major problem are the feelings of powerlessness and worthlessness experienced by many families that have suffered social exclusion. The increase in divorce, the instability of couples, the anguish of parents dealing with economic crises and unemployment have bought about new behaviour patterns and caused psychological problems in many children."[21]

"Prevalence: studies conducted in different industrialised countries reveal that 20-25% of children and adolescents (of less than 18yrs of age) have moderate to severe psychological problems. 7-10% suffer from obvious psychiatric problems, of which 50% persist (e.g. in the form of developmental problems) until adulthood. In the towns and cities, both moderate to severe psychological problems and obvious psychiatric problems are twice as prevalent as in rural zones. There is an increasing need for crisis management and psychiatric intervention for children and adolescents. It has been noted that not only is the number of cases increasing, but also that they are arising at a younger age."[22]

The past 3 decades have seen an increase in severity of psychopathology, which is becoming more and more difficult and "destructured."

Conclusion in Connection with the Medication

The foregoing illustrates how many factors can cause difficulties in the child. It also suggests the variety of potential solutions. Both doctors and drug companies must avoid reducing everything to drug therapy, which must be used only when there is a clear indication and which even then is only a partial answer. As for the other levels of the problem, our culture must begin to make room for the human "person" and the family unit beyond the demands of technology and the economy.

2. Ethical Questions

[21] Walloon League for Mental Health, 1999.
[22] Belgian Ministry of Public Health, 2000.

A. A Specific Prescription

It is necessary to identify more specifically the psychiatric, neurological, and psychoaffective developmental indications. The atypical antipsychotics help (relatively) only with the indications already noted. They are not the automatic solution for children presenting with Conduct Disorder (for which they would be ineffective). Compare methlyphenidate: it has been estimated that, in Chicago alone, where the drug originates, false positives number 1000%; 9/10 children receive this treatment unnecessarily; they are not truly "hyperactive." Teachers refer the children directly to the doctors without informing the parents. This type of drift represents a real danger.

B. Brave New World?

It is conceivable that future research (in less than 50 years?) might focus on psychotropics that would specifically modify certain personality traits: inhibiting libido, modifying affects, improving IQ, and so on. The comedian Jean-Noël Fenwick gives a funny version of this futurist vision in his show "Me...but Better." A book like Orwell's *1984* also indicates the possible dangers.

In our technical society, it is necessary to anticipate practice with moral–ethical reflection. The technical means should not be used outside the context of a reflection on their purpose. Nor should they be used by people who have no respect for the weakest, or for the filial bond, and who are simply in search of power. Reductionistic anthropology should not be allowed to govern the use of modern technology.

Future research will have to distinguish between an action that responds to a pathological deficiency and an action that looks to "improve" and modify the natural properties of the human being. Whereas the first seeks to unfold the dignity of the human being, the second attempts to create a Superman – who becomes inhuman out of a desire to be his own creator, which destroys the filial tie and the love which receives and gives. The very meaning of the "human being" is at stake.

C. A Priori Prejudices

On the other side of the spectrum are certain psychotherapists who are opposed *a priori* to psychotrophic drugs. This opposition is not always well-founded. For example, such therapists often believe that psychotrophic drugs---which they sometimes lump together without distinction---by decreasing the suffering of the patient also prevent in-depth psychotherapeutic intervention. Similarly, it is feared that psychotrophic drugs will prevent patients from thinking for themselves, hinder their freedom, and place them in a condition where they they think only "under influence." Finally, some therapists argue that the taking of psychotrophic drugs induces a negative psychological self-image in the patient: being made to believe himself to be mad, he becomes mad.

These beliefs can be in part true. For instance, melancholic patients who have improved with antidepressants have been known to experience this improvement in an impersonal way. Nevertheless, such beliefs must not be generalised, either. Those who entertain them risk inducing the very effects that they fear from psychotropics. Clinical practice must take its bearings from objective observation. Otherwise, the patient risks being deprived of an extra help that may very well improve his prognosis.

D. The Galien Prize

In 1996, risperidone received the first International Galien Prize, which is a sort of Nobel Prize equivalent for drugs. We should not idealize the drug, but we should also recognize, in light of massive of clinical experience, that it has many benefits, as well.

E. Multidisciplinary Studies

As already noted, we need studies better to identify the different parameters: studies according to precise diagnostic categories (that have to be more exact than "Pervasive Developmental Disorder" and the like) specifying the age, etc. Longitudinal studies are also needed. It is useful, especially for children, to promote multidisciplinary exchanges and studies. Neuropediatricians, child psychiatrists, psychotherapists of different schools, and clinical psychologists, as well as, for certain questions, sociologists, philosophers, and lawyers need to be involved. My purpose in the foregoing has simply been to outline a proposal for such a multidisciplinary effort.

3. Anthroplology

What is man?

Risperidone gives rises to questions about the nature of man. By way of an analogy, a chemical substance, insulin is necessary for diabetics to regain health. In the same way, a piece of the neurobiological puzzle – a chemical substance – is necessary for the well functioning psyche of a truly free human being. What, then, is the human being, if his flourishing depends so much on chemicals?

Avoiding Reductionism

It would be a mistake to answer this question by reducing man to a chemical and neuro-biological entity. As we have already stated, the complete human being includes in his make-up – among other things – body, psyche, spirit, and freedom. There are, of course, different dimensions or poles within the unity of man, such as neurophysiology, psychodynamics, spirit, and freedom. The poles are mutually inseparable, nor do they collapse into one another in a reductionist fusion. All the elements together form a whole, the figure – the unique figure – of the human being that thus emerges in all its depth.

The Action of Risperidone

Risperidone acts on many different pathologies, including some for which classical neuroloeptics are ineffective, such as Borderline Personality Disorder, to take just one example. What is the common denominator linking the action of risperidone in such different pathologies? As already explained, one (but not the only) answer is an improved capacity to synthesize perceptions, notably of affects. Analysis of this type of action would require studies using different projective tests, before and after the introduction of risperidone, in different pathologies, in adults and children. From the anthropological point of view, this hypothesis on the action of risperidone suggests a broader consideration of the richly manifold unity of the human being, which the following paragraphs present in outline:

Man as a Being of Perception and Receptivity

The human being is above all a being of receptivity. Daniel Stern in "The Interpersonal World of the Infant" (72) highlights the infant's perceptive intelligence and his amazing perception of the other and of his own affects. All the creativity of man comes from what he receives at the beginning of his interrelations.

Risperidone reminds us of this fundamental dimension of the healthy man. By contrast, personality disorders are best understood as a disturbance in perception leading to an unhealthy pattern of inner experiences. The DSM IV notes that "personality disorders are an enduring pattern of inner experience and behaviour that deviates markedly from the expectations of the individual's culture." This has repercussions on "cognition, that is, on the perception and image of oneself, the other person, and events," on "the affectivity, that is, "the diversity, intensity, the stability, and the adequacy of emotional response," and on "interpersonal functioning."

Memory, Intelligence, and the Affective Will

What man perceives has an originary value for him. Based on what is perceived, the "faculties" of man appeal to his memory, to his "intelligence," notably his associative intelligence, to the affectivity created by his relation to the *perceptum*, and, finally, to the mobilisation in which he exercises his "will," which "is one body" with his affective movement.

By his "affective will," man exercises his freedom, that is, his way of positioning himself vis-à-vis what he perceives and of responding to it. In this sense, the human being can be understood only in terms of interrelation and inter-subjectivity. What he is results from an encounter, and, in the best case scenario, from a surprise---the surprise of the encounter itself, that is, the surprise of discovering the other and of the other's response.

Risperidone is relevant here because, on our hypothesis, its mechanisms of action – in certain pathologies – have to do with neurophysiological associations of the memory affecting the openness of the individual to his own affectivity. Risperidone thus gives the patient a "somatic" neurophysiological platform on which to achieve a greater harmony with what he is able to perceive of the exterior world and of his inner world---and thus to regain his freedom. As the French philosopher Gabriel Marcel put it, "*to go from the "I" closed in on itself to you, is to become a person, founded on love and on the hope that is born with it."*

The Intuitive Intelligence

Man and society have developed "faculties" of thought and action. But there is a third "faculty" of the subject: the "intuitive gaze," which involves affective participation. The intuitive gaze has to do with the act of "contemplation." Intuition comes from the influence of the perceived object on the one who contemplates and receives it. This influence produces an experience, an impression of the whole *perceptum*. What is perceived refers to the totality of the object, to its unified figure (*Gestalt*). This experience thus comes from an original unity of the object and the subject, a unity that is prior to analytical separation into elements such as "image" and "feeling." This experience is neither a bare knowledge, nor a bare action, but a unity of the two within an original encounter between self and world.

The Sense of the Mystery of the Human Being

Reflection on the nature of man, and of the place of physical determinism in it, cannot dispense with a phenomenological approach to the human. All human beings are a mystery, a mystery which both conceals itself and reveals itself, veils itself and unveils itself. Each one

of us is a mystery for himself; a fortiori, the other is a mystery as well. We never know each other completely, and an encounter with another always offers me the chance to discover new things about him. Each one of us has an unfathomable depth. An authentic encounter of human beings can take place only in love.

The other person appears, *shows* himself, unveils himself. For that very reason, an authentic encounter occurs in the "fragility" of being and in wonderment at what unveils itself to me. Such is the *beauty* of the attitude which "shows itself" and of the resulting encounter in respect and love. It is also in this way that one discovers oneself in the eyes of the other, not so as to gaze at oneself, but to *give* of oneself, to confide something of one's own mystery, which only has meaning because there is another person to receive it. This leads us to *goodness*: the attitude that "surrenders itself," "gives itself," abandons itself. Finally, it is in this inter-personal, inter-subjective encounter that one *says* oneself and that the other says his truth, not in himself, but in the other to whom he reveals himself. With that we come to *truth*, the attitude of "showing myself" and of "saying myself"---the truth that is not in me or in the other, but in our encounter.

As beauty, goodness, and truth unfold being as love within the inter-personal encounter, the *figure* of the human being appears. A figure which expresses a plenitude and so can unceasingly reveal new aspects of itself in an undreamed of depth. This gives the human figure a living, inexhaustible *unity*, and it is this unity that the sort of multidisciplinary approach recommended here must always keep front and center and seek to serve.

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