

# THE TWIN CONDITION AND THE COUPLE EFFECTS ON PERSONALITY DEVELOPMENT

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*Twin psychology has been studied to a very limited extent. Only few remarkable peculiarities of the twins' development are known for sure, such as delayed intellectual development, language retardation with frequent cryptophasia, difficulties and fragility of self consciousness, reduced sociability. These and other peculiarities may result from a number of different factors: biological, peculiar parental attitude, and especially the twin situation itself, the psychology of the twin as an individual being a function of the psychology of the twin pair. Twin peculiarities have for a long time been ignored. On the one hand, psychology ignored the couple reality (it was a "one-body" psychology), and on the other, the twin method classically postulated that twins are not atypical and may therefore be used as a test for the general population. As a matter of fact, twin psychology opens a new way to science. The twin situation may serve as a paradigm for the general study of the couple effect, namely, for the objective analysis of personality as a consequence of the relations between self and others. For certain traits of personality, it is already known that MZ twins brought-up together are significantly less similar than MZ twins brought-up apart. In fact, couple effects may mask or considerably reduce genetic factors.*

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Twins are like every other person. This was the postulate of the twin method defined and unveiled by Galton exactly one century ago. As a matter of fact, if twins showed particularities which distinguish them from common people, they could not give any valuable evidence, in the name of everybody, about the relative parts of Heredity and Environment. Thus, from this point of view, twins are in attendance on science, but science is not on their particular attendance. There is no properly so called science of twins, there is no gemellology.

Besides, considering things from closer, we find out that this postulate of twins' non-particularity is bound up with a whole conception of the relations between genotype and phenotype, that is to say, if it is more especially a matter of psychology, of a very naive conception of the relations between "the body and the soul", and at last of a confusion between biological *determinants* and *construction processes* of psychism.

In other words, we start from this highly probable assumption that heredity laws are the same for twins as for non-twins, and from this we draw the conclusion that twins build their biologic and psychical personality the same way as single individuals.

As a matter of fact, the paradigm of the classical twin method calls out two entities: Heredity and Environment. And everything leads back to a calculation of the relative parts of each entity in the expression of the individual differences. The result of this calculation, which can be obtained by the comparison between MZ and DZ twins, is considered a universal value. In addition, we seldom bother to know the exact meaning of the word *environment*, for which *nurture* or *milieu* are still being used. It is superficially defined by social criterions, most often by one single criterion which is the father's profession, without wondering whether this global notion of Environment could not conceal very different realities: the intrauterine environment as well as the educative environment, difficulties

during pregnancy as well as usual foods, affective relationships as well as the intellectual atmosphere, the environment undergone as well as the environment created by the individual in his own activities, and more particularly in his unceasing contacts with others.

The environment would be defined on very dissimilar levels and scales. It would then be better to abolish this term (or to strictly limit its use) and to speak of nongenetic factors. Only when relieved of an excessively unifying entity, we could then wonder if, in comparison with the nongenetic factors, twins are similar to single individuals, and consequently if they can give evidence in the name of everybody.

We can now surely answer: No. We now know that twins, and MZ twins even more clearly than DZ twins, are different from single individuals. We will now inspect the statements of their particularities. We will then point out the nongenetic factors which may render an account of these particularities.

## TWIN PSYCHOLOGY

### 1. *Characteristics of A Cognitive Nature*

It is in the field of cognitive characteristics that twin particularities are known since longest time and with most certainty. Twins show, in the course of childhood, a light backwardness in the mental development, and a frequent backwardness, sometimes quite serious, in their verbal development. These obviously are average truths (*vérités de moyenne*) and statements at the group scale. A MZ twin may be a brilliant personality, on a verbal point of view as well as for his level of global intelligence.

In the course of an already old investigation led on a very wide sample of 6 to 14 year-old French school children (about 100,000) I figured out the IQ of the twins included in that sample. We used Gilles' mosaic test, which is written and consists in the collective drawing up of the global intelligence according to Binet-Simon's "hoche-pot" principle.

The norm of the general population being by definition an IQ of 100, the twin population (806 individuals) obtains an average of 94. The population of unisexed couples (where MZ and DZ are mixed) obtains an average IQ of 92.5. If we admit, according to Weinberg's hypothesis and differential method, that in a population of unisexed couples the MZ rate is lightly lower than the DZ rate, we get to the conclusion that, in our population, the average IQ of MZ twins does not exceed 90.

I extended my analysis and compared the twins' score to the socio-cultural group to which they belong. I adopted the criterions established by our National Institute of Demographic Studies and subdivided my population into seven groups, which corresponds to the seven groups of the official census, according to which the lowest in the sociocultural scale is the group of agricultural workers, and the highest, the group of intellectual and liberal professions.

The twins' relative inferiority in comparison to non-twins is practically constant, whatever social environment is to be considered. If we compare the two extremes, we find out that in the "farmers" group, twins have an IQ of 87 and non-twins of 93, whereas in the privileged group, twins have an IQ of 112 and non-twins of 120. The proportion between the IQ of twins and that of non-twins reaches approximately 93/100, whatever group is to be considered.

For some reasons that I will develop later on, I made the hypothesis that twins' inferiority in intellectual development is mostly caused by a backwardness in linguistic development in the course of infancy. This hypothesis was tested by my former collaborator Irène Lézine, who submitted 28 twin couples (from 1 to 4 years old) to baby-tests. The global result comes to an average of 88. But the establishing of partial quotients, that is to say, connected with the different development sectors, shows us that the development is perfectly normal in what concerns locomotion and equilibrium (100) as well as the motive coordination in manipulation tests (100), whereas the quotient for linguistic capacities reaches only 75. We notice, in addition to this, that for social relationships and games the backwardness is even deeper (65). We will later return to this matter.

These works are about 20 years old. The numerous authors who have studied the same problem in the same conditions, generally reached results of the same order. I will not comment on them. I will only say, to render homage to one of the pioneers in this field, that the author Ella Day was one of the first, in 1932, to point out twins' inferiority in linguistic tests, and that she already assumed that their linguistic inferiority is strongly more pronounced than their inferiority in global intelligence tests.

I will now add a few words about more analytic studies on the matter of intelligence and language. Let me pinpoint Peter Mittler's very recent works, since he is among us today and should submit his own report this very afternoon.

From Koch's very rich study achieved in 1966 in Chicago, I will only recall what interests us directly here. Koch used, for the study of 96 twin couples (age 5 and 6), Thurstone's Primary Abilities Test (P.M.A.), which permits to evaluate separately several aptitudes or intellectual factors: except for the P (perceptual) factor, the twins' scores are inferior to non-twins' scores. This inferiority is most pronounced in the V (verbal) factor, and MZ twins are the ones who, compared to other twins (MZ of same sex, DZ of different sex), show the lowest scores.

Peter Mittler's report will show us that the analysis can still be more thoroughly studied. As a matter of fact, in Mittler's works the analysis takes place in the very core of language. The multiplicity of linguistic processes is carefully analysed. We can then understand much better the how and why of a linguistic backwardness in twins.

## 2. Characteristics of A Socio-Affective Nature

If, on and after Galton's programme, we have had to wait over half a century before beginning to find out that twins are certainly not exactly similar to non-twins in what concerns their intellectual development, admitting their affective particularities took even longer. And even today these particularities are far from being commonly known or admitted. The reason may be that the general interest for problems of personality appeared later and that the technique for evaluation of the variables or of the personality structure are less rigorous, or of a more difficult application than the intelligence measuring techniques.

As a matter of fact, in what concerns gemellology, the personality problems have been pointed out at first in *the psychology of the twin couple*, but its authors did not examine the consequential effects of this couple psychology on the particular psychology of twins in so far as individuals. The study of the twin couple starts in the thirties, with a whole pleiad of German authors among which, in the first place, Helmut von Bracken. He is the one who, in his 1936 fundamental articles, analyses with the most energy and sharpness the structure of the twin couple and the forming of complementary roles inside the couple. In the forties, Italian authors, Vacca, Gioffi, Gedda take over. In 1948, Gedda publishes his article on the "*Psicologia della società intrageminale*".

In the same period, but in another prospect, the British psychoanalyst D. Burlingham approaches the problem of the twin couple. She describes the couple as a miniature gang (1949), then examines the consequences that the behavior of the environment, that the twin phantasms of the mother, may have had on the psychological development of the twins.

In the fifties, I strived to study and describe the socio-affective characteristics of twins. As a matter of fact, this research was of minor importance in my whole project which aimed to analyse the structure of the twin couple and the "couple-effects" on the psychologic differentiation of the partners.

For this research I used an introversion-extraversion test, a questionnaire on timidity, and I held an inquiry on the nuptiality rate of twins old enough to get married.

G. Semper's *introversion-extraversion test* has been applied on 27 couples of MZ adolescent and adult twins. In the standardization established with a non-twin population of similar sociocultural level, our group of 54 twins is in the 7th decile. A deeper analysis shows that the high introversion score can more or less exclusively be explained by about ten items (on a total of 50) concerning directly sociability.

To the questions:

“Are you mistrustful in what concerns the selection of your acquaintances?”

“Are you silent in society?”

“Do you like solitude?”

a massive majority of our twins (45/54) answers: YES.

The same majority answers NO to the following four questions:

“Do you enjoy meetings for the pleasure of being in society?”

“Do you like expressing yourself in public?”

“Can you express your feelings easily?”

“Do you easily take other people into your confidence?”.

*My questionnaire concerning timidity* (defined by opposition to the easiness and readiness of relationships with others) has been applied on 1540 twins. For children under 14 the questionnaire was filled in by the parents. For those over 14 we collected independently the parents' evidence as well as that of the person concerned. The information about identity permitted us to make the distinction between MZ and DZ twins. We put aside the couples whose diagnosis was uncertain.

Here are the main results that came out of this inquiry: For all ages and both sexes, the evidence of “timidity” is given for 50% of MZ twins and 38% of DZ twins.

As for adolescent twins (14 and over), timidity is declared by their parents in 57% of the cases and in 60% when the answer is given by the persons concerned, when those are MZ twins. The figures fall respectively to 44% and 46% for DZ twins. The concordance between parents and children for this questionnaire is very high: close to 90%.

If we now take into consideration not the individuals but the couples, we find out that the proportion of couples where both partners are declared “timid” is 48% for the whole of the MZ population and 16% for the whole of the DZ population. The figures are slightly higher but of similar tendency for adolescent twins.

Let us point out that for twins of opposite sex the figures are always intermediate between those of MZ and those of same-sexed DZ twins.

*The inquiry on the nuptiality rate* has been held at another period of my research. I decided to hold it when observing the often dramatic conflicts in my adult twins, and mostly in MZ twins, when one of the partners thought of getting married, thus breaking the twin unity. I held this inquiry in 1952. I took note, at the registry-office of a Paris ward, of all twin births registered in a period of 20 years, from 1883 to 1902: a total of 283 couples. In order to make a comparison I picked at random 500 names of single births (250 girls and 250 boys) of the same period. The wedding dates are generally written on the *birth-place* registers.

The nuptiality rate calculated according to the registry-office registers is 26% for twins and 41% for non-twins. The difference is highly significant. Nevertheless, the small value of the nuptiality rate could make us doubt of the registers' validity. It could well be that the marriage endorsement had often been forgotten as well as the death endorsement, whose omission would have been even more problematic in the case twin mortality had been particularly high.

I then decided to trace the twins and the non-twins whom I had used for the comparison. Out of the 90 traced, 59 twins, were married (65%), and out of 182 non-twins, 142 were married (78%).

Taking into consideration the twin categories according to their sex (the zygosity diagnosis being unknown), we obtain the following figures for the *celibacy rate*:

male twins of opposite sexed couples: 15%

male twins of same-sexed couples: 25%

female twins of opposite-sexed couples: 46%

female twins of same-sexed couples: 47%.

The celibacy rate in our non-twin population is 16% for men and 26% for women.

This very high difference between the celibacy rate of female twins and that of male twins which, to tell the truth, had been calculated on small effectives, had not appeared in our elaboration made on

the grounds of the registry-office's register. However that may be, and even if we admit a margin of error proper to each elaboration, the figures seem to confirm the hypothesis that I held when observing so often in adult twins their hostility or at least their indifference to marriage, and the despair of some of them when their partner decided to get married. We must go beyond and study the sexual life of twins, their achievements in this field and their phantasms, or more simply, more superficially but in order to have an evidence of their difficulties, draw up the statistics of divorce among twins who have been married.

Long after my research, I discovered a text by Galton at the exhibition of documents organized in the frame of the Second International Congress of Human Genetics held in Rome in 1961: "Twins do not marry so frequently as other people", and he added: "I think they are less fertile". Nothing has ever proved that twins are less fertile, nor that there could be some relation between fertility and nuptiality.

Having been the confidant of over 100 twins during many years, I know not only that their problems about marriage are of psychological nature, which is quite obvious, but also and above all that they are revealers of the twin condition. I must say that I changed all my research prospects when I unexpectedly had to face this problem of marriage in twins. At that time, I was Gesell's disciple and was very busy with twins' childhood, with the evolution of their intellectual capacities, with the classical questions of the relations between heredity and environment, maturation and learning.

The confessions of a few adult twins introduced me into the very core of a new problem: the problem of the twin situation, of the conflict between the attachment to the other twin and the self-affirmation, between the resemblance that has been accepted and suffered during all childhood and the more or less sudden need for differentiation, personal autonomy, independence.

Nevertheless, I recently came back to the study of early infancy, without taking any particular interest in twins but mobilizing them one more time in order to set up an experiment-device. The problem to solve is the forming of the body image. We all know that psychoanalysts have, on this problem as on many others, very fixed opinions. From these opinions, Dorothy Burlingham affirmed that the forming of this image was delayed in twins: a hypothesis which we can admit without necessarily adhering to Freud's meta-psychology.

Objectively, observing children's reactions to their mirror image, I tried to find out by which stages and which way the image of one's body (or, if you prefer, the self-image) was formed.

I picked twins for this inquiry because they offered the only possible device for the exactness of the following experiment.

The partners are placed in front of one another, separated by a window-pane. A mirror is then substituted to the pane. At one year of age, any child still reacts to his own image as though he saw his partner. One day will come when the reaction is different. In order to permit a thorough analysis, the children's reactions have been filmed through the window-pane and then through the mirror (which actually was a one-way window).

With MZ twins, physically undistinguishable and dressed the same way, the mirror image is identical to the perception of the other. The only difference is in the movement: the mirror image has the particularity to be bound up to the individual's gestures, and he will realize it by himself at a certain age. Thus, for a MZ twin the question is: how will he be able to make the difference between his specular double and his twin double? I assumed that the forming of this double takes place according to the same processes for twins as for non-twins.

The discovery of the processes and stages interested me in the first place: I could prove that two other stages follow the illusion period (during which the child reacts to his own image as though he saw another child): in the first stage, he reacts differently to his own image (fascination, shunning, perplexity) but obviously does not recognize himself yet; in the second stage his verbal (identification by the first name) or physical reaction (he points at a blot on his face) proves that he recognizes himself.

I then compared the reactions of MZ twins to those of DZ twins who had also been used for our experiment.

My collaborator Anne-Marie Fontaine and I, are now working on the final elaboration of our cinematographical registrations. It is very probable that the exploration of the mirror image (hand play and mouth play, thrummings on the surface of the mirror) is not exactly the same for MZ twins and for DZ twins. It is however a positive fact that, in this construction of self-image, MZ twins show an average backwardness of two to three months as compared to DZ twins.

#### THE DETERMINANTS OF TWIN SPECIFICITIES - THE NOTION OF TWIN SITUATION

We just had a quick glance at a few twin "specificities" on a psychological point of view, which are all more or less negative characters. How to explain these specificities and are they related to each other? The explanation that I have been proposing for a long time is quite clear: most specificities are mostly "couple-effects", they result from the twin situation. Beyond these specificities, the twin situation, according to me and to many authors, has a very important positive effect: to differentiate progressively the partners from one another. The forming of behaviors and complementary roles would then necessarily define itself inside the couple.

Thus, the twin situation would generate both resemblances (specificities) which would owe nothing to heredity, and dissimilarities (e.g., complementary roles) for which the sociocultural environment is not responsible.

This way of seeing things has raised and still raises strongly diverging opinions, either because it takes into consideration the classical Heredity-Environment scheme and the not less classical twin method, or because it seems a speculative opinion, or at least a hypothesis which does not submit to a strict mathematical formalization.

In his famous work, *Twins*, Newman declared, for instance: "How far the postnatal environment of identical twins may differ and how far it may affect them is, at present, a speculative question". He added that, if the factors of prenatal environment could produce some differences, "the intimate association of both twins after birth produces similarity". This affirmation, because it corresponded to the author's postulates, was not given as a speculation but as an evidence!

Newman's "at present" was formulated in 1937. In the course of 40 years, the repetition of converging acknowledgements becomes a universal fact: it is known that identical twins are not psychologically identical, it is known that in many fields twins are not exactly similar to non-twins. But we refuse or still hesitate to invoke a cause that would be purely of the twin condition. We fall back upon their immaturity and weight insufficiency at their birth, we sometimes mention the parents' and the environment's attitude: it is only their biology or the conditions of the environment that are invoked. Today, Newman's "at present" is a matter of knowing whether the twin specificities can be owed to the couple's life, which still is commonly considered speculative.

In his very complete report, *The study of twins* (1971), Mittler writes: "We must conclude, therefore, that no compelling explanation has yet been advanced to account for the intellectual and linguistic inferiority shown by twins. Most writers fall back lamely on the concept of "the twin situation" (Zazzo, 1960) ... " (p. 38).

Mittler's skepticism is even more remarkable when revealing, in the preliminary note of his book, that he has been initially influenced by A.R. Luria's works, and by my own works: that is to say, by two authors for whom this concept of twin situation is of very first importance.

It is probable that Mittler preferred to follow safer, wiser, directions. It is not profitable to be too prudent or too daring. Science is a premeditated risk.

Let us point out the certain and credible facts.

We can invoke several determinants in order to render an account of the twin specificities.

1. Determinants of *biological* nature. The risks concerning weight insufficiency at birth and an eventual immaturity. J.M. Tanner held very cautiously the hypothesis that weight insufficiency in MZ twins would be caused by an insufficiency in cytoplasm of the two eggs issued from the original cell.
2. Determinants of *educative* nature. The parents and the environment may have towards the twins

a particular attitude determined by the children's initial fragility, by the difficulty of distinguishing one from the other, and, why not, by twin phantasms.

3. The intracouple relationship, or better, the *twin situation*. One result, among others, of this situation, is to isolate twins from the environment.

My conviction can be summarized into two clauses:

(a) Those three groups of determinants can have a simultaneous role.

(b) They interfere at different stages for the different specificities which have been displayed. The factors of biological nature certainly do interfere to a maximum, though not exclusively, in the intellectual development of the twins. The effects of the twin situation are at their maximum for everything that concerns their sociability.

My conviction is not gratuitous: it certainly is not expressed in formulas like those that are being used since half a century for the calculation of the relative parts of heredity and environment. But it finds upon a systematical observation and descriptive statistics. The exactness of a piece of reasoning does not necessarily depend on its formalization.

For intelligence, I took into consideration both the role of the biological determinants and the role of the twin situation. The role of the biological determinants is unquestionable, at a group scale. There is a significant correlation between the twins' intelligence measured at school-age and their birth weight, which comes to say that abnormally low birth weights (which are numerous in the twin population), are *partly* responsible for the average intelligence insufficiency of the MZ twin population.

But the twin situation also has a role. First, one indication, of relatively minor importance: *at equal birth weight*, the intellectual inferiority of DZ twins is remarkably less pronounced than that of MZ twins, where the twin isolation is much deeper. A second indication: the responsibility of the twin language, of *cryptophasia*, in the restraining of the intellectual development. Ella Day's works, as well as those by A.R. Luria, I. Lézine, and our own analyses, can leave no doubt about this. Cryptophasia is the direct expression of an isolation situation. The couple is self-sufficient. Each twin is like a mirror to the other in the communication with the outer world, and even more when twins are identical.

I figured out, on a total of 285 MZ twin couples, 64% of clear backwardness in the language (first sentences after 30 months), in which 48% of evident cryptophasia. On a total of 176 DZ twin couples, there is 43% of backwardness, in which 27% of cryptophasia. The studies by M. Nice, D. MacCarthy, Ella Day, Edith Davis, show the restraining of language development in twins (of whatever sociocultural environment) in the grammatical structure and richness of vocabulary as well as in the functional value: matters of emotional tonality subsist much longer in twins than in single children, and this to the prejudice of more socialized and more intellectualized language forms. At the age of 5, the backwardness would be of about 2 years. This predominance, in twins, of matters with an emotional tonality, has been studied by A. Luria even more thoroughly under the expression of synpraxic language. *Synpraxic* means related to activity, to the situation, on the contrary of language, which regulates action and tends to real communication.

When so many authors come to such perfectly converging results with different methods, we cannot possibly challenge the following conclusion: the tendency to cryptophasia results into a backwardness in common language, which itself restrains the global intellectual development. And how shall we explain the tendency to a language in two if not by this situation in two? Anyone who has observed some twins finds this second conclusion unquestionable. Here, the speculation would be to give primary importance to factors of biological nature.

Cryptophasia and the particularities of common language partly *explain*, and probably in greater part, the restraining of the intellectual development in most twins. But, on the other hand, they *illustrate* what the effects of the twin situation may be like on the social and affective level.

The isolation in two, the couple's self-sufficiency, the difficulty in discerning one from the other and after-effects of this difficulty even during adulthood, result in a certain difficulty (at least in one of the

partners — the dominated twin) in having contacts with others. These attitudes have been observed, described, their frequency has been calculated on hundreds of couples.

What should now be studied, for a more thorough analysis of twins, are the mechanisms of attachment of first infancy, which have been so well described in animal and human infancy by ethologists and psychologists like Bowlby.

Actually, the notion of twin situation should be defined at several levels. First of all, at a *biological level*, i.e., in the course of intrauterine life. The prenatal characteristics (premature birth, weight insufficiency, etc...) and the risks which derive from it are the consequences of a shared and competitive life. They can be the beginning of future characteristics and also, through the initial little differences that they determine, the cause or the pretext for the differentiation between the two partners. Then, at a *psychological level*. Here, we should make at least one more distinction. The twin situation obviously is the system of relationships between the twins. It also is the reaction of the others, and first of all of the parents, to this couple of often undiscernible children. The couple arouses behaviors of the environment which reverberate then on the couple's psychology. We referred to this when we talked about determinants of the twin specificities. Let us take the example of the twin confusions. MZ twins are restrained in their self-identification (knowledge of their name, appropriation of the mirror image, etc...) because living for a long time as an echo of the other. This mutual confusion is strengthened by the environment itself. Mark Twin's story is no joke. In 10% of the MZ cases that I examined, the parents told me that they did not know anymore the name given to each child at his birth: either they lately decided to use distinctive marks, such as bracelets, or, the bracelets having been lost, the attribution of names had been done again at random.

Anyhow, the confusions can subsist, with or without bracelet!

Here is, among many others, the confession of a victim of these confusions: "People called me by my name, others by my sister's name, at the end I just did not know anymore... My parents told me that we doubted of our name and of our identity. I remember that one day I was despaired and I cried: I don't know anymore if I am Annie or Genéviève! I was about 5 years old at that time."

If the direct observation or the confession of twins themselves are not enough to persuade of the existence of a twin situation which generates multiple effects, I will give the results of a recent research which we owe to Gordon Claridge and to his collaborators.

With several personality tests, the author compared MZ twins living together to MZ twins living apart. Now, in Cattell's 16 PF test, the correlation index for introversion is almost void (0.10) for twins living together, but it reaches 0.85 for twins living apart.

Thus, twins living in different environments are more alike than twins living in the same environment. This is a paradoxical result in the classical perspective. What does it mean? Probably that genetic factors are remarkably important for the introversion character. *It also means that the effects of heredity are reduced to almost nothing when twins live together.*

This couple effect is probably a differentiation effect of the partners and not a twin specificity. But how could we maintain, after such a demonstration, that the notion of twin situation is purely speculative?

#### A NEW ASPECT OF TWINS FOR SCIENCE

Twin particularities (whatever determinism may be invoked), for a long time denied or misunderstood, have been used in order to question or decline the twin method, at least in what concerns psychology. The complete denial of all twin psychological studies proceeds more often from an ideology (the anti-heredological 'a priori') than from a serious scientific criticism. It still remains a fact that the postulates of the classical twin method have to be denounced, that our explanatory diagrams have to be reviewed. This is what we have been doing lately.

Twin particularities should be known for themselves, studied more thoroughly in order to put science in attendance on twins. But if we are not careful and fall into that contemporary taste for exotism

which consists in partitioning human groups according to their differences, we also find the risk of a rupture between twins and ourselves, to put them aside.

Twin particularities are actually the particular grade of characters that belong to general psychology and whose determinism is equally general. In fact, the twin situation can be considered an extreme point of the couple situation. The study of couple effects then finds in the example of identical twins an *extreme situation*, an ideal device for observation and experiment.

My contribution to gemellology can be summed up in few words: I began to study their particularities and then involved twins in a new scientific adventure. Science for Twins leads us back to a new mobilization of *Twins for Science*.

With Galton, they served as witnesses to the relative powers of Environment and Heredity. With Gesell and his cotwin control, they talked about Maturation and Learning. The question is to know, with what I call the "twin-couple method", how the couple's life, the relationship with others, determine psychical facts which heredity and general environment cannot explain.

In traditional methods, like Galton's and Gesell's the twin partners were treated like *a double*, one same individual in two copies, but never as *a couple*. The philosophy of these methods was that of the whole psychology of that time, a "one-body psychology".

In the thirties, a few philosophers and childhood psychologists (from J. M. Baldwin to H. Wallon) gradually began to affirm the idea according to which *ourselves* is previous to the *self*, that the conscience of the self and the conscience of others form jointly and severally. At last, in the course of these last 20 years, the analysis of the primary attachment mechanisms gave a new experimental basis to what, up to now, had only been a clinical observation or a plain result of reflection.

However, if the study of attachment in infancy can make us understand the general mechanisms, it cannot really inform us about the role of each partner, mother and child, in the forming or transforming of the other twin's personality.

The couple of identical twins is the only one in which there is no basic difference. Same age, same sex, same heredity, same environment. Then, in everything that is going to appear — the diversity of roles, the contrasted self-conscience and conscience of the other one, the affirmation of distinct personalities, but also the twin particularities — it will be finally possible to analyse the pure effects of the couple's life.

The twin-couple method is at its very first beginning. I studied the restraining and differentiation effects, through the comparison between MZ twins, DZ twins and single children. I searched for a continuity between the twin «particularities» and the single children's characteristics. For the intellectual development, I figured out that non-twin brothers with a *low age-interval* generally show a certain backwardness quite close to that of the twins. They tend to form a tight couple, to act like twins. Twins then appear as an extreme limit: no age difference.

Later, I undertook the study of the couple effects in bisexed twins. It came out that for them, the psychosexual characteristics tend to be inversed. The probable reason is that in early childhood, the girl established her dominance by a more developed social maturity and tends to maintain this dominance. The study of the relationship determinants in the differential sex psychology should be held in this frame.

The twin couple method could reach a new stage by the comparison of MZ twins raised together and of MZ twins raised apart. I already quoted the result obtained by Gordon Claridge for introversion. There are other results of the same nature: e. g., for sociability, as measured by Eysenck's questionnaire, the correlation index is 0.90 for separated twins and only 0.50 for twins living together. On the other hand, separation makes the correlation smaller when it concerns the intellectual development: 0.90 for MZ twins raised together and 0.70 for separated twins. According to the character that is considered, the couple situation has *no tangible effect* on the psychical resemblance of MZ twins, or it *emphasizes* the psychical resemblance in MZ twins, or, for what concerns social and affective life, it tends to *reduce* it, to abolish it. A systematic study could permit to establish a list of the differentiating effects of the twin situation.

The last stage would consist in inserting the consideration of couple effects into a general twin method,

that is to say, a method which would take into account the genetic factors, the environmental factors, and the twin-situation factors.

Peter Mittler, in the last pages of *Study of Twins*, notes that all the more or less anecdotic facts reported about the twin situation remain out of the classical elaboration frames, and he concludes: "More information on the individuality and mutual relationship of the twin pair might well lead to a modification of design in twin studies of the future." (p. 159).

I don't think we can expect more information. What lacks is not information but a design that integrates all factors. We should get rid of the 'two factors' theory (heredity and environment). We should work on a new formalization which would correspond to a new way of thinking and setting problems in psychology.