



Interdisciplinary Integration and Dualism in Society

1983, in 'International Teilhard Compendium, centenary volume *The Desire to be Human*'



In this article it is contended that before interdisciplinary integration can be successfully evolving in many different sections of society, it is necessary to solve a fundamental dualism, which lies at the root of the present society. This dualism lies in the misconception, which has been in existence for hundreds of years, that religion and science are two different worlds. It is the synthesis between these two 'disciplines', which forms a starting point for further integration and progress in the world.

A short account is given as to how, in the 16th, 17th, 18th and 19th centuries, the worlds of Luther, Rousseau and Marx remained separated from the world of Galilei, Newton and Darwin and that - besides Einstein - there is really no visionary 'society'-reformer in the 20th century.

The synthesis between these worlds launched in the 20th century by Pierre Teilhard de Chardin offers points of contiguity for a solution of this dualism, with perspectives for the future. Further elaboration and adaptation of these thoughts can make a substantial contribution to progress in interdisciplinary integration and the future of society.

Interdisciplinary aspects in the commercial enterprise

Within an enterprise, certainly in the bigger enterprises, interdisciplinary common boundaries are frequently present and an appropriate integration is essential for survival in the competitive struggle. After all, the enterprise is a combat organization¹ and co-operation between various disciplines is a necessity for its continuity. Distinct examples are the technical, commercial, financial, legal and social disciplines.

One aspect to be considered is 'static' interdiscipline, i.e., the proper integration of the various departments in respect of the existing situation for current contracts and procedures, in order to offer the best technical performance in the shortest possible time at the lowest cost price and the most favourable terms and conditions of sale. But apart from this there is the 'dynamic' interdiscipline - whereby developments in the market, technology, the financial world and the social and political relationships are anticipated. This development sector is growing in importance.

In respect of this dynamic side, an interdisciplinary field outside the enterprise emerges, namely the relationship with, for the greater part, externally determined factors, which more often than not are also connected to societal developments, also in international context. In modern management methods, which can all be traced back to the above mentioned integration problems and the best possible command techniques, many weighty tomes have been and are being written whilst new experience is being gained in practice all the time. In the last decade modern information techniques have added an extra dimension. This article will not enlarge on that subject further, since this is chiefly a question of techniques.

Besides the techniques, however, of handling the problems of interdiscipline inside and outside the enterprise, the tension between the ideological, social way of thinking on the one hand, and the technical/economic way of thinking on the other hand, is playing an increasingly comprehensive and fundamental role; this could be described as the discipline in comparison with the discipline. Inside the enterprise this tension emerges in the most pronounced way in the structured consultation between management and the Workers' councils². Outside the enterprise this tension manifests itself in its relationship with government politics and trade unions. When one takes note of a very recent attempt to arrive at a formulation of objectives for an enterprise which is acceptable for an entire concern, or on the other hand reads the formulation of the strategy of the FNV³ (Federation of Dutch Trade Unions), it then transpires from these two examples, selected at random, just how fundamental the characteristics of the discussions are.

Language and its use during these discussions are frequently a problem, inasmuch as the issue as such is

highly dynamic on the one hand, yet, on the other hand, static concepts are employed which arose under circumstances in the past in which they had a totally different content than they have now.

This refers to concepts such as worker, capitalist, employer, employee; but also left, right, social, authoritarian, Marxist, materialistic, etc. Because of that, climates and interpretations which do not correspond with the reality of today, and of which certain groups consciously make demagogic use, continue to survive unnecessarily.

The often totally wrong interpretations, by both advocates and opponents of Marx, of his ideas in this day and age, are most illustratively and admirably described by Erich Fromm⁵.

The approaches to the problems confronting a company which have been designated as the structural integration of the α and β disciplines, or if you prefer: the totality of business enterprise, frequently lead to the contradistinctions as though the α approach is aimed at man and his welfare and the β approach at numbers and materialistic prosperity.

In the determination of objectives of organizations rivalry develops for the priorities of either α or β ; this usually leads to stalemates which are the result of distrust of the α group in relation to the β group, and vice versa.

In the ideological - political sphere, the α mostly seems to coincide with the 'left' way of thinking, and β with the 'right' way of thinking.

However, inasmuch as every human individual has both an α approach and a β approach to his spiritual and his material life, just as every person also has a 'heart' and a 'head', it is evident that this schism of minds comprises one of the most essential interdisciplinary fields of operation which call for a synthesis. An unmistakably interdisciplinary thinker like Koestler gives an entirely structural, biological-evolutionary character to the problem of this schism in the mind of man⁶.

So what we are writing about here is not, therefore, an incident of the 20th century. We are being confronted with a problem which is as old as the time since man has been living in bigger commonalty contexts, and certainly since these grew in size and complexity, partly as a result of technological innovation and material growth. Which is why this phenomenon, signalized for the enterprise, must be placed in a wider context.

Developments in society and science

The duality indicated in the preceding chapter can again be found in Diagram I (to be found further on in this article), which broadly reflects the development in Europe. The aim of the diagram is to show how two main streams dominated the human society, in consistent duality, over the past centuries. The continuing mutual isolation throughout the passage of time has

led to many conflicts and misconceptions. It must nonetheless also be ascertained - as indicated in the middle of the diagram - that the entire process was dynamic and has brought about distinct changes in the place and function of the individual in the force field of the social development. Proceeding from left to right, the α side of the 16th up to and including the 19th century is characterized by great visions and revolutionary changes, prompted by the need for protection of the individual against authoritarian power systems.

In the 20th century this struggle is still going on at a national and international constitutional level in Europe, particularly in the totalitarian communist structure, as recently clearly demonstrated in Poland. In all other countries power confrontations are now taking place within the nations, particularly between the government, enterprises and trade unions. The role of government in that is, to a large extent, determined by politics. It seems as though the result of these pluriform power positions and the equalizing effect of democratisation is that there are no longer any great visions or great men or women coming forward. Which is why there is no name on the α side for the 20th century; the emphasis on the individual is symbolized by the concept 'me era'. Proceeding from left to right on the β side, development is characterized by ever increasing knowledge.

The inductive method supplies again and again new insights in respect of the question 'why and how something is'.

It is characteristic for the cultural phase in which the West now finds itself, a process which has been described by Van Peursen⁷. This phase was preceded by the phases in which it was only experienced 'that something is' and subsequently 'what something is'. In this β development a great number of discoveries are made in every century, whereby many signify such a breakthrough in the traditional picture of the world that the scientists, and therefore the philosophers too, become completely mesmerized by them. In this respect can be mentioned new vistas on: the creation, the age and the place of the earth in the universe, the evolutionary development of life on earth, the calculability of all macro- and micro- processes, universal systematics in molecular structure of living beings, the interchangeability of energy and matter, the relative value of time. All these discoveries lead to ostensibly unlimited technical developments for the enhancement of human prosperity and well-being.

The 'mechanistic' approach to the world picture which arose as a result of this, led to polarisation of established traditions in the fields of religion and society. Exponents of the β disciplines developed a kind of arrogance which resulted in complete denial of a religious or mystic discipline (18th Century - Laplace, 19th century - Darwin, 20th century - Monod)⁸.

The schism of the minds and the distance between the two ways of thinking is so great that there is scarcely any bridging of that distance or even an attempt thereto. There is also the problem that the β line

demands a high degree of specialization and, generally speaking, above-normal intelligence with a result that, by that alone, isolation and the formation of an elite occurs. That is why the gap which arose so early between religion and science is still existent and is leading to situations such as for example, the lawsuit against the State of California concerning the education at schools in respect of the theory of evolution, in the USA, March 1981.

If democratization and equalisation in the 20th century, as described above, leads to the absence of 'great men' with universal vision in the α sphere, the increasing specialization and working in team context must be the reason why there have been no real universal visions in the β sphere since Einstein in the 20th century.

If I were to mention the name of a man, whose thoughts presented a breakthrough in the 20th century, then it is that of the Jesuit Teilhard de Chardin, neither as an exponent of the α direction, nor the β direction, but as the champion of the first fundamental synthesis between the two directions⁹.

An essential point of this theory is that he does not only establish relations between Humanities and Physics, but he also points to the existence of an evolutionary dynamic process with a direction, and even does not hesitate to set up a hypothesis concerning the goal to which this process is leading. Before going into this in more depth, it is worthwhile examining where and how notable moments have occurred within the common boundaries between α and β alongside the scheme presented at diagram I.

In the 16th/17th Century it is above all the relationship between the emerging natural sciences and the Church, which is conspicuous. The propositions of Galilei, prompted by the inductive method, provided new insights in respect of the causality of motion. Although the argumentation - supported by measurements - that every body, irrespective of its weight, falls at the same velocity, seems fairly innocent, the declaration that the earth moves around the sun as a part of the solar system brought him into conflict with the world-picture advocated by the Church, viz. that the earth and man are the centre of the Creation. As is known, this eventually leads to Galilei's trial in which he has to withdraw his propositions. This clash between the α and the β worlds was, by the way, not supported by one the religious orders of the R.C. Church, viz. the Jesuit Order. This intellectual order could, to a large extent, subscribe, to Galilei's argumentation and also place this in a dynamic model of the Creation concept. For reasons of self-protection and narrow-mindedness, on the one hand, and for the protection of the faithful against confusion on the other hand, the R.C. Church did, however, not agree. They were the same Jesuits who were mobilized by the R.C. Church in order to act as a kind of shock troops (the leader had the title of General) against the Reformation instituted by Luther. Any other relationship between Luther's way of thinking and that of Galilei

cannot be perceived at all. It is important to note that the reformation movement (which was not so much aimed against the authority of the Church but rather against the abuse of that authority) had a far greater influence on the people than the conceptions of Galilei, which affected only a small group.

In the 17th and 18th Centuries the mechanical world conceptions were - still in a limited circle - elaborated more and more finely and in more depth by Newton, Descartes and Lagrange and led to the further development of physics and chemistry. But the mechanistic, materialistic thinking predominates. Whether this is the reason why we cannot point to any exponent on the α side in the 17th century may be questioned; in any event there appears to be a hiatus in this area in that century. In the 18th century Rousseau comes forward with a protest against the existing balance of power in society.

His thesis that art and science lower the morality of a nation¹⁰ was the first attempt to further movement on the α front. Art and the sciences, he posits, are merely practiced by a small intellectual elite which excels to such an extent that the remainder of the population, including those in authority, become passive and decadent. His second treatise on the inequality among the people in the societal relationships¹¹ and his ultimate famous fundamental work 'Du contrat social'¹² are all aimed against the unnatural aspects of modern society. In this he also implicitly directs himself against technology and the sciences. Rousseau's work can therefore be considered as a clear case of opposition to the β world but also of opposition to authoritarian power. This resistance to power and knowledge will continue for some centuries, after clearly having encouraged the French Revolution and subsequently the American War of Independence.

In the 19th century an interesting coincidence occurs. On the α side Marx develops his new vision of society, on the β side Darwin develops his theory on the origin of species.

Both have in common that they describe a dialectic process with innovational elements. The fact that - at least from the side of Marx - a relationship was laid, is an initial step towards closer relations between the two worlds. Marx views the scientific argumentation of dialectics in natural history as supportive to his thesis concerning the development of social history. Darwin has no wish to acknowledge the relationship; he consciously restricts himself to his specific field of operations and rejects every relationship with, or influence on, religious and ideological fields. Neither is he prepared to take a stand in respect of the point as to whether there is any sign of a direction in the system which he had so accurately described and substantiated: the word 'evolution' is too suggestive for him and does not appear in his works; neither does the statement unjustly attributed to him viz. 'survival of the fittest.' A synthesis between α and β exponents failed therefore on a personal attitude, but would certainly not have been inconceivable.

In the 20th Century we see on the side of natural science a brilliant breakthrough by Einstein with his general and special (or restricted) theories of relativity. Intellectual hypotheses on the relation between mass, time and space, gravitation and the velocity of light lead once again to a totally different picture of the world, the universe and the 'rolling up' of the infinity concept. Einstein was a 'pantheist' and did not believe in a relation between the individual (soul) and God. After this last, more or less universal, breakthrough a great number of inventions and refinements emerge in the 20th Century, particularly in the field of micro-electronics and micro-biology. The character of specialism in research increases more and more, as do the number of specialists and the number of disciplines. This phenomenon also occurs in the α sciences. The 20th century marks an explosion into specialization.

The problem of isolation in unilateral approaches assumes great forms in the Western society and the necessity for cooperation becomes increasingly greater. 'Thinking and acting purely from the viewpoint of science leads to technocratic solutions, whereby people become manageable things. Thinking and acting purely from values, without a thorough investigation of reality and its workings, leads to situations whereby something else is realized than that where these values were aimed at.'

This was written by Professor A.G.M. van Meisen in a recent publication from the Catholic Study Centre¹⁵. The fact that the fields of tension generated by these extreme approaches - by lack of timely integration - can lead to great economic and social damage is demonstrated by the hold-up of actions and discussions which are going on about, for instance, the building of nuclear power stations in Germany and The Netherlands. This is in clear contrast with France, where the integration of decision-making is historically far better arranged, which led to a much clearer relationship between government, politics and trade and industry, a pattern which is cultivated and built up right from the lecture rooms of the 'grandes écoles'.

In all areas of human organization an increasing process of confusion, confrontation and slowing down of resolution can be perceived, such as at universities, in parliament, in government and, through that, at enterprises as well. Ultimately, of course, this affects the individual, who is often faced by internal conflicts in his job and in the labour process - whether (s)he be head of a department, director, civil servant, member of the workers council or a member of parliament; (s)he should be able to reconcile an ideological attitude with an operational deed or statement. The rapid changes in the judgements of value and established attitudes resulting from technical and material improvements, affect the individual in his personal life more now than in the past. For that reason the individual of the second half of the 20th century is more inclined and compelled, by the specialistic confusion outside him and the wish for equilibrium inside him, to devote

his main attention to his personal well-being. As a result, psychology is moving more and more in the direction of teaching man to understand himself and to be less dependent on others or on circumstances. An important aspect hereby is the fact that a person who is well-balanced on the inside, radiates that outwards, and encourages the state of equilibrium of society.

In spite of the abovementioned development, interplay between the individual and society will remain an essential element for the future. Besides that it can be noted that, here and there, attempts are being made to bring about interdisciplinary cross-connections, such as those which we can find in the studies of the Club of Rome, the Inter-faculty Management-Science at Delft, Interdisciplinary Steering Group of the Catholic Study Centre of the University of Nijmegen, Association Internationale pour l'Education integrée in Geneva, the Arcosanti set-up in Arizona (U.S.A.), etc. It is evident from all signals and observations that the most important concern of the present phase of the Western European culture is to find a way to integration of the specialized disciplines, the recovery of balanced decision-making and authority, and reorientation on the place of the individual in the future society. The alternative will be increasing chaos, economic collapse, decadence and perhaps submission to a totalitarian power structure. Inasmuch as such a complex problem cannot be tackled in all its aspects at the same time, this article is restricted to establishing the fact that a fundamental basic problem is to be solved by bringing about a synthesis between the α and β components in man and in society.

The impulse of Teilhard de Chardin

Teilhard de Chardin was born on 1st May, 1881, slightly more than a 100 years ago, in France. He entered the Jesuit order in 1901 and became an internationally recognized authority in his speciality: palaeontology. Teilhard de Chardin was not an armchair scientist: he stood firmly in the middle of the practical side of things. During the First World War he was a stretcher-bearer at the front and he did 25 years excavation research in China. His merit lies in the fact he has brought scientific, religious, social and mystic thinking under one single denominator in his life-work in the field of the theory of evolution. He experienced fundamental opposition in his time from the R.C. Church, culminating in the 'Humani Generis' encyclical from Pope Pius XII in 1950, which was undeniably aimed against Teilhard and in which it was more or less stated that every line of thought which deviates from that of Thomas of Aquino (13th century) is not permissible. It was only by the timely bequeathal of his works to his secretary, Mademoiselle Mortier, that his writings were published after his death (1955). But also from the scientific quarter, his thoughts and writings were heavily criticized, chiefly because he advances theses about the origin and future of life and man which cannot stand the 'scientific' test because they cannot be made demonstrable and because they

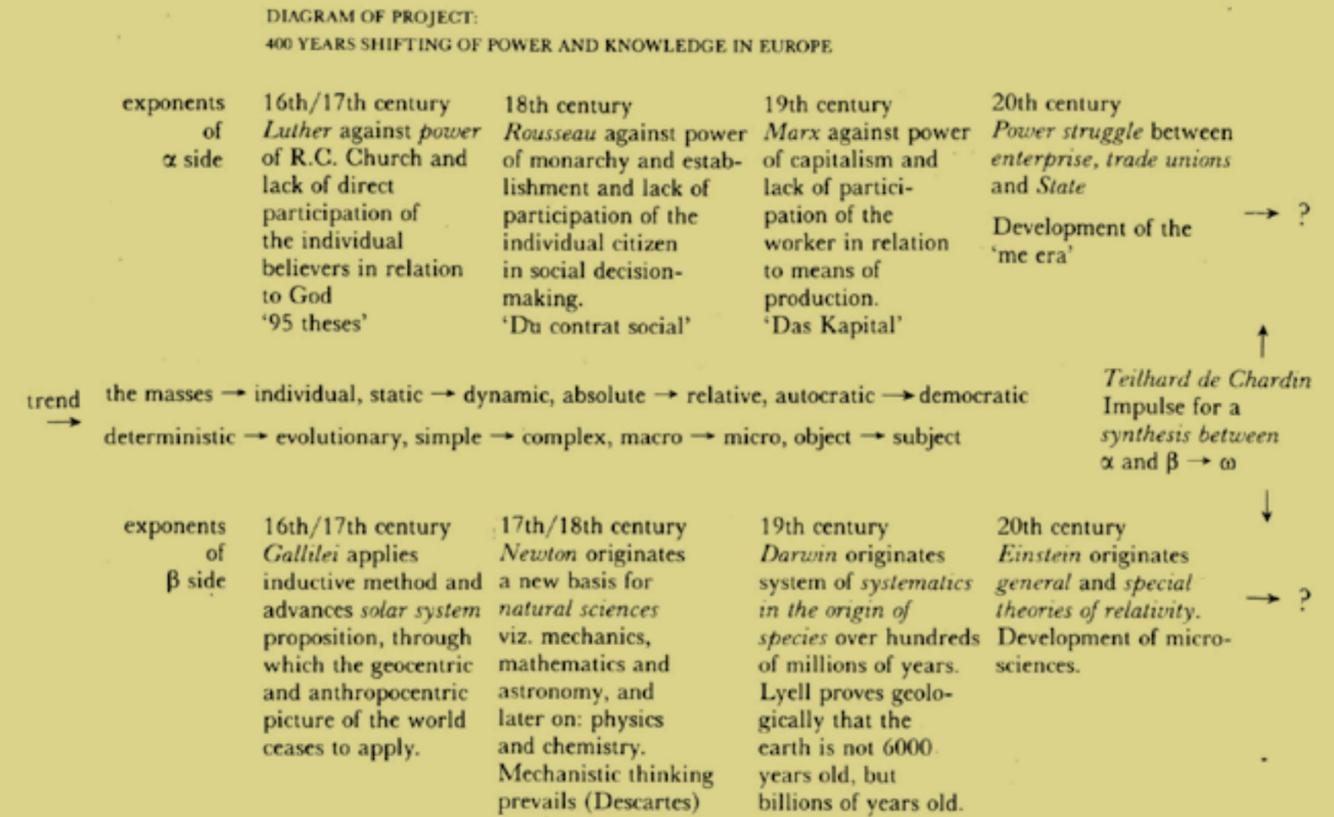


DIAGRAM II

Progress in evolution

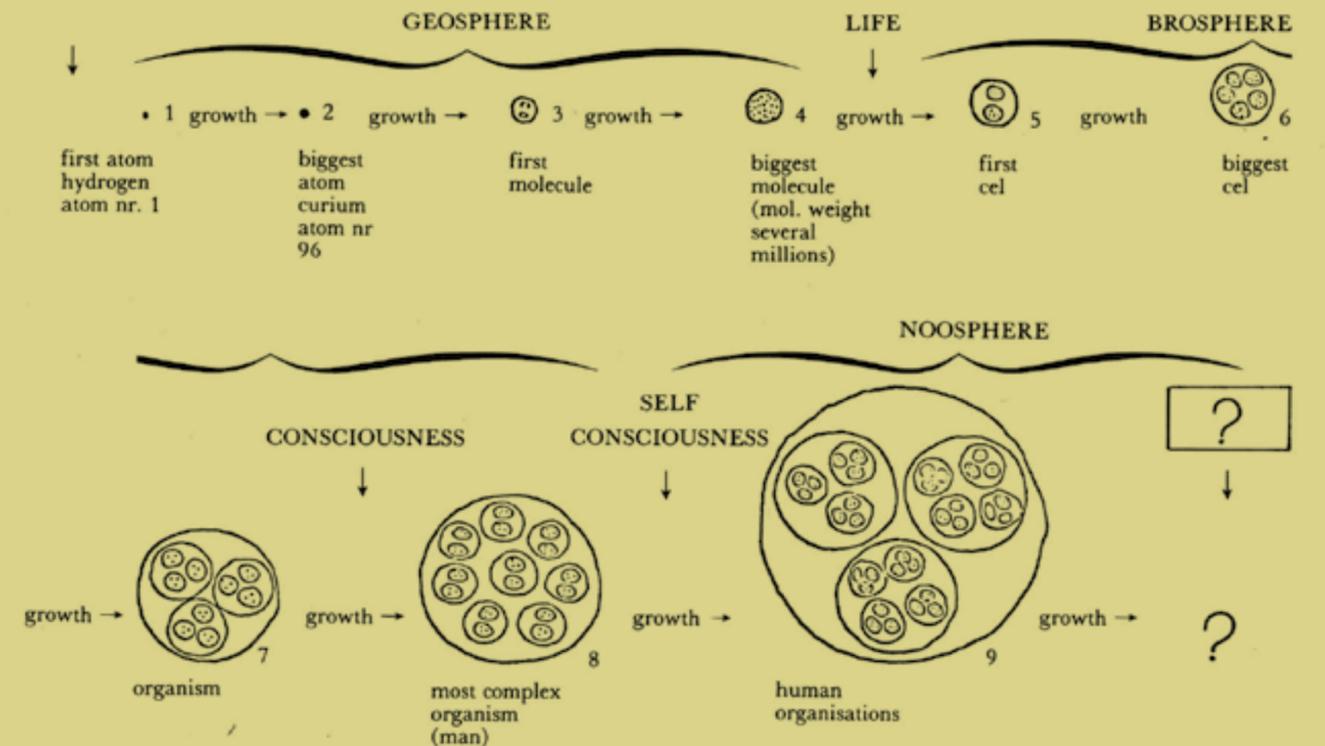


exhibit a mystical character. Later in the sixties, however, science and the Church again come closer to this vision. The attention and approbation which a man of scientific stature such as Dobzhansky accords to him in 1967 in his book *The Biology of Ultimate Concern*¹⁴ are not inconsiderable. The last chapter of this book is specially devoted to the 'Teilhardian synthesis'.

Dobzhansky states in the beginning of this chapter, amongst other things about the necessity for a synthesis: 'It must include science, but it cannot be science alone, and in this sense it cannot be "scientific". It must include art and esthetics, but it cannot be esthetics alone. A faith which stands in flagrant contradiction with well-authenticated scientific findings cannot be right, but one in accord with such findings may nevertheless be wrong. Science discovers what exists; man has a longing to discover what ought to exist. The synthesis must be esthetically satisfying, but it must also be rationally persuasive', and subsequently he states 'Life is very much older than man, and the universe is much older than life. This points to an indispensable condition which any synthesis must satisfy in order to be acceptable. It must envisage man, life and the universe as changing rather than as fixed, as parts of a single ongoing process rather than as three separate static realms. The central postulate of the synthesis must be that the universe and everything in it are evolving products of evolution. The synthesis must be an evolutionary synthesis'.

And this is precisely what Teilhard has done.

On the one side it is noticeable that in recent years articles are being published in an ever increasing degree, which demonstrate that the Teilhardian synthesis is absolutely compatible with the fundamental considerations of the Christian Religion. In the Second Vatican Ecumenic Council¹⁵ on the pastoral constitution on the Church in the world of this day an age 'Gaudium et Spes', of December, 1965, there is a remarkably different attitude from the one in the earlier mentioned encyclical 'Humani Generis' from 1950. In the introductory situation sketch of 'Gaudium et Spes' can be read, amongst other things: 'History itself is developing at such a fast pace that individuals can scarcely keep up with this development. For the whole of the human community only one history is created, the vicissitudes can no longer be divided up into different adjacent histories. In that way mankind is shifting from a more static conception of the world constellation to the more dynamic evolution concept; and from this a very great complex of new problems emerges, which calls for new analyses and syntheses.' The accomplishment of the synthesis between the α and β components, referred to in the preceding chapter, must be placed in this wider context of dynamic evolution. In his major work on evolution⁹ Teilhard gives an integral description of the evolution process, as it in all (and increasing) probability occurred. The description of this process was drawn up by him between 1939 and 1940 and, as

a matter of course, a great deal more and new scientific material has become available since then; accordingly the descriptive part of his works requires appreciable adaptation, but these strengthen his interpretations. The most important elements of his work, however, are, in the first place, demonstrating an enormous process of changes - now in motion faster than ever - since the creation of the earth in the cosmos by the materialization of energy $4\frac{1}{2}$ billion years ago and, in the second place, the courage and the vision to advance and substantiate the theses that this process comprises an irreversible direction, progress and goal.

Diagram II (see previous page) gives a simplified overview of the process of evolution. An essential aspect is that the material evolution from atom to human organism went on for billions of years at a slow pace and that the psychic evolution (at the root of which an entirely different process lies), is now in full swing, and leading to enormously rapid changes within generations which, particularly in respect of the social organization of society, are experiencing many unstable phases. It is now man - man with self-awareness and intellect - with the aid of advanced technical resources and intuition, who controls the process and thereby bears an enormous self-responsibility. Extrapolation of the extent and the quality of the changes will, in all probability, lead to critical moments in the first half of the 21st Century¹⁶.

Teilhard sees the present strongly increasing coherence in human society by an explosion in communication (both directly through travel and indirectly through books, radio, television - and what he didn't know at that time - the new acceleration through satellites and micro chips) as a distinct new step on the road to a higher level in the evolution of mankind. His classification into the geosphere (the earth), the biosphere (living things on earth) and the noosphere (the mental reservoir of mankind) leads him to the conception that the increasingly larger volume and quality of the noosphere - clearly undergoing a growth phase - will lead to a new dimension for mankind (supermankind) with entirely new relationships and properties which are not predictable (just as in the past the creation of life, awareness and self-awareness also transpired as unpredictable).

The attainment of this dimension lies entirely in the hands of humanity itself, and therefore of the individual and society. In this respect he strongly emphasizes the responsibility and the freedom of the individual to steer this process and to give it substance. In that he proceeds on the assumption that the new 'collective' spirit will strengthen the individual in his personality and he will not, therefore, be 'merged' into it. He himself has always emphasized that he has merely developed an initial conception and that he hoped that others after him would further adapt, modify, elaborate and extend this, entirely in the sense of the development of the quality of the noosphere.

His vision and fundamental approach to the synthesis between two ostensibly widely separated worlds of thought are of great importance for the progress of the world, and should be disseminated and further elaborated on a wide scale. They have an illuminating, stimulating and creative effect for the individual but also for the functioning of organizations and their mutual interplay. They give a positive direction and meaning to our life and our work, in any context and in any place in society whatever.

References

1. 'Structuur van de Onderneming' VNO/NCW-publicatie; 1976; - 'Structure of the Enterprise' Federation of Netherlands Enterprises/Netherlands Federation of Christian Employers Publication; 1976;
2. 'Ondernemerschap onder Druk', Pré-advies A. Stikker; Maatschappij voor Nijverheid in Handel, 1975; - 'Enterprise Management under pressure', Advisory report by A. Stikker; Society for Industry and Commerce, 1975;
3. 'AMRO in de jaren Tachtig', concept, 1981; - 'AMRO in the Eighties', draft, 1981;
4. 'Maatschappij en Vakbeweging', NVV, januari 1977; 'Society and Trade Union', Netherlands Federation of Trade Unions, January, 1977;
5. 'Marx's Concept of Man', Erich Fromm, 1961;
6. 'The Ghost in the Machine', Arthur Koestler, 1975;
7. 'Strategy of Culture', C. A. van Peursen, 1970;
8. 'Le Hasard et la Nécessité', J. Monod, 1964;
9. 'Le Phénomène humain', Pierre Teilhard de Chardin, 1955;
10. 'Discours sur les Sciences et les Arts', J. J. Rousseau, 1750;
11. 'Discours sur l'Origine et les Fondements de l'Inégalité parmi les Hommes', J. J. Rousseau, 1755;
12. 'Du Contrat social', J. J. Rousseau, 1755;
13. 'Geloof, Wetenschap en Maatschappelijke Omwentelingen', A. G. M. van Meisen, 1977; - 'Religion, Science and Social Revolutions', A. G. M. van Meisen, 1977;
14. 'The Biology of Ultimate Concern', Theodosius Dobzhansky; Perspectives in Humanism; The New American Library, 1967;
15. 'Constitutie en Decreten van het Tweede Vaticaans Oecumenisch Concilie', Katholiek Archief, Amersfoort, 1967; - 'Constitution and Decrees of the Second Vatican Ecumenic Council', Catholic Archives, Amersfoort, 1967;
16. 'Teilhard et les grandes Dérives du Monde vivant', François Meyer, 1965.