

# Sleep Revisited



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Although on many occasions in these Newsletters, reference was made to sleep and its study over the last 50 years, it has never been the case that a whole issue was devoted to it. This double-issue will be barely sufficient to give that subject its due, but it will give an opportunity to consider important matters which serious students of that challenge may appreciate.

The challenge is not easy and very few investigators have actually made headway in its study. A prolonged involvement over almost 40 years led constantly to impasses each of which taught mainly one lesson: “Do not pursue that line of work.” So, all those years served mainly to outline the areas to avoid — in spite of their intrinsic interest for researchers — if one wanted to improve one’s grasp of the challenge of sleep.

It was a great day when the reasons for such a long succession of failures became clear and when so much that was hanging up in the air came down and took its place in the new understanding of sleep retold in this Newsletter. Since that day, uses of the findings became possible; some are included here.

News items close this double issue.



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# 1 What Makes The Study Of Sleep Difficult?

Having spent 39 years in the study of sleep before I found a satisfactory answer, I am paid to know what made that study so difficult. Of course, some other investigators may have other views, but the literature does not prove that anyone has found the study of sleep easy.

From outside — as is preferred by Western Science — we can only say that people sleep or are not awake. From inside, we are asleep and totally taken by it, uninterested in knowing what it is.

When Rapid Eye Movements (REM) was discovered not so long ago (perhaps 20 years ago), it was hailed as a breakthrough, but the returns have been disappointing.

When the EEG (the electroencephalograph) was used, more than half a century ago, all it revealed was that tracings of brainwaves produced by a person asleep contained frequencies which differed from those by the same person awake and were only found in that state, except in pathological cases. No one deduced from miles of tracings any proper understanding of sleep, except that we could know, in another way, if people were asleep or not. Not much indeed!

Concentration on the states of the brain may well lead to valuable concomitant data, but it seems that in order to understand something all people do so easily we cannot reasonably make use of something

like the brain which is so complex, and so complicated that progress in its study is slow and far from edifying; still less, applicable to the deeper understanding of sleep.

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Using introspection is also useless for it can only be used when we are awake and sleep escapes its grip altogether. The illusion that I can study sleep while awake and not from the outside stayed with me for a number of years.

The persistence of such an illusion came from the natural belief that to “study” means making use of mental instruments developed by the waking state for the waking state. In this case, as soon as I wanted to do my “study” of sleep on myself, I fell asleep and lost all the means I had given myself as a preparation. My strong desire to understand sleep in its reality did not serve me well and every time I tried, I was disappointed.

I had appointed myself on the road to this understanding of sleep, expecting success at some state. So, my research dis-appointed me. I remained empty-handed every time I applied this approach.

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When I had a good night of sleep and rose refreshed, I could only say that I had slept or slept well. Whether it was direct knowledge of it or an inference, I had no means to know and did not try to know.

But when I woke up with a dream, or when a dream woke me up, I concluded that in my sleep I dreamed; that dreams are one of the characteristics of sleep. When I had nightmares I was less clear about them but I could also say that their happening is associated with sleep.

When I was awoken by my snores or noted those of others, I could also say that in sleep breathing takes another turn, is less controlled than in the waking state and gains attributes which baffle all of us, to the point

of making us feel ashamed as if we were responsible for these unacceptable noises.

When I woke up a few times in the night (for toilet reasons) I could notice that different climates within, accompanied the passage of time in my sleep, but I could not make consistent observations of these climates and state to myself that in the beginning of my sleep such or such a thing affected me while later there were other pressures.

When, on waking up in the morning, someone asked me whether I had heard such or such terrific noises, like a storm or emergency vehicles passing by or a noisy quarrel and I answered negatively, I would conclude that when I fell asleep I cut off all sensory connections with the outside world.

This is not always the case, for, in circumstances like watching over a baby asleep or a patient in need, falling asleep is connected with the demands of the situation and although we may not hear very loud noises not connected with our duty, we are awakened by the slightest sound produced by our charge. This lets us say that our withdrawal from the environment is selective and that we can link sleep and wakefulness in subtle ways not all determined a priori.

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The popular wisdom has always noted that “sleeping on it” may change impacts of the previous day and replace a certain reaction to some happening by another one, rather more adequate to the situation we find ourselves in and we feel happier about it, because of the change which resulted. This tells us that there must be some relations between what we do during sleep and what happened to us the day before, in our state of wakefulness. Though we may not know how all this happens, we still feel sure that the content of our sleep is not without relation to what we do when we are awake.

When we say that we sleep when we are tired and that sleep provides the rest, we may say something true, empirically verified a large

number of times in one individual's life. But this makes it hard to understand that newborn babies spend so many hours asleep and that that goes on for months; or that people who do little physical work, like secretaries, may need as many hours of sleep as mine workers or truck drivers.

How many among us resent the huge number of hours our sleep uses up and tried to reduce that time in favor of that of wakefulness? Not always successfully! But stating categorically that we have:

- 1 very little clue of what sleep is or is for, and
- 2 that we dialogue in certain ways when we are awake and convince ourselves that these are the right ways.

A hundred years or so ago, it was customary to consider an increase of lactic acid in our body as the outcome of our physical work. Sleep reduced the amount of lactic acid and biologists used to say that that was one of the functions of our falling into sleep when tired. Lactic acid was a probe for the passage from one state to the other. But even biologists knew that other things happened in sleep.

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When, also around a hundred years ago, psychopathology came to be considered a respectable occupation, not only some contents of sleep became worthy of study, like dreams and their messages, but also induced sleep or hypnosis gained in status.

So now, there was need to become acquainted with these areas which became fields of research in their own right and while learning that which was being found by many researchers, to continue to ask the question: "Why do we sleep?"

The years spent in these studies, did not help. They were rather distractions, but at that time, I did not know it. I was fascinated by all that which was being revealed in the most valuable investigations, and I was learning by proxy. But my question was not being dissolved. At

the end of each period of study, I asked myself if I was closer to making myself able to tackle *my* challenge and the answer was a clear: No!

Hypnosis was a greater distraction than dreams, because it brought in an alien factor, the insertion of a foreign will into our own and the work it did in us in our waking state.

The stratification of our mental material into unconscious, subconscious, preconscious and conscious was helpful for a number of purposes and has been used extensively for some time now. It has been adopted widely even by conflicting theories. This means that most thinkers agree that to sleep is to retreat into one's unconscious, but also that to be conscious means to be awake.

At the time I did not know that I had joined that cohort of people who held that belief. Like them, I believed that there was no other path to consider. Indeed, from the start, that was my mistake, since I wanted to understand sleep while being awake. A mistake which lasted for many years and could only be noticed whenever I managed to let the challenge guide me rather than some a priori conception.

Hence, one of the difficulties for such a study is that we adhere to our beliefs and don't know how to stop them from dominating our thinking. But I was a lucky one, and one day I found myself putting my beliefs, my assumptions, my hypotheses through a severe test and they collapsed and left me. This will be the substance of the next article preparing for the following two, expounding a theory I know today to be based on fact, therefore of use to all.



## 2 Unsatisfactory Answers

Already in article #1, we saw that the elimination of the excess lactic acid in our soma as the reason for our sleep, was unsatisfactory because it left untouched so much of what was already known about the content of our sleep: dreams and nightmares, for example. It could not, either, be applied to newborn babies' sleep.

That sleep is for dreaming is also unsatisfactory. First, because most of us have had long periods of sleep in which we cannot recollect any dream to have occurred during the said nights. Very often, in siestas — which must be counted as part of our periods of sleep — we fall asleep and wake up, a few minutes later, knowing that we had slept but knowing nothing of the content of our sleep. We cannot even say that dreaming is exclusively linked to sleep since we have occasions of “daydreaming,” i.e. we call an activity of the waking state by something we know to belong to sleep.

In about 100 years of research on dreams, we have collectively learned a great deal about dreams themselves and made a number of discoveries about some of the dynamics of the mind in sleep. We could not deny that not all dreams were concerned with facts, that some were and perhaps some were not. The notion of symbolism imposed itself and dream interpreters multiplied. For about 20 years, I collected my dreams and those of people around me and became good enough at untangling some of them that I could add my own explanations to those I had learned in reading Freud, Jung, Adler and others.

It was fun but unsatisfactory; the three main theories of the then dominating depth psychologies — of the libido, the collective unconscious or the inferiority complex — were fun and exciting but left too much untouched. None of them or all of them together, did not do the job for my own dreams though they helped to handle the stories people told me as being faithful renderings of the contents of their dreams. For me there were many dreams which had no meaning because they were in a way unspectacular. They required my attention, and in 1942, I gave a talk, lasting more than an hour on, “The meaningless dreams of every night.”

I recall this mainly because it was a quarter of a century later that I could identify such a preoccupation with my need to understand sleep as a whole. In my own sleep there were dreams and I could not say that sleep was not for dreaming; but the rest of sleep — which was neglected by the great psychologies of the day — may have more to contribute to the understanding of the mind and its dynamics than the events which left a large impact on us. “How?” was still beyond me.

I noticed, of course, that I was awake when I made my interpretations and once or twice asked myself if I could have done a similar job in the state of sleep.

\* \* \*

What alerted me about the uselessness of the REM groups of researches for my understanding of my sleep (and therefore, for that of others) was that investigators needed to wake their patients up and ask them to tell them about the contents of those moments which generated REM. It was clearly not a better approach than my own hit or miss one since researchers resorted to it and were scientific only in appearance, in that complex recording machines were used in those studies.

When in the ‘50s and early ‘60s the hallucinatory drugs were taken to the psychiatric labs and imagery became the object of attention, it became possible to connect with a component of the mind which could be active both in sleep and wakefulness. People started talking of two

(or more) states of consciousness. (A novelty in the West but ancient stuff in Indian philosophy and psychology.) Sleep was related to the irrational world of space and time, while wakefulness related to the logical, real, “out-there” world of existence. The crazy people chose the world of drugs, the “straight” people avoided them. Both equally impressed by the chemistry of life.

Penfield’s prolonged study of the responses of the brain to needle-shaped probes was revealing that our memory was located in brain cells and de-energized before the added electricity taken by the needles to a certain spot, returned it to a state of vividness, indistinguishable from actual wakeful living, when energy from the outside is received and held by the patient.

Penfield and his numerous collaborators over the years, were studying the brain and encountering the mind. Perhaps they would have preferred to account for the primitive manifestations of humans in terms of physical entities alone, but experiments and experience did not oblige: there was always an interference from the areas of being which did not belong strictly to anatomy.

Sherrington (one of Penfield’s teachers) already in 1927, was telling his disciples: “Don’t look for the energy of the mind in that of the brain, it is not there.” But they went on doing it. Penfield in 1981, at the end of his life, echoed that though reluctantly and perhaps with a tone of regret. Neurophysiologists do not like to feel lost in their own field and the presence of the mind in the live substance of the brain is a nuisance. Physiology, i.e. physico-chemical processes, does not seem sufficient to understand by itself the ways the mind teaches the brain. But biologists cannot abandon that track. They hold that the mind is an excretion of the brain and that the brain is pure matter. Perhaps they are wrong on both counts.

For the Penfield brand of biologists dreams are electromagnetic and chemical phenomena and they can only say sleep is a physiological state of the brain which is not yet quite understood. This makes their theory unsatisfactory by construction.

For other kinds of biologists, sleep is a universal phenomenon, shared by animals and even by plants, and only needs to be acknowledged to exist as one of the ways of working of Nature. There are so many mysteries in Nature which we have no hope of ever reducing to some known one, that sleep is not particularly disturbing.

\* \* \*

It has been my repeated experience that it seemed odd to people that I wanted to understand sleep when there does not seem to be anything to understand: a most ordinary everyday occurrence through which almost all of us must go.

Insomniacs rage at not being normal in that respect and their physicians rarely can explain to them why; though they can prescribe some remedy which sometimes works.

\* \* \*

# 3 Understanding Sleep

This will be a lengthy study. But may be rewarding.

## 1 *Waking State Preferred*

When I realized that I had a bias towards the waking state, I asked myself why.

In that state I acted, I saw results and I could come into contact with my will and all its engenders. Other people became real then, and I had to adjust to their reality. I was an energy system related to other energy systems.

My days were full of activities, numerous and varied, with immediate, feedbacks which indicated that I was alive, engaged, involved. I could get impacts from others which told me that I was dependent, able to do that much and not more; that, when others agreed, together we could do much more than me by myself.

I needed to be awake to eat. Also, to learn all those useful skills which clearly expanded my universe. It was in my waking state that I dwelled in my voluntary muscles, that I discovered that I could command selectively some of them to obtain specific results such as: turning round my belly, to my sides, or on my back. These concerned only me, but sitting, standing, walking, made me into a person more integrated

to the environment, this known to myself as well as to the others around.

It was in the waking state that I surveyed the world of sound produced through modulating the column of air going through my larynx and meeting my tongue, my cheeks, my palate and my lips. I had to be awake and present in the right places to make the proper observations which organized themselves first into my own speech and later into that of the environment, when everyone could tell that I spoke it fluently and satisfactorily.

Most of my games involved objects which certainly were not of my making. They were brought to me, sometimes excited me and engaged me and I concluded that I was part of the environment.

I know that I had the power of focusing and used it all the time; on my eyes so as to see better or smaller items; on my ears to hear more distinctly or fainter sounds; on my touch to feel textures and qualities; on my taste to distinguish some of the attributes of foods (and even, at a certain stage, as a way of knowing things which I automatically took to my mouth); on my smell which proved to be harder to know and to use as an instrument for knowing; on my movements so that they displayed my projects rather than made me dizzy and involved in falls.

My focusing was soon known to me as an attribute of mine and on which I could act, so long as I was awake.

In fact, it was my presence in the focusing which made me use my sense organs as means for knowing. Focusing and presence are two different things known to me as such. Sometimes, instead of separating them I merge them and I say that, "I pay attention." "I" represents the presence and "attention" the focusing. When I command: "Pay attention," I mean for the recipient of the order to do what I do in such states, precisely, to be present and to focus either on one's ears, eyes, hands, feet, etc. so as to enter into the activity with chances of succeeding in the exercise.

Focusing has one noticeable attribute and that is that the field of perception has been reduced deliberately. For example, when I read a page of a book, although I receive impacts from a large area of the page I am directly connected, every moment, with one single word which is enhanced by my focusing. Reading consists in shifting in a certain manner that ability and letting each focused item trigger its correspondent meaning. The shifting can be vertical (as in Chinese and Japanese) or horizontal from the right (in Semitic languages) or horizontal from the left (in most languages).

Actuality belongs to the waking state. Hence we are more easily connected to that state because in it things happen and we know that.

\* \* \*

We remember what happens to us during the waking state and our memory is made of the remnants of those experiences. We know that we need our eyes to be open to make the films of our life, to have areas of recognition, to link things past and present. Our cognition is almost entirely attributed to what we do in that state. All the information stored in us is functionally, organically, associated with our time of wakefulness. To reach us it must pass through our sense organs and these need to be activated by our presence felt as the sign of wakefulness.

If we remember nothing of the hours of sleep, all we actually remember is part of our life awake, even if there is a lot we may not remember at all. Looking at a picture of ourselves taken when we were young, or very young, we may point at details with precision and tell stories about those times triggered by this perception. We all know that our social life takes place in our hours of wakefulness even if we cannot do more about it than evoke it as it was and know at the same time that we miss much of the actual meanings of that time.

The contents of our lives seem to be only of the contents of our lives awake, at least so it seems when we are awake. We never refer to anything having taken place in sleep except when we have been awoken by it, when say we wet our bed at an advanced age when we are

supposed to have control of our sphincters. Our waken life is concerned with itself. We can reflect when we are awake; we can reach our own thinking process and improve it only when we are awake, re-examining each step and be struck by its correctness or faultiness.

All the experience I gained in my life was gained during my waking hours and I can refer to its unfolding mainly in terms of the presence of my energy in a multitude of activities leading from contact of the new, the unknown, to the mastery possible in each activity. It is the passion mobilized in us by challenges which characterizes the presence of wakefulness and ends up with our knowing that we own certain skills. Skills of perception and of action and of both in particular, and of course both perception and action presuppose the state of wakefulness. If experience matters, it matters to be awake and we all say so to ourselves becoming definitely biased in relation to our preference between sleep and wakefulness.

Having generated in our lives this value of experience, we become more inclined to identify as people who spend their hours acquiring it and the more the better. To increase the yield, we work on ourselves and try to make wakefulness still more conscious. To the point that we despise sleep and wished it was not needed.

## ***2 And Still I Slept Every Night***

This fact most of us accept calmly, though a few of us want to change it, as if it represented an insufferable servitude.

There are people whose social function, or personal choice, make the days, the periods of sleep and the nights that of wakefulness. Since this will not affect our argument we are going to consider mankind as of one kind: those who like me sleep at night.

My efforts at understanding sleep were all made in the state of wakefulness and it is in this state that I write this essay. Hence, all my moves to come closer to the reality of sleep belong to that state though in so doing I'll end up understanding better also this state. For now, I

can surround phenomena belonging to sleep with a certainty I could not reach when I did not focus on the obvious contained in the statement of the title.

However, the fact is obvious that I slept since I was born, I did not give it its place in my questioning which forms the instrument of study in this area. And it was an essential item which saved me from the vague contrast between a day of activity and a night of activity, which made me tumble every time I returned to the question, "Why sleep?"

To have to consider the recurrence of sleep as one whole and no longer each sleep as a reaction to the fatigues of the day, introduces a new climate, a new challenge which happens to be also a key to the problem.

While I can reflect on the continuity of my experience and find that I, indeed, return to a task to take it further and sometimes to complete it and occasionally to apply it to something new, and in so doing composed for myself a biography, telling how I changed my waking hours into experience, I could not reflect on the contribution of my sleep to that elaboration. I did not have the evidence nor the instruments to get into that.

But, when I came to look at my sleep as a unit which started with my birth (perhaps earlier, but it does not matter for this study), and went on night after night and I looked at my hours of wakefulness as interrupting that continuity, I knew I had found something new, which proved to be very useful to me, engaged in this study.

Indeed, while I could see each period of wakefulness as one in which I related to a world which was outside me and whatever happened in it was to a great extent random and caused by what was outside my control, I could return to a life which was closed to the outside world and entirely my own. One which continued the nine months of my confinement in my mother's womb.

Now, I could ask questions which referred to my integrity in an aggressive world instead of seeing my growth in experience as I presented it in the previous section.

For instance, why did I feel fatigued in the waking state? Why did I spontaneously so often take refuge in sleep? When did I feel that I was a person having specific attributes when I was drowned in a community of people mainly concerned with themselves? Where did I have occasion to form my personality? How is it that I can wake up refreshed? In the successive bombardments of the daily events which are shifting by themselves, lasting their own time, where do I find the means of sorting things out?

Many questions came which I considered to be helpful in the elaboration of a theory of sleep like the one I shall present presently. Some of them were crucial and enhanced the feeling that at last I was tackling sleep and making headway. For my readers seriously interested too, in making sense of human sleep and its role in life, the most important questions refer to the connection between the succession of sessions of sleep and the accumulation of their effects.

There will not be full understanding of sleep until we return to the moment of conception and the unfolding of our soma over the months in our mother's womb. For, observation of the newborn tells us that being awake is an exceptional state for at least three weeks after birth, hence our condition is one of sleep which we must comprehend in terms of what the individual does facing the environment rather than what the environment does to the individual.

An active self is an essential item to draw upon if we want to understand the consumption of the time of life by each of us at that stage.

Such an active self seems to be an intellectual construction produced ad hoc in order to get out of trouble and in the West most people avoid making it, preferring to allow outer entities to have the upper hand in all we can observe. Nature, DNA, heredity, environmental forces and

others, have all a place as explanations of our lives and are cultivated by the exact sciences.

Still, if we paid attention to our own speech we would find that, at the length of the days, we say, "I." It is a personal pronoun which can be lumped with the others but in fact it clamours that every one of us knows spontaneously and directly, that "I" represents an inner entity at work within and coming out through the language as the sound "I." It is a primitive entity which we accept as soon as we have managed to solve the problem connected with having to label it. This labeling seems so strange to every baby that "I" is the last personal pronoun to be used by babies. But, one day we find that since there is a word for it, its existence is more easily stressed and we never stop saying "I."

Although we could go along with the statement: "The existence of the self is a hypothesis and an assumption," we shall not concede this erroneous interpretation of reality and throw back at our interlocutor the following matters to sort out by him or herself.

Who has said, "I" in your case in all those years?

Do you recognize that when you use "I" in the morning and later in the day you refer to the same entity? or do you have evidence of a variety of "I(s);" the one who is late; the one who is hungry; the one who holds a pen; the one who swallows a sip or a morsel; the one who listens or looks; the one who thinks and interprets, and so on.

If your answer is that there is a single "I" but many manifestations of it, we could continue on this path together and say that before words existed the reality now represented was already at work. In my mother's womb, I was busy making myself out of her blood and the template of the DNA.

Said differently and better: "My self from the moment the gametes merged to produce the egg, has used the existing energy to pass on from being one cell to being an edifice of cells forming tissues and organs *and* to keep these aggregates of cells functioning."

Hence three entities are needed to account for the long labor in our mother's womb: a *self* which leads the processes, an objectified self or *soma* made of all those chemical entities studied by embryologists; a caretaker or *psyche*, left behind by the self to ensure that all the energy transactions in the soma contribute to the projects of the self.

Both the soma and the psyche grow during these months. The three entities are energy but the self does not need to be a variable amount like the other two since its function is to use pre-existing energies (found in the cosmos and in the modalities of molecules, most of them called organic by scientists) to place in the processes which objectify the soma and the psyche.

This model of embryonic development respects the one proposed by embryologists even if they refuse to go beyond telling what they observe.

During those months, the self remains at the helm, at the peak of the integrative process which operates by subordination of the already formed, to the newly objectified. This position at the helm is inalienable and continues through the whole of our lives. Once born we have to account for the impacts of a new environment. We have to study whether what has been done on the duality soma-psyche can be continued in the ways we relate to ourselves and what is not ourselves. We have to look for the link between a self living in the previous environment and a self in the new one.

The child just born has 9 months' experience of transforming energy and using some of it to make somatic structures and some of it to maintain them in good working condition. And a child just born must remain at the helm to cope with the aggressions of the environment.

This he does by creating the states which from outside we call sleep and wakefulness. A newborn baby seems to sleep most of the time and wakes up from time to time to take in energy from the sources offered by the environment, the mother's breast milk or that delivered in a bottle.

While he is supposedly asleep he uses all his resources to adjust to the demands of the environment which are new. He has to breathe by himself, he has to swallow and digest, to evacuate what he can't use. One way of using these resources is in delaying the myelinization of his sensory nerves except those of the taste and smell needed to recognize his food and his source of food.

Shutting out the sources of perception is done then, and will remain a power used all through life when falling asleep. The self knows how to open or close these channels not as switches do but by being present in them or withdrawing from them for which it has had 9 months of constant practice.

Taking in food and processing it through the digestive system is new. It must be learned without help, hence, the self's full absorption in it must not be distracted. Hence, the recourse to the postponement of myelinization till mastery of the vegetative adaptation to the existing environment is achieved.

As the process is carried out the self allows the movement towards becoming vulnerable to outer energies brought in by photons through the eyes; brought in by noises and sounds through the ears; through pressures and heat involving the skin and touch.

As the environment brings energy to one's system, new jobs make their appearance to which the self must attend to, partly by being awake in order to let the energies in, partly by being asleep to find the correct place for them, the correct articulation with the existing psychic structures to the point of being fully acquainted with them. It is during the period of sleep that the integration can take place. In the waking stage the inputs take place and are held somewhere in a storage place until the self switches off and gets engaged in the jobs of sorting out, of analyzing, of synthesizing, of discarding and so on. From then on what has become a process of coping with the new will never stop and night and day will have their part in one's growth with very specialized functions as we shall see below.

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What we think we achieved this far is to see sleep as a continuation of vital functions of the self in the period preceding birth, and to connect organically sleep and wakefulness by acknowledging their necessity in the process of living as an integrated individual within an environment which is variable, in some ways unpredictable, but must be coped with if life is to continue.

The next section will add some precision to the above.

### **3 *The Self And Its Two States Of Consciousness***

Already in the embryonic and fetal periods, the self had two essential functions: to produce the new structures and to see to it that they integrated the old ones by subordination. As this was taking place, duration after duration, and from the start, there was no discontinuity and most of us are born as integrated systems hierarchical in time and with the self in command. Through the nervous system the chain of command is established, and while the self consciously lives at its peak, it is to be found everywhere through the psyche and its vehicle, the integrated nervous system, descending from the hemispheres to the nervous endings found in every cell.

The self is the only entity needed to account for the structuration and its maintenance. The soma is one of the forms the self took during the 9 months of its transformation of free available cosmic energy into the organized structures which are now locked-up energy. The psyche is another of its forms, less locked-up because it is available in surplus to connect to structures, to keep them performing that for which they had been created, a residual floating energy forming one whole by its continuity as the blood does (but this one needing the structure of the blood vessels to be taken everywhere). The psyche is the guardian of the work done by the self; it is a creature of the self as are the structures, but only takes over the functions when these have been created by the self to get hold of the new structures which together with the psyche form *the integrated objectified self*. The self is thus left free to move ahead creating other structures which, after birth, are no longer necessarily somatic.

The self therefore is constantly capable of being involved *and* being detached and this rhythm is established from the start after conception. There is a time for creating the new followed by the time to integrate the whole followed by a time to create the new and so on. And in shifting from one new to the next new, the self passes on to an aspect of itself called the psyche, the job of looking after what has been created and integrated.

In its history the self objectifies itself using pre-existing energies and providing for its maintenance. Through integration by subordination it becomes a functioning whole occupying space and time: a living individual endowed with a finely-tuned system of supervision and maintenance, while leaving for itself the encounter of the unknown and the descending future.

That is why the pre-existing system, made in the way described above, frees the self to do by itself the creative work of one life. The self as energy does not need to be quantitatively considerable, the little which is needed to command, to supervise the delegates suffices. We gave it a name: the *quantum*. Energy knows energy, it manipulates energy: at first, that which is present in the egg and in the mother's blood to transform it into the vital structures of the soma and later that which is in the food and the environment. The psyche is at once put in charge of continuing that which the self managed to create.

In that history of the self we find the key for the alternation of sleep and wakefulness.

During wakefulness, the self allows outside energies to be received and held in its psychosomatic system, until such point that their integration in the pre-existing system can no longer be postponed and it enters the phase of sleep to continue the process of integration.

The self therefore must have two states of consciousness, one in which it relates to the outside environment (and we shall see this in its complexity) and one in which it relates to its own system constructed from the moment of conception by the law of integration and

subordination. The first is experienced as *the state of wakefulness* while the second is *the state of sleep*.

Passing from one to the other is the daily routine of all of us.

Note that the self is one and that it gave itself two states only linked through it. It can only be in one of the states at a time either awake or asleep.

That is why the self says: “I woke up,” and “I fell asleep.” Both states are equally needed to maintain the health of the self. Coma is the state of sleep prolonged and is considered pathological. Insomnia is the state of wakefulness prolonged beyond the moment a person feels the need to be asleep and is considered to be abnormal and requiring medical attention.

The person who wakes up tells him or herself, “I was asleep and now I am awake,” assuming the same “I,” i.e. the same self. But does not say “I was awake and now I am asleep.” This is so because in the two states the consciousness of the self is different.

The awake consciousness is concerned with receiving and expending energy. The sleep consciousness is concerned with receiving a dynamic of another kind, in which the newly stored energy is handled by the already existing and stored energy of both the soma and the psyche, and this is in order to find out how to recreate a harmony taking the new into account.

In the awake consciousness the present dominates and concentrates: focusing is the method of the self.

In the sleep consciousness the present consists in weaving the fabric which was there, i.e. the past, in conjunction with what has just been received over the day by the functioning of the other state of consciousness.

In the state of wakefulness (s.w.) most of the past is unconscious and named so; in the state of sleep (s.s.) one's past and all one's experiences, are the only ones conscious, the rest of the world having been shut out. Because of our collective preference for s.w., we have accepted to call unconscious what escapes the self in that state and kept it out of reach. Unrelated to that preference we meet our past in our sleep and know it to be truly conscious but only for that other state of consciousness (s.c.) The paradox is lifted in our model in which two states are required for the job of human living.

Linked by the self, s.w. and s.s. have done their respective jobs from the moment of birth and therefore, later in life we have no means to tell ourselves that we have one self and two states of consciousness, each making its contribution, every day, to our growth in awareness, to the mastery of our inner and outer world (limited to what we can reach via our developed skills), to our integrated whole.

And doing it very differently.

In the s.w., I am a victim of all that which happens in the environment in which I find myself and is not affectable by me. In the s.s., I am the boss most of the time with many exceptions requiring explanations and consideration. I therefore take to the s.s. much which in the s.w. could not be handled on the spot. In that state (s.s.) I can do jobs not allowed or not proper for s.w. for lack of time or inner resources. I need a lot more of my past than concentration on a topic permits in s.w. since concentration means making a cut in the whole of reality neglecting most of it and allowing to merge only that which, in the s.w. the self considers relevant.

What seems elusive in this description becomes less so if we keep in mind that by sleeping night upon night and waking up to a different environment day after day — different because it is inhabited by others who do what they do and do not repeat themselves — the only stable reality is the one we meet in our sleep which increases by what it does rather than by what happens to one. This constant return to an inner universe constructed by ourselves in those sessions of sleep, is the one which feeds back that we are ourselves, have one Experience, well-knit

and in contact with all our past. We are the integrated person we are, precisely because we sleep every night.

In sleep, there is no unconscious. All our past can be present, being is memory and memory is being, therefore the self knows itself as one, not only by direct contact with itself (which is also permissible in s.w.) but because all the objectified is present.

The past is both structured sequentially and accessible as one whole, all at once. That is why in the stuff of dreams there are stories (sequential) and items of any time from the remotest past to what happened just before falling asleep. This co-presence of all the past and recent events, makes dreams baffling and needing interpretation. The contact between items is not that of “cause and effect” — which it might also be — but often that of mere accidental contiguity, analogy, resemblances. In sleep anything can be linked to anything else because time means something else than chronological sequences, because consciousness operates otherwise than within the retention of the daily events in the s.w. which dominate it. In sleep, having access to the whole of one’s past allows any number of associations forbidden by logic and attributes of actuality. The self in sleep knows itself, for example, as having lived without words, as having had some experiences but lacking some others which came later and were integrated still later, while in the s.w. it is, in the present state not allowed to ignore what is operative now and is at hand. When it does the ignoring it is acting, shifting to irreality or to a reality acknowledged as hypothetical and revisable. What is natural to sleep becomes the work of the imagination in the s.w.

It is in the essential difference between successive nights of sleep — which make us return to our essential objectified self — and the successive days of actuality within a world full of random variables behaving according to random laws, that we can find the understanding of much of that which is puzzling in life. We could imagine each of us tossed about by the capricious behaviors of people around us which so many of us witness in our immediate environments, but we can still function in so many ways as an integrated person. Due to our shift from one state of awareness to the

other we remake our sanity every sleep and restore our resilience as it was or might have been in our mother's womb, ready to face another set of assaults, another display of randomness in our waking life.

\* \* \*

The self is one and knows itself as such, not doubting for example that it is it which dreams in the s.s. and who evokes dreams in the s.w. The self from the start knew it and did the transfers from one state to the other.

If it is easy to understand that by falling asleep I take to my s.s. the problems of the previous day with all their dynamic charges and what actually belongs to ourselves and the interpretations of what others did to us, it is less easy to conceive of the traffic in the other direction, when the self takes to its s.w. what has been elaborated in the functioning of sleep. Dreams or nightmares are some of these transfers. Clearly sleep mainly aims at restoring the self to its integrity after a day of aggressions. But, having done that, it can serve as an arena where other ways of working obtain and the self works out its solution or solutions in s.s. terms to be passed on to the self awake for those elaborations which are produced in sleep, such as need for action of which the self is unable. A dream is precisely this message from s.s. to s.w. for immediate consideration. Its form and force are decided in s.s. and are not done necessarily in terms s.w. uses now. Then, they call for interpretation in s.w. not guaranteeing proper deciphering. Sometimes the same dream recurs until the self awake can resolve it by translating it into the language of wakefulness and acting upon the message.

Dreams, persistent or not, therefore carry information about the two states of consciousness but also about the dreamer whose self in sleep selects the material for transfer from one state of consciousness to the other. This is what psychoanalysts have exploited in their understanding of their patients. Here, what matters is that we found that our own self lives not only in two states of consciousness which function in radically different ways, but that it uses each for specific elaborations of mental material, required by the two states to help the other do what it cannot do by itself. Thus shifting to the sleep-

consciousness estimations of what happened to one during the previous day which could not be handled in the s.w. and shifting to s.w. what the self asleep cannot handle in these conditions.

So long as we do not posit one self which gave itself two states of consciousness we face insuperable odds in our understanding of our lives and what actually occurs in them. The self being a mere quantum can escape detection, but without its presence and reality we face challenges totally beyond our apprehension. The contents of our lives awake may be photographed and thus gain a certain objectivity — leading to another reason to prefer the s.w. to the s.s. — while our sessions of sleep elude us altogether; photographs of sleepers confound us more still, since they reveal so little.

Two states of consciousness without a self do not provide us with the instruments permitting us to return to our lives the integrity most of us experience as a fact. But with it, we manage to open up new universes of study, confirming that our neglect of the self was a major error which prevented us from accounting for at least one third of our lives and being in contact with what is true and real.

#### **4 *The Generation Of One's Past***

In particular, we can now offer an objective process which takes into our functioning memory that which we do with ourselves day after day, i.e. the construction of our past with all its complexity and complications.

In the s.w. we use concentration and focusing every minute but we do not normally dwell on the same item or topic all the time. Rather, we shift constantly. This shifting is produced by the process of defocusing or deconcentration, which the self places between two successive concentrations. For example, when we read a line we shift from word to word which for a short time is the center of our concentration.

This very primitive, subtle, inconspicuous movement of the self is the key to our generation of our past.

Indeed, in it we put the process which shifts the presence of the self, the present, from one item to the next and in so doing send to the past what was focused upon a moment earlier. In fact, this language is faulty because this process on time exists from the start and is required to go on already with one's construction of the soma in utero. It also is witness of the penetration of all things by time. The succession of the moments of the day is part of the given and we can only "ride" public time. But the self's exchange of time for experience, which gains another reality and can be stored and saved, reused and recast, must require that the self works on these experiences generated as we go along in our s.w. in order to produce order out of chaos and a surveyable and reevokable inner reality each of us knows to own.

In the local, shifting attention in the w.s. accounts that our self, though being constantly focused and concentrated, must be concerned with the next thing. It is therefore the mechanism of the generation of "the local past," so that the self be in the present and busy with what faces it. But this local past itself moves along time and the succession of the local events are pushed further away from what we are doing now as the day goes on. This takes place in the w.s. and a memory of what happens to us, in us, every day, is constituted to hold together the events of the day — this includes our fleeting thoughts as well as the prolonged involvements such as writing a letter, reading a text, preparing a meal and so on.

But as soon as we fall asleep, the inner world changes and the time for re-viewing, the time for assessing the energy associated during the s.w. with each of the items held in that daily memory, becomes the time of sleep. No longer imposed by the supremacy in our lives of the rotation of the earth which is the generator of "the public time."

In sleep, experiences become part of one's Experience. This process is not only aggregating stuff to existing stuff but shedding different lights on the material — and the processes of holding them and passing them to other moments of one's life — and making that material assimilable to the self in sleep i.e. contrasted with all that was (and all that was with it) and transformed first to be compatible with it and second to be made one with what was there. This function of the s.s. is needed to

make sense of the contents of the previous day's living but more so because, when the self triggers the s.w. the next day, the continuity of one's life must be made to reappear and to be functional.

We place into the psyche this accumulation of the transformed experiences and therefore our psyche is our past but our past is one aspect of our psyche. The past is as dynamic as our psyche; it is as integrated as the successive nights of sleep have made it possible; it is available when our work on it has sorted things out.

Our past has no weight if we manage to use the time of sleep to clear out the unnecessary ties we accumulate during the day in the form of coagulated energies, not necessarily needed to hold an experience, e.g. in suppressing an anger in the w.s. or letting too much emotion saturate some moments. We shall be at peace with our self and its spontaneous state of being if we can use each session of sleep to do the vacuum cleaning required.

When this is not the case we generate abscesses. These are energy coagulations resulting from the energy taken from the s.w. to the s.s. and from the fact that we left, night after night, some unsorted energy linger behind and accumulate. Nightmares are testimonies in the nights of such dysfunctions. They may require some drastic alterations of our lives and perhaps a totally new inner climate to be handled properly. Nightmares are not dreams, though like them, belong to the s.s. and use some of the same dynamics. They are not direct messages from s.s. to s.w. like dreams, but are outbursts of energy in the psyche in sleep which is not controlled like that of the s.w. through concentration. In s.s., sluices can open easily which let much more energy flow than the flow of living in the s.w. has proposed as our norm. Then nightmares can be devastating and overwhelming, unsettling, for days or even years.

To the self in the s.w. this phenomenon is strange since generally the outbursts of energy, like in anger, are in it short-lived and even leave us ashamed of not using properly our control which has been cultivated for a long time through the method of focusing. Nightmares are frightening and send to the self a message of a deeper disorder or

dysfunction in our life. Our self in the state of sleep cannot accept that sleep was created to put order into chaos, and leaves chaos in our sleep. By waking us up, nightmares beg for some drastic action in the state of wakefulness to relieve us from big pressures due to abscesses allowed to be formed in the past when the night sleep following a traumatism during the day did not do its ordinary job of neutralizing it. And when this could not be done either the next night or the next.

By recognizing two states of consciousness to the self, we see that our nights are there to keep the self in contact with all its past and that only in sleep can the jobs involving the past explicitly take place. In sleep we *are* different from what we are in the waking state mainly because in the w.s. we *do not* have access to the whole of our past and cannot bring forth more than schemas representing the reality of the actual energies stored in our psyche. The differences we can list are far less important than the actual differences in dynamics displayed in both. The integrity of the individual is in the self and the self can become aware, in different ways, in sleep and in wakefulness. No theories are needed in sleep to handle the whole past, but they are needed in the waking state. In sleep linearity can be denied without harm, it is not so in the s.w. where we developed chronological time to account for so many arbitrary encounters of the day, randomly imposed by a complex environment where independent entities play important roles. Without linearity we may feel irrational and living without determinism (or that each effect has a cause) in the s.w. That is precisely the climate of sleep when anything can become the antecedent of anything else and throw new light on both. The logic of sleep, if it exists, is as different as can be from that of the s.w. It concerns coexistences, compatibilities, analogies based on spurious items and never stable, unless it is dynamic stability, like the one found in oceans where everything moves while it remains capable of giving the appearance of a settled state.

We need to return every night to the totality of our past by

- 1 shutting ourselves off from all that which might add energy and require its processing; *and*

- 2 by having access to all the learnings we gave ourselves in the form of their elaboration rather than their final products we use in the s.w.

It is in this return that we renew our strengths and find *new* ideas and get *new* proposals — left to be checked in the s.w. as our own contributions — in any field. By being truly re-united with all we have ever been we give reality to our integrity as well as feed to the s.w. what that state does not seem able to provide for itself.

The self works essentially on the present through its presence. This, in the s.w., means being with it (where *it* is what asks for our presence) and in the s.s. it means the past present, susceptible of being altered by the new, taken to it by the act of falling asleep.

Hence, we can see our own place in the construction of our past and perhaps too that our past is not a unique and final entity but one which can be altered in some respects, particularly in those which can be defined as our yielding to whichever pressures at a certain stage in our lives. Conversions are one example of —

- 1 a retraction of much energy placed in the past into an inner system, and
- 2 of its precipitation into another and new system.

Since one can conceive of a succession of conversions, it is possible to consider as a real possibility a contact of the self to its past so as to change radically, perhaps again and again, when facing different realities at different times. For example, when working on sleep for years such changes of my mental attitudes had been necessary and allowed me to become freer in order to receive the new theory expounded here.

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Once I know my role in providing myself with my past I have no problem viewing my past as changeable with a number of changes at my disposal and reach.

## 4 Sleep Is For Learning

Although humans are not the only beings which sleep, it is not excluded that in the case of humans sleep plays an additional important role. This because we define Man as that creature of evolution which chose to live his life in awareness and outside instincts.

Learning is what we all do when we make ourselves different in a certain activity or field from what we were before. Often we can say that we know we learned something but often too, we do not perceive the change so easily. The changes of every night which lead us to be a refreshed person after sleep, count among the latter. These produced the functions which took care of what we carried with us into sleep and when we had no need to pass special awarenesses from the s.s. to the s.w. But they are no less learnings since we are different from what we were when we fell into sleep.

If we educate ourselves to become aware, when we meet the familiar, the routine, the automatic, of that which constitutes each of them, we can as easily recognize change when it normally escapes us as well as when it is forced on us. Then we would be able to state categorically that in humans, “sleep is essentially for learning.”

In fact, it is obvious that in several of our activities categorized as learning, during the s.w., we mainly get charged and generally have not enough time to sort things out in the waking state. To do the latter we take our charges to our sleep consciousness and give them the time to become integrated with all our previous experiences and to become

part of our psyche. This is the only real way we can speak of permanent learning.

In the presence of a lecturer, or a teacher, or a documentary on TV and in many other circumstances, we are tossed around by those we give ourselves to simply because we have no say on what is offered us. Whether it is all new, or well-knit together, or presenting us with challenges at different depths, we are not consulted in advance, not warned of the jobs we have to do in the interstices of the presentation and generally don't do more than hold in our memory what was deposited in us. Obviously we have much more opportunity to work over it in sleep than in the rest of the day when our time is filled with so many assaults and aggressions from the environment.

The days are for charging, the nights for choosing what to retain of the lessons of the day, i.e. for learning.

During the day we open our windows to let things in. Some of these windows are wide open, some cannot allow in more than what fits their narrow opening. But once behind the openings, and in a system deliberately closed to any additional disturbance, the self in its state of sleep does the jobs required by the essential law of learning, that of integration of the new by subordination of the old to it.

In our sleep we have all our Experience at our disposal and explicitly so because of the succession of nights of sleep since our birth. We therefore are more capable of linking all we worked out so far to the working of this moment. We therefore are truly more intelligent in sleep than in our w.s. That is why we listen to the counsel of our sleep on something. We are convinced by the processes of the night that our present outlook on a matter is wiser than the one we had before we slept on it. In contact with our whole Experience we have more means available than when, through focusing and concentration, we reduce the links between various experiences.

Famous solutions to difficult challenges given by some scientists to themselves, have been reported by them as taking place in a "subliminal" state, accused wrongly by them of being unconscious or subconscious.

The truth is that it was left out of consciousness in the w.s. and not in the s.s. and there it was considered by other means and in contact with wider areas of experience and given a new form acceptable in sleep and passed on to the w.s. in the manner dreams are; organized as they could not be in the w.s. and now making sense as never before in this state.

Writers on these matters marveled at the special journeys of ideas in the “subliminal world” and told mainly of their amazements. Had they known that sleep is for learning they could have looked more carefully at the powers for solution intrinsic to our sleep and understood on our behalf what makes us more intelligent in sleep than in the w.s. at least when confronted with problems which resist solution in this state.

Clearly the mystery of what actually happens in the billions of minds of people who sleep every night will not diminish considerably because we know that sleep is for learning, but some benefits may accrue to all of us because we hold this view.

One of them is that we can leave to our hours of sleep some of what we believe we must do in the w.s. when we study new stuff in our treatises at school or college. If we use properly the hours of the w.s. to charge ourselves and rhythmically take that charge to our sleep we do end up better equipped than when we try only to use the w.s. for that. If sleep did not integrate the old within the new, how could we understand that good learners do not end up with a mosaic of all the chapters or sections of their successive days of study and instead every day see better how a science, for example, builds itself into a coherent and powerful whole?

Because we all, students, do this job of integration in our sleep and get thus ready to receive more information the next day, we do not have to look specially to the share in learning allotted to the s.w. and the s.s. But if we do, we can become much better at learning and cultivate in the wholeness of life the alternation of giving to each state its function. In my professional life as a student of teaching subordinated to learning in a number of fields I have increased the role of charging in the s.w. and packed a lot more substance in each session because I

could trust that everyone in the s.s. would have time and ability to sort things out and gather the essence of what matters to be integrated and form the true benefit of studies. This has been tried a number of times in the fields of mathematics and of new language learning but is as clear in the field of music, of physical education and of history, say. Any time there is an element of accumulation it can be invoked, for this accumulation *is* also integration if it is to become functional and appear to belong to acquisition skills. Our psyche — used for so long at doing precisely that job — takes to it naturally if we involve it deliberately, even though it does it more or less well in all cases, because it is its function to integrate and retain.

In this way, we can understand why so many people, who do not practice a skill for some time, find, on returning to it that they made progress either unexpected by them or not understandable, since they personally link progress to practice in the s.w.

In my personal case, since I am interested in these matters I continually find evidence of my actual progress in a number of fields of study by deliberately leaving to my sleep the job of making me move ahead. Experimenting in a number of manners on how my s.s. assists me in my various studies I discover some of the workings of my mind in sleep and I believe it is similarly working for others. This belief is fortified again and again through these experiments.

One of them could be to let a class of students attempt to learn every day to sing one song whose words and melodies are new or even strange; and look at what happens. The first song appears to be available say on the third day while it was not on the first two days when the newest is the least recallable but will become available in time.

Such learnings will help in the study of the functioning of memory which is believed by many to be synonymous with learning when in fact memory and psyche are one and the same reality, known differently in the two states of consciousness. Learning is their way of changing, of being modified in order to become more functional. Hence the study of

sleep as an instrument for learning may one day be of great importance in improving education of humans, everywhere.

The actual place of memorization will be found and its exaggerated importance rightly questioned because its working will be better understood. Memory and retention, when linked functionally, become proper instruments for learning but no longer as the storage of items seen as atoms of knowledge as they are today in the textbooks offered students everywhere. The role of memory is to give the self freedom from the past by making it available for new experiences and new experiments. When the self in the s.w. involves itself in new activities it must concentrate to allow focusing to bring things under its scrutiny but at the same time it counts on the accumulated experience now organized in sets of know-hows and of items linked with each other but not perceived individually in the s.w. This confidence that experience is available in s.w. is the gift to it of s.s. The working of this direct, available material is what we called the contribution of the psyche to the self in its s.w. engaged in a polarized and perhaps biased activity. The self cannot become aware of the contribution because of that polarization or bias in its s.w., but it can become aware that —

- 1 it counts on it, and
- 2 feels confident that it will not fail to pour its input, except in very special circumstances or for very special individuals.

Thus, the self in the s.w. counts all the time on what it did in the s.s. counted over the years and it acknowledges to itself, in a pragmatic manner, that all the learning of the years has been deposited in the psyche in order to facilitate further learning in both states of consciousness.

By reserving to the s.w. what belongs to it and using the clock time of that state to do what is required of that state by the activity and, by leaving the acquisition by integration to the s.s., the integrity of the individual is preserved and maximum progress achieved.

Such a view of life makes sense because of the functional and organic integration of the phenomena classified ordinarily as belonging to sleep and to the waking state, which now — after our study — are two “natural” states of consciousness of the same self soliciting one’s energy differently but cogently because of their emergence from the beginning of our lives-in-the world.

That sleep is for learning appears now both as true and as helpful in our self-education which goes back to our birth and can become helpful in “public education,” when we look at everyone as being like oneself to the point of letting everyone educate oneself.

Such education already exists in those areas where we have subordinated teaching to learning.

# News Items

## **1 FIVE WEEKS OF SEMINARS IN EUROPE — End Of October Beginning Of December**

The task of reporting on the 8 encounters, with keen people who seemed to have been even keener than usual to reach valid answers to the matters raised, would appear to anyone involved, as large, but also as insufficiently well rendered in what follows. Intense and varied as they were, they still had one thing in common: they were part of Dr. Gattegno's intention of answering friendly requests to leave behind some things immediately useful to those who came; testaments and bequeaths at the same time.

A. *The Bristol (UK) 20-hour seminar on "The Economics of Education" (Nov. 1-3)* drew 30 people, 2 of them from Geneva, 3 from Paris, 6 from Barcelona and 1 from Besancon. Several were math teachers and teachers of teachers, more language teachers and two administrators of language schools. From the August '85 seminar in France it had been learned that awareness, that every one of us is Homo Sapiens, Homo Faber and Homo Economicus, may help in the study of the economics of education. So, the hours of Friday, November 1st, were spent on those awarenesses; how to reach them and use them as instruments of study of that challenge. As usual, they made demands and stimulated the research of how to teach them, know them and use them effectively.

Saturday was dedicated to the examination of what must be done to reach a clear sight of the components at work in various fields involved in the challenge. Faraday's work of 150 years ago helped in understanding that there are ways of helping the future to descend and to open new areas of investigation with a great future in them making the invisible visible. Looking at our discoveries of young children's tremendous gifts in the field of learning and how spontaneous learning can guide us in the improvement of education in general, made us believe that what the jet engine did for aviation (and for the transformation of our world into "a global village") can now be done in education with that special jet engine that these powers of children can be compared to.

Of course, it took time to let the instruments be felt as capable of being mastered in a sufficiently short time to have an effect on practice very soon.

The study of time and how it can be changed into experience, led the group to be concerned with temporal hierarchies which condition the expansions of knowledge and know-hows and can only be telescoped when one knows how to find the new beginnings; and the new beginnings and the new unfoldings, which lead to mastery of what is needed by societies to continue and accelerate their evolutions through education.

Education as the instrument of human evolution could prove vital for the saving of societies facing crises of several kinds growing bigger with the approaching Twenty-first Century. But education itself can only move from the dead center it now occupies if new proposals look acceptable to those threatened by change. Sunday was dedicated to formulating ways of using the emergence of Homo Economicus in humans, to make the promise look less threatening and possibly even attractive, to the powers that be and whose goodwill and cooperation are needed for the transformation from an education concerned with the maintenance of the past into one which helps a true sight of the future to become possible.

Seeing all this in the specialized fields they were in, participants found that much was left for them to do before they can accept that a dent had been made in the fortress of traditional education. Still most of them said they were uplifted by the study and better equipped to meet their immediate challenges.

*B. The Voiron (France) seminar for Parents as Educators (Nov. 9-10)* lasted 12 hours on the 9th and on the 10th and attracted more than 40 people half of them from far. It was the first time this group of concerned parents — who took upon themselves to provide themselves with what is needed to be equal to their own tasks at home — examined growth as a whole in order to understand themselves and their children. It was not easy all the time, since study of such matters require discipline and a number of unfamiliar concepts result in an unfamiliar vocabulary; but everyone was ready to pay the price.

The first 3 hours of the seminar were occupied with three presentations, one of reading with the colored charts, one with arithmetic with the rods, and one with the computer in education using Visible and Tangible Math II as the medium. To these morning sessions members of the host association who could not stay for the rest of the seminar, took part. No mention was made later of these sessions which had been well attended and lively.

The seminar itself allowed “absolutes” to be brought in and the real light they bring in for puzzled parents oblivious that they too went through them in order to grow. This structured the seminar since it provided the sections of time needed to understand better what very young and young children do with themselves over years when almost no parent has the instruments to do such a study. Of course, it was easy to recognize behaviors of children of that age when they were mentioned. But what mattered most were the questions posed, such as: “What does a baby do with its time when it is quiet in its crib?” or “Why does a young child need to experiment in order to know?” “Which are the experiments every child must go through in order to master the skills which become second-nature then?” Parents participated by telling their own stories and they were integrated into the general schemes of growth.

Passing through the levels of boyhood or girlhood to becoming adolescents, the shifts from absolutes made growth so much clearer that the parents present regained an insight into their own past experience now forgotten, since they were at work automatically.

The study of adolescence was particularly helpful for looking at it as one's discovery of one's inner life — after many years spent at integrating the environment as energy and oneself as an energy system placed in the environment — made sense immediately. The necessity of this phase in humanizing awareness and its role in deeply knowing emotions, feelings and sentiments — so as to prepare oneself to enter into conscious and passionate relationships with other people, ideals and organizations which exalt sentiments — was readily agreed upon. As a turning point in our lives it can explain that in a number of cases it becomes the intense life of a person whose duty or dedication, or sense of service, is found in the churches or in the generous movements for justice and for social good.

The group worked hard and it paid for some, allowing them to see that “to understand all is to forgive all.” A new hope entered the hearts of people who had overwhelming problems at home.

A short examination of the special responsibilities of the grownups to grow in awareness of themselves and life in general, gave special significance to the conclusion of the two days of work for those who needed help.

*C. Three days near Bordeaux (Nov. 12-14)* looking at ourselves involved in commercial enterprises taught everyone a great deal, for it showed that a look from a certain distance is needed to find out what one is doing and why it might have to be changed.

The participants were project managers of the “La Group” involved in a number of projects nationally and internationally. Their needs were expressed as those of people who would like to reach in themselves *Homo Economicus* as deeply as possible and to see how it affected their conduct. All but one had already been at the August seminar at Carcans

(c.f. Vol XI #5). So, it was possible to start somewhere ahead on the road for the study requested and to be at work at once.

Clarifying the awarenences needed to maximize one's impact upon one's enterprise assisted the group in seeing, "that being in business represents a constant education rather than a settling on a routine," that selling is a great art that not all business people command. The time spent on these matters brought out for everyone present a chance to re-examine how to include the client in sorting out how to use the services offered to do even more than what caused the contract and could lead to future contracts. Also that every contract carried out to completion was susceptible to widen the experience of those involved and could be considered as one example of becoming a more efficient business.

Many other matters were met incidentally and led to some insights everyone appreciated because a theoretical seminar was becoming a very practical one.

Some time was spent looking into what sort of services could be offered to countries which were former French colonies to assist them solve some of their economic problems without requiring additional financial inputs. Education was focused upon and some schemes spelled out.

*D. A weekend seminar in Paris* Fifty participants came to consider together the theme: "To Live One's Life." Among them were: ten young people or rather newcomers between 19 to 23 (some came with a parent), a few around 60 and more; several with a readiness to take up the matter most seriously. The Friday evening sessions from 5 p.m. to 7 p.m. and 8 p.m. to 10 p.m., served to make everyone hear the voices of the rest and to establish the seminar approach beginning with ramblings that help to reach a focus acceptable to all. As everyone was left to say whatever the theme suggested, a large number of subjects were coming forth having some support but perhaps not an overwhelming one. Outstanding was the forcefulness and freshness of the younger group's suggestions.

In the middle of the Saturday morning session, the questions of what it is to live came up. Also whether everyone could acknowledge that the theme had also a meaning for the other past *nows*.

This served well since everyone who forgot the living of past years could only count on what was now occupying one's mind, a very small fraction of one's life. Was it possible to ask the questions: "What was the meaning of my life on all those *nows*? and "Was I living my life then?"

It was agreed that time was an important item to be concerned with and that living had something to do with it. While it flows uniformly for all and is a frame of reference, each of us does something unique and personal with it. For example, exchange it for one's experience. Thus, by looking at experience rather than time we have a chance of coming closer to the theme.

A quick reviewing of the various periods in our past, when it is clear that we spend some time in our mother's womb, some time as babies and later as little boys or girls and later still as older boys or girls before becoming adolescents, post-adolescents and adults, showed that the meaning of living one's life changes and a new challenge emerges. Can we find a way of speaking of all those periods in our lives which was right for each *and* for all? Presence and consciousness offered themselves with contents variable from one period to the other. To live was clearly exchanging time for giving ourselves our soma and our psyche before our birth; for processing energy after finding the means of handling ourselves in a new environment and progressively making sense of what came our way, generating, as time went by, the instruments of mastery in the fields of perception and actions until we were struck that we have an inner life and did all we could to know what it is. By then we have known what it is to live one's life and create harmony or some of its opposites, according to our environment. When this is friendly, understanding and cooperative it is more of the first, otherwise we generate "psychic abscesses" which distract us and mortgage our future. Presence and consciousness generate vigilance and watchfulness, but the aggressions of the environment reduce our use of both, at least in the waking state. Every time we sleep we attempt

to repair the damage. When it is done we feel more that we live our own life, but no one can be sure of succeeding unless we learn to be watchful and alert all the time to neutralize the distractions and arrive at the conclusion that our life is our responsibility to a certain degree, by no means small. A functional look at our living leads us to a deeper sense of who we are at every moment and at what we have to do of those moments to say to ourselves: "I can live my life and I am doing so, indeed."

*E. Two evenings in Lausanne on "The Economics of Education" (Nov. 20-21).* Thirty people were there, a number from Geneva and some from Voiron, needing further material to work on.

Economics beyond the obvious matter of providing money for buildings, equipment, salaries and administration, can concern itself with the yields for the time given in schools by all children. Who cares about that? No one! Could this group take a first look at it and make some contribution to increase that which students take away from their presence in schools for the same durations?

Such stress on yield per hour as a matter of concern for grownups was new to many, who were content to do to others what had been done to them. But interest grew as particular activities were raised and examined for their adequacy to what was aimed at and to what could actually be done. Taking school activities like arithmetic or native language arts or foreign languages, it was possible to inform on some spectacular increases. A lesson in a public school where one of the participants taught and the daughter of another attended, showed that 4  $\frac{1}{2}$  to 6 year-old boys and girls could be taught together and involved themselves on sorting abstract things (like place value) with ease and even joy for about 40 minutes. Younger ones helped older ones understand what there was to do and do it easily when no one suspected they would or could.

This involvement of the learners excited some who promised themselves they would try for themselves the next day.

Since for more than half the group all this was rather new and incredible, many questions came from them, some of which could be

answered meaningfully and others would require further work and time.

Moving from believing teachers were all important in their classroom to suspecting the involvement of learners in their own education, was felt as exhilarating and really worthwhile. The feedback was of a tone and quality which proved that even such a short encounter with these matters can serve well.

*F. Two hours with public school teachers of English in Geneva (morning of Nov. 19th).* This meeting (from 10:00 to 12:00) of thirty-four teachers representing 15 out of 17 schools involved in teaching English to adolescents had been considered a toss-up, but this high attendance comforted the organizers. The presentation could not allow more than half an hour for questions and feedback, at the end. It took the shape of:

- 1 the study of the Sound/Color Chart for pronunciation;
- 2 an examination of the Fidel for spelling, and
- 3 of Charts 12 and 1, as examples of how the Silent Way can help to generate motivating games which end up by becoming facility with the new language.

The meeting was light even joyful, no obvious opposition from traditionalists sticking to their preconceptions and prejudices; a participation in some quick games gave evidence that the speaker and the group were in tune and that there was sense in what was being proposed. A number of participants asked for places at which these instruments could be purchased. A request for longer sessions and a deeper acquaintance with this “new” approach was voiced by some. Since a few people in that area use the Silent Way it was hinted that visiting their classes might help.

*G. An “extraordinary meeting” of “The National Commission for the Didactics of Mathematics” in France had been convened at the Ecole Normale Superieure in Paris for the evening of November 18th from 6:00 to 10:00. The lecture room was full during the first session from*

6:00 to 7:30, but only six were there after dinner. Presiding at the meeting was Professor Gustave Choquet of the French Academy of Science. The topic had been announced as concerned with learning from Dr. Gattegno what he had been doing for the last 25 years since he left the International Commission for the Study and Improvement of the Teaching of Mathematics he founded in 1950.

As he chose to limit himself to the contributions Visible & Tangible Math brings to teaching, he stressed epistemology and the new curriculum which attempts at the same time —

- 1 to provide young children with what meets the powers of their minds, exemplified by their mastery of the mother tongue, and
- 2 to meet a desire of mathematicians to have a foundation for their science.

But since the public generally fancied other approaches to the improvement of math teaching in French schools, from elementary through secondary, a crash was inevitable. Dr. Gattegno insisted he was not obliged to give the short time available to comparing his proposals to those he knew nothing about held by the vocal members of the audience. And so they did not seem inclined to receive anything as new as was offered them in that lecture.

Perhaps it was a waste of time to all those who came! Maybe silent members of the audience took something away?

*G. A weekend on my health, in Geneva (Nov. 22-24).* Of the forty-five who attended, one was a medical doctor. The rest included two businessmen, housewives, two women medical nurses, and a number of teachers. One of the nurses was so incensed after the first evening that she did not return.

Still it can be considered an important seminar in the life of Dr. Gattegno. When the tapes are transcribed they may become a book (in French) people might want to read.

The first evening which lasted only  $2 \frac{1}{2}$  hours allowed the group to consider the meaning of health which they hold. Mostly it was negation of sickness, but not for all. One or two spoke of harmony and a connection with the universe. When looking at the Western version of the model of oneself, only a body and a mind were its two components. A body meant more precisely a structure in space known through anatomy and a mind added to it from the outside, the environment supplying it. That the West refers to anatomy — through geometry and adds to it physiology conceived as essentially physico-chemical — and China to people as energy systems — as is the whole of the universe which requires their harmonizing — provided a good basis for having an open mind when working towards a model capable of unifying two very different ones. This took place during that weekend and represents an original contribution felt as important by those present.

The exercise was to find a way of expressing, using Western terminology, that which is considered essential both by Western and Chinese thinkers in the field of health. Energy is central in the Chinese model but it can be made to be central in Western models too. By endowing each individual human being with a “quantum” of energy whose functions include the direction of all objectivations from the moment of conception on- the constitution of a soma during the 9 months in utero — it became possible to stress the presence of energy at every point of the soma and to single out its aspects as dynamics which is precisely what the Chinese begin with. If the Chinese accept the objectivation of energy in terms of an evolving soma during gestation those months allow them to add precision in terms of locked up energy (equivalent to anatomic structures) while leaving their “chi” to be present in the structures to entertain the functions within the structures. Neither the West nor China needed historically to name three or four entities to grasp their model; two seemed sufficient for either. By suggesting that the unifying model utilizes four energy entities:

- 1 the *quantum* (which is strictly individual) capable of acting on the pre-existing cosmic energy to direct its uses to form, at the same time;
- 2 the *locked up energies* in the structure of the tissues and organs and called the soma, and

- 3 two *residual energies* one left behind to maintain the soma at every moment of its construction and that we call the *psyche*, and the other, always available to the quantum to work on the latent cosmic energy to produce the new, and that we call
- 4 *affectivity*, we articulate the Western model to make it dynamic and resemble the Chinese by this attribute and we give the Chinese a temporal and evolutionary component it did not care to develop.

While the West invented embryology but remained with the dichotomy body-mind, not allowing the mind to have a place in the individual until a certain date after birth, the Chinese found no need to involve themselves in anatomy as such and in embryology as the process of its organization. If no process is required either to make a human being (as is the case in the West) or to relate the completed person to its original cell (as in the case in China) there is still room for both to ask the neglected questions within their respective systems and to see their impacts on their models.

By doing that, it becomes possible to produce a model which —

- 1 contains the Western and the Chinese, simply because something is added to each, and
- 2 to put squarely the stress on health which is not the case in the West and is only implicit in the Chinese.

Health is defined in utero as the proper work of the quantum upon the energy supplied by the environment, giving that quantum a central place as director and postulating that so long as it is the case, health will be maintained by the fetus.

After birth, coping with the new environment, both natural and social, the quantum would remain in charge and do in sleep much of what is needed to restore balances. During waking hours the quantum helped by the energy of affectivity, encounters the challenges met and transfers to the psyche all that which it passes as worth holding from then on.

In such a model we can begin with health as equilibrium or balance, harmony (as the Chinese want it) resulting from knowledgeable initiatives by the quantum acting with the inner energies upon the outer ones coming its way. Diseases appear when this work is interfered with.

The individual's will is a manifestation of the quantum's work and comes with it at birth. A birthright required by the dynamics of health.

Because the present models, held in the West and China, have no use for the quantum, the will, affectivity and, essentially, reduce human reality to the pair soma-psyche (and not even as complex as that) it is not contemplated that the loss of health and the generation of diseases corresponds to a descending hierarchy. The will and affectivity may be assaulted and if they yield, psychic troubles follow first; then functional diseases and finally somatic diseases. The latter are those Western M.D.'s need to see exist before they acknowledge some illnesses. Chinese doctors are vulnerable to functional diseases and try to stop troubles before they become somatic by curing them at that stage.

The complex model we preconize allows us to state that the illnesses of the will are those to avoid, for, then, health takes care of not letting the psyche and the soma be touched and get into trouble.

In our Western world, where we look at ourselves as needing "a sane mind in a sane body" our fundamental disease is spiritual because we do not cater for the proper functioning of our wills whose job is to keep us integrated, or in other words, hold our integrity together. Soma-psyche-affectivity united into one entity: our health under the aegis of our quantum.

Since our will is our own, it makes sense to say that our own health is our responsibility.

Education for health becomes a reality, a challenge we can take care of if we are enlightened.

H. A 5-day seminar in Trento (Italy) (November 27-Dec. 1)

Trento is the main city of the Italian province of the Trentino in the north-east corner of the country, contiguous to Austria, which ruled in that area for centuries. It was the locus of the famous Council of Trento which formulated many important doctrines still operative in the Catholic Church. A city of 100,000 people at the foot of the Alps; it has a charm all its own which attracts tourists from other parts of Italy and from abroad.

The seminar was supported by local institutions and attracted 120 participants mostly teachers and a few administrators. The room had a theater setting and could not be arranged like in most of the other seminars so that everyone could see the others.

Ms. Rosaria Dell'Eva, a secondary school teacher of German (who was initiated by Cecilia Bartoli to the Silent Way and partook in the Carcans seminar, cf. Vol. XIV #5), was the organizer and deserved everyone's admiration for the splendid work she did for a first long seminar in the area and such a varied audience. The interest demonstrated by the educators of the region overwhelmed her while gratifying her. In order not to disrupt the school schedules, the seminar for four days ran from 3:00 to 7:30 p.m. and on the last day, Sunday, from 9:00 a.m. to 12:30. As it unfolded most people decided to be prompt or even early.

Used to didactic lectures, the audience was first surprised and later happy and pleased, by the mode Dr. Gattegno uses to involve his seminar participants. Question upon question were put to the meeting to provoke them to become active on the vital matters raised.

Not all participated, but all were touched one way or another and started a process which, they stated at the final feedback, will not end with the closing session. The first two meetings created the climate of enquiry on self-education and successful learning. Many of the instruments created by Dr. Gattegno over the years were introduced and were considered for short durations which seemed effective because of their intensity. Quite soon even "modest" teachers knew

what was a distraction and what was a contribution and generated a climate of work conducive of good attention and steady progress.

With a number of preconceptions discarded: small town people, in an isolated area, believers in Catholicism, docile students and uncritical students of a huge literature — mainly imported — the audience proved reflective, keen, disciplined to a sufficient degree to benefit from the work, looking forward to being more involved on the spot and in the future. Note taking was quickly put aside (except for some) and in many cases, only when a saying struck them as deserving to be retained, were people writing.

The dosage of the new insights so as to permit their assimilation and to avoid indigestion, made the first six sessions over two days, appear as the chapters of a text collectively written to force awarenesses about learning and teaching, about the reasonableness of expecting a much higher yield first from their students and from themselves later.

The third and fourth evenings were dedicated to showing techniques for the improvement of mathematics learning and teaching and in other subjects — from literacy to literature. Less charging than the first two, these two days served only a fraction of the audience, however large. But they served to show that the fear of mathematics and of foreign languages is baseless and many dropped altogether prejudices they held for years. For mathematics, Visible & Tangible Math II was used since a large screen projector could be secured to be attached to an Apple IIe computer. Except for long division for which there was no time, most of the programs were used for teaching a large class made of those who specified being almost mathematical “illiterates.” They found it not only useful but very exciting and even beautiful.

That morning Dr. Gattegno illustrated for only a half hour on a class of 81 adolescents made of 4 classes (students of German) the uses of the German Sound/Color Fidel. This time was enough to show how all of them could be involved in playing a game whose rules were clear and only required presence.

Later that morning, at the host institution (the Accademia Commerciale e di Turismo) a 2-hour class — with a dozen post-adolescent students registered for a 3-year course in hotel management and tourism — was offered as an alternative to the usual techniques of teaching and of learning by proxy. Students declared themselves very happy to have had such a session as part of their course.

The Saturday evening course included a  $2 \frac{1}{2}$  hour class teaching 20 or 30 participants some English, they said they never learned or contemplated learning. The feedback after the lessons was mixed since participants wanted to know how to do these things for German, others whether anything would be remembered in a few hours or days, but some acknowledged the quality of the English utterances without any modeling by the teacher. Other people felt that the content of the few lessons in those  $2 \frac{1}{2}$  hours far exceeded what is normally done over many weeks in their own classes.

The Sunday morning was divided between a presentation of reading in Italian as is done in Words in Color, from 9:15 to 10:45, and the final feedback from 11:00 to 12:30. The first part was also technical but it illustrated fittingly how the subordination of teaching to learning can increase considerably the yield in that area.

By remaining technical, this session could only touch elementary school teachers and those who understood the importance of subordinating teaching to learning, but it also demonstrated that the “theories” of the first two days had applications in the practical fields which occupied large numbers of teachers in Italy. For that reason there were fewer disappointments expressed by the audience at the final feedback session. This was generally candid and mostly favorable. Requests for further exposure to these new “ideas” and for in-service courses were heard by the authorities present who said they were gratified by them.

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The one-day seminar in Rome (Dec. 3) organized at and by Censis, did not generate material of interest for our readers. So, we shall not do more than mention it here.





## About Caleb Gattegno

Caleb Gattegno is the teacher every student dreams of; he doesn't require his students to memorize anything, he doesn't shout or at times even say a word, and his students learn at an accelerated rate because they are truly interested. In a world where memorization, recitation, and standardized tests are still the norm, Gattegno was truly ahead of his time.

Born in Alexandria, Egypt in 1911, Gattegno was a scholar of many fields. He held a doctorate of mathematics, a doctorate of arts in psychology, a master of arts in education, and a bachelor of science in physics and chemistry. He held a scientific view of education, and believed illiteracy was a problem that could be solved. He questioned the role of time and algebra in the process of learning to read, and, most importantly, questioned the role of the teacher. The focus in all subjects, he insisted, should always be placed on learning, not on teaching. He called this principle the Subordination of Teaching to Learning.

Gattegno travelled around the world 10 times conducting seminars on his teaching methods, and had himself learned about 40 languages. He wrote more than 120 books during his career, and from 1971 until his death in 1988 he published the Educational Solutions newsletter five times a year. He was survived by his second wife Shakti Gattegno and his four children.