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CHAPTER 3

Dossier for an Analysis of the Foundations of Wealth: Dowry and Patrimony (D & P) and Capital

"... opulent society grows sick on its riches ... and the abundance of the industrial nations disguises their increasing miserliness"

Albert Tévoédjré, *Poverty, Wealth of Mankind*

3.1. The Process of Dowry and Patrimony (D & P) and Capital Formation

3.1.1. THE PHENOMENON OF ACCUMULATION

Accumulation is a universal phenomenon which can be observed in the natural, cultural and economic order.

D & P (Dowry and Patrimony)* is a global stock or asset in a dynamic equilibrium state resulting from different, interreacting forms of accumulation, which can be both positive and negative (depletion, dis-accumulation).

3.1.1.1. Characteristics of accumulation

(a) Qualitative and quantitative aspects. Accumulation is both qualitative

*The word Dowry has already been used by the economist Pentti Malaska: see his *Mankind's Dowry and Technology*, Turku School of Economics, Turku, Finland, 1979. It is used here in conjunction with the word Patrimony in order to ensure that the notion of “global assets” is sufficiently wide and fair as to both its feminine and masculine components and contributions to the earth’s history heritage.
TABLE 3.1. Dowry and Patrimony (D & P) – The Source of Utilization Value

and quantitative. These two aspects intervene and combine at different times and at different levels.

The birth of the universe (the “big bang” or any other theoretical explanation of it) is essentially a qualitative phenomenon, and is the starting point for many specific forms of quantitative accumulation: galaxies, stars, planets, etc.

The transition from a pure “physical” world – i.e. where there is no “life” – as is probably the case with most of the solar-system planets, to a situation where a biological D & P begins to develop, is a qualitative change. Biological accumulation, its development and diversification, is also characterized by a series of quantitative and qualitative changes.
Following on biological accumulation, cultural accumulation is another major qualitative change — in particular as far as the human species is concerned — although not exclusively so. Intuitively, one might say that quantitative accumulation is essentially a specific intensification of qualitative accumulation: having reached certain limits, quantitative accumulation may again give way to qualitative change.

In our view, the monetarized accumulation is a specific method or system produced by a man-made culture for the organization of D & P accumulation. The accumulation of money differs qualitatively from the accumulation of real goods in that essentially, it modifies the time-and-space limits and conditions of availability of previous accumulation systems. Money permits a level of resource mobilization and organization which would otherwise be technically impossible.

(b) Acceleration and deceleration. In proceeding from the simplest to the most complex of these four main types of D & P accumulation, there seems to be an acceleration. Whether this is a positive or a negative characteristic is open to debate. Probably, the law of entropy considered as a generalized economic process in nature (and discussed, for instance, by Georgescu-Roegen),¹ is related to this issue, but this is a matter for further research.

What should be highlighted, though, is that, if there are cyclical acceleration movements, considerable evidence exists for deceleration movements as well. The latter probably occurs when the intensification of a specific accumulation phase — developing essentially in a quantitative form — is preparing the way for a major qualitative change and the start of a new cycle.

If we take “cultural” D & P and consider the evolution of Western society, it is possible to detect some “privileged moments” of accelerated “accumulation”: for instance, the two megacycles of the Industrial Revolution and the feudal society at the end of the Middle Ages, which gave rise technically, artistically and in other ways, to the Renaissance.

Each of these periods represents a major cycle... subdivided in turn into smaller oscillations each of which has its own periods of acceleration and deceleration. This can be seen during the major cycle of the Industrial Revolution, for instance, in the emergence, maturation and deceleration of specific industrial activities which have, in turn, set the pace of develop-
ment: the textile industry, railroad transportation, the chemical industry and now, probably, microelectronics. However, the global impact of the pace-setting drive provided by a smaller cycle will vary depending on the pre-existing general status of the overall system of industrialization (this being a higher level of cycle).

Currently, the deceleration trend in the major wave of industrialization is being counterbalanced only partly by an acceleration in the smaller sectoral wave represented by microelectronics or any other promising new technology.

A deceleration occurs essentially when the general law of diminishing returns predominates over forces introducing positive returns.

(c) Selection. Any form of accumulation presupposes a process or a mechanism of selection. Saving — which produces accumulated monetary resources, i.e. capital — is the result of a decision as to the way in which inflowing money is to be used. In this case, selection is a conscious process; however, it can also be unconscious, as for example when we look around us and select (by what the psychologists call our automatic "input selector") those events or facts which fit our personality (which also is a form of accumulation).

Selection is essential in the process of sedimentation: otherwise, we would have no deposits of specific raw materials.

This demonstrates how close the concept of accumulation is to that of evolution. Industrialization is clearly one specific form of cultural evolution, with its own selection behaviour.

(d) Synergy. The more complex total D & P becomes, the more each new form of accumulation will react with all other forms: vegetable life in the form of forests with their accumulated physical energy, becomes part of the earth's raw-materials D & P, in the form of coal. Agricultural land — which is part of the natural D & P — is extended or enriched by human, cultural D & P through the development of the agricultural tools, through mechanization and through the addition of man-made fertilizers.

It is fundamental to note that the various outcomes of such combinations are determined essentially in a synergic way: they depend less on
the nature of each factor involved than on the way each factor reacts with the others.

This means that the interaction of two positive factors may produce a negative result; in virtually no case, will the result be equal to the sum of the two effects. A clear example can be seen in medicine when two different drugs are taken together for a disease: the combination may have negative effects. Other examples of positive and negative synergy are detectable all around us.

(e) Depletion and disaccumulation. Any form of accumulation also has a net negative aspect, linked directly to the fact that there is no such thing as a “given” stock of D & P — fixed in time — but that each D & P is in a state of dynamic equilibrium.

We are, then, confronted with a continuous process of natural, biological, cultural and “industrial” disaccumulation and depletion which must be taken into account when considering the dynamics of the D & P equilibrium.

As we have seen, each form of D & P has a different period of accumulation and consequently many D & P assets which have been “produced” over a long period of time (a coal mine, an oilfield) are considered “non-renewable” resources.

The problem is, then, to determine whether cultural and monetary “D & P” (in this case, scientific and technological knowledge) are accumulating fast enough to match — in real terms — the depletion of the natural D & P due to current exploitation.

This brings us once again, although from another angle, to the problem of utilization value and of the real returns of technology.

3.1.1.2. Accumulation and different forms of discipline

The development and use of our knowledge in assessing different types of accumulation are, in themselves, ways of developing and using “cultural D & P”: astronomy, astrophysics, physics, geology, etc. are all specific forms of cultural D & P centered on natural, physical accumulation, in the same way as biology, genetics, zoology, etc. are related to biological
accumulation. History, sociology and the arts are the object and subject of cultural accumulation. "Economics", as we have already said, is — or has been at least until now — essentially the discipline of monetarized accumulation in the industrial revolution. All these disciplines have points of interface such as biophysics, psychosomatics, economic history.

In this respect, we take the opposite approach to economists such as Marshall and Becker who see, by analogy, in economic activity, a reference for the study of any other material or cultural behaviour. In fact, the processes they identify (accumulation, equilibrium, cycles, value, etc.), are merely the image (highly miniaturized and specific) within the monetarized D & P of phenomena outside the framework of economics. In their accumulation process, all sciences and disciplines display features and paradigms which mirror a much wider reality. As various psychoanalysts have shown, an individual discipline will frequently, by such analogies, tend to propose that it is the very essence of global reality: such an approach is fed by the individual’s ambition to present a “universal” view. If each type of accumulation does, in fact, reproduce general phenomena, the temptation to develop a universal outlook starting from a specific and limited case of accumulation is like using a microscope to study the behaviour of gigantic systems. In certain cases it may develop into organized myopia.*

Joël de Rosnay has pleaded for wider use of the macroscope,² rather than the microscope, in studying systems of accumulation processes and their interrelations.

Understanding of the global behaviour of D & P is therefore a premise for closer examination of monetarized D & P.

Let us now rapidly review some of the various forms of accumulation in the different and interrelated types of D & P.

3.1.2. NATURAL ACCUMULATION: SOME EXAMPLES

(a) Geological accumulation. The natural physical D & P of the universe has taken billions of billions of years to accumulate. The earth has had “only” a few billion years to become the “accumulation system” it now

is. Geology is a major discipline which studies this process by analyzing, for instance, vertical sections of sedimentary strata. These simplified images of reality provide a record of the accumulation phenomenon by the superposition and by the succession of consecutive states of a sedimentary sequence.*

However, although it provides physical evidence of the qualitative aspect of accumulation, superficial observation of sedimentary strata is of no use in determining respective ages or in indicating the duration of formation of a sedimentary sequence.

Radioactive dating techniques have made it possible for geologists to replace their previous relative-time dating scale by an absolute-time scale. It now appears that the Earth is 4.6 thousand million years old, as shown in the Table on p. 175.

This Table shows the era at which ore deposits, i.e. the wealth of natural resources containing a part of the D & P drawn on by man, were laid down. In relation to a human lifespan, or even to the duration of man’s existence on earth, the lifetime of this stock of services is immeasurable. For the fossil fuels — mainly natural gas, oil and coal — the time scale is appreciably shorter, and yet these deposits are several hundred million years old.**

The notions used above to define the concept of accumulation are applicable to the phenomena of accumulation of natural resources; thus

*The expression “sedimentary sequence” implies the non-integration of these states in a regular series of events. It is applied to a method of evaluating time in relative terms so that some object or event is classed as older or more recent than something else; thus, it has been established that the disappearance of the dinosaur antedated the appearance of the human being on earth, without it being possible to state the date of the dinosaurs’ extinction but merely that this event preceded man be several million years.

**The oldest known coal deposits were formed about 370 million years ago. Petroleum has been found in rocks of the Paleozoic age, but over 90% of the world’s petroleum comes from sedimentary basins of the Mesozoic and Cenozoic ages. It is interesting to note that the processes which terminate in the formation of oil and natural gas deposits are governed by a sort of natural selection. The extraction of these fluids is, in fact, possible only if three preliminary conditions are satisfied simultaneously:
- Decomposition of micro-organisms inside very fine grained sedimentary rocks, the mother rocks.
- Expulsion of the oil or gas from the mother rocks in the course of their transformation into porous permeable sedimentary rocks, the reservoir rocks.
- Migration of the fluids until an obstacle is encountered against which they accumulate.
### TABLE 3.2. The Geological Time Scale of the Earth

<table>
<thead>
<tr>
<th>Era</th>
<th>Period</th>
<th>Epoch</th>
<th>Age in millions of years ago</th>
<th>Generalized biologic continuum</th>
<th>Generalized geologic events (Mountain building for North America only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tertiary</td>
<td>Recent</td>
<td>Pleistocene</td>
<td>2</td>
<td>Paleontodians migrating into North America</td>
<td>Glaciation on continental scale begins</td>
</tr>
<tr>
<td>Cretaceous</td>
<td></td>
<td></td>
<td>95</td>
<td>Placental mammals common.</td>
<td>Folding and major upliftinng of Rocky Mountain ranges.</td>
</tr>
<tr>
<td>Jurassic</td>
<td></td>
<td></td>
<td>155</td>
<td>Major extinctions (dinosaurs, etc.).</td>
<td>Pangea breaking up, plates bearing continents toward modern locations. Modern Atlantic forming</td>
</tr>
<tr>
<td>Triassic</td>
<td></td>
<td></td>
<td>190</td>
<td>First flowering plants.</td>
<td>Pangea breaking up, plates bearing continents toward modern locations. Modern Atlantic forming</td>
</tr>
<tr>
<td>Permian</td>
<td></td>
<td></td>
<td>225</td>
<td>First mammals</td>
<td>Ancestral Atlantic clades, folding and uplifting of Appalachian mountains. Pangea together</td>
</tr>
<tr>
<td>Pennsylvanian</td>
<td></td>
<td></td>
<td>280</td>
<td>First mammals like reptiles</td>
<td>Glaciation on continental scale (Gondwanaland).</td>
</tr>
<tr>
<td>Devonian</td>
<td></td>
<td></td>
<td>350</td>
<td>First reptiles</td>
<td>Pangea forming</td>
</tr>
<tr>
<td>Silurian</td>
<td></td>
<td></td>
<td>400</td>
<td>First reptiles like-ampnhibions</td>
<td>Acadian mountains rising in New England-Maritime Provinces-subduction zone?</td>
</tr>
<tr>
<td>Ordovician</td>
<td></td>
<td></td>
<td>450</td>
<td>First amphibians</td>
<td>Acadian mountains rising in New England-Maritime Provinces-subduction zone?</td>
</tr>
<tr>
<td>Cambrian</td>
<td></td>
<td></td>
<td>500</td>
<td>First vertebrates (jawless fish).</td>
<td>Glaciation on continental scale. Taconic mountains rising in New York-Quebec region, extensive volcanism-subduction zone?</td>
</tr>
<tr>
<td>Precambrian</td>
<td>Late Precambrian</td>
<td></td>
<td>550</td>
<td>Fossils become common as invertebrates develop hard exoskeletons (trilobites, brachiopods).</td>
<td>Ancestral Atlantic closing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>600</td>
<td>Approximate age of earliest known animals (soft-bodied worms, etc.).</td>
<td>Glaciation on continental scale.</td>
</tr>
<tr>
<td></td>
<td>Precambrian</td>
<td></td>
<td>670</td>
<td>Approximate age of oldest well preserved fossil cells, photosynthetic algae (first cellular organisms).</td>
<td>Glaciation on continental scale.</td>
</tr>
<tr>
<td></td>
<td>Middle Precambrian</td>
<td></td>
<td>1000</td>
<td>Earliest known advanced cell type (distinct nucleus/green algae).</td>
<td>Glaciation on continental scale.</td>
</tr>
<tr>
<td></td>
<td>Early Precambrian</td>
<td></td>
<td>2000</td>
<td>Approximate age of oldest well preserved fossil cells, photosynthetic algae (first cellular organisms).</td>
<td>Glaciation on continental scale.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3000</td>
<td>Approximate age of earliest life, first cellular structures (trichomophytes)</td>
<td>Glaciation on continental scale.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4600</td>
<td>Probable age of earth and other planets. Evidence: radiometric ages of meteorites and lunar rocks.</td>
<td>Oldest known earth rocks.</td>
</tr>
</tbody>
</table>


Selection is inherent in the sedimentation process: no selection — no coal or iron ore. This potential wealth is the result of slow development; the quality of workable natural resources as we know them is due to the millenium-long action of a number of natural factors which have acted together to effect the transformation from quantity to quality.

**(b) Biological accumulation.** Biology and genetics contain numerous examples of certain aspects of the accumulation phenomenon.
Evolution teaches us that all current forms of life are descended from a very small number of primitive forms and that man, for instance, is the result of a very long selection process. This evolutive process is governed by the rate at which mutations occur, these mutations introducing variations which may or may not be advantageous. Only the advantageous mutations survive, namely those which lead to an ever more successful adaptation of the living organism to its environment, supposed stable in the short term, while the others give rise to unfavourable reactions which lead to loss of adaptability and extinction. Evolution may incorporate a learning process in which the living organisms acquire mastery of their environment and memorize what they have learned in their hereditary D & P.

The fins of fishes, the wings of bats or the single functional digit of horses — responses of these animals to the conquest of various environments — are derived from the same structural type, the pentadactyl extremity of an earlier mammal. Man descends from the same mammal — a fact confirmed by the existence of the vermiform appendix in man whereas in other mammals it is a well developed organ containing enzymes and bacteria that facilitate the digestion of cellulose and other substances which formed part of the human diet at a given point in his evolution.

Such comparative anatomical similarities would be inexplicable without the supposition of adaptive differentiation since creation and the accumulation of differences from a common ancestor.* Selection, the effect of the combined action of the environment and the reactions of the living creature, is at the origin of accumulation.**

*Adaptive perfection by the constant use of the organ is another example of accumulation.

**Anders Munk (University of Copenhagen) comments on this point:
"Mutations and selection are the keywords of conventional theory of evolution. However, neither mutations nor selection, as currently conceived, can account for complexity, which is the most spectacular result of evolution found in the living world.
Moreover, complexity can only be described and accounted for in its own terms. It cannot be reduced or transformed to anything else. Analytical-positivistic science describes the world in terms of space and time, matter and energy. Modern science adds a fifth fundamental concept: Complexity.
A complex structure contains information (= negentropy = 'non-randomness'). According to General Systems Theory, several sets of information will most often interact as to generate qualitatively new information on a higher level of complexity, whenever there is an opportunity for such interaction. A genetic code is a set of information. Any organism will encounter other organisms in its environment. Any
Certain biologists consider evolution as the continuous accumulation of small mutations. Others, consider it more likely that major differences occurred suddenly in the course of the evolutionary process. However, these two theses are not contradictory if one accepts that the quantitative accumulation of small mutations (small cycles) culminates in a qualitative jump in the evolutionary process (large cycles).

To this concept of mutation accumulation common to the various evolutionary theses may be added the idea of mutation acceleration at a point in the evolutionary process.

In many cases, the accumulation phenomenon is followed by "disac-
cumulation" – atrophy and disappearance of redundant organs. Mutation accumulation is thus cyclic as is expressed in a "fundamental law of genetics": Haeckel's "recapitulation law" which states that embryos, during development, recapitulate the characters of the phylogenetic series to which they belong. During this recapitulation, it should be possible to "read out" the evolutionary line which preceded the creature in question.*

What is the origin of these mutated forms? This is a question which attempts to locate the site of mutations.

---

such encounter represents an opportunity for several sets of information to interact. Thus, General Systems Theory permits us to see evolution as a process characterized by an accumulation of ever escalating complexity.

The key operant factor in evolution, its 'generator of non-randomness', is selection. Selection is rarely a simple, one-sided phenomenon. A model example of this utterly simple case is the effect of an arctic climate on birds and mammals, inevitably favouring the development of a thick fur. In most cases, and in all crucial events, selection operates in a complex pattern of mutual interaction (feed-back) between the organism and its environment, including other organisms."

*Modern biology has denounced the exaggerations and extrapolations which this law has caused, but the facts on which it is based would appear to constitute one of the uncontested elements of the theory of evolution.

Anders Munk comments as follows:

"Scientists and many others have speculated about the origin of radical innovations during the evolution process. Qualitative big jumps have been postulated (‘hopeful monsters’), but there is no evidence of such events. Moreover, it is difficult indeed to imagine one qualitative jump for a whole population; and all organisms exist in populations. The evolutionary process seems to have been continuous. But it has not necessarily been differentiable. Qualitative jumps may well have occurred, not in the genetic codes, but in the behaviour of animals. A radical shift in the behaviour of an animal means a radical shift in the entire selectional situation, and from then on evolution will take a radically new course. The otherwise smooth curve that represents the course of evolution will display a sharp angle at such an event."
(c) Genetic accumulation and mutation. "At the origin of any living being, there is always one unit which constitutes life, a drop of protoplasm contained in its envelope, that is an architecture which already possesses all the attributes of the living creature." This unit is derived from the previous generations and conveys the "hereditary tendency": "the chromosomes of the father (or mother) constitute half the nucleus of the infant, those of the grandfather (or grandmother) contribute a quarter, those of the preceding tenth generation 1/1024 and so on".

The substance of the chromosome is, as it were, a reservoir of accumulation; the cell is both the summary of past experience of its phylum and the vector of its transmission: "every egg thus contains, in the chromosomes received from its parents, the whole of its own future, the stages of its development and the form and the characteristics of the being which will emerge from it. The organism thus becomes the realization of a programme specified by heredity." This certainly justifies the expression "genetic D & P" and its corollary of information storage.

The same happens if an organ becomes of service for other than its original purpose. A good example is the convex lens of an eye, as found analogously in several phyla of the animal kingdom. Originally, the lens served simply to concentrate light on the retina, thus rendering the eye as a whole a little more light-sensitive. But a convex lens not only can but will inevitably do one more service than to concentrate light: it will form an image somewhere in the roundabouts of the retina. And from the moment when the first blurred image is registered by the retina, there will be an enormous selectional advantage in any improvement of that image (provided there exists an adequate nervous system to process the data from the retina). Hereafter, a completely new trend in evolution takes its course, developing not only the eye, but also the nervous system — if not the whole organism.

Simple or complex, selection has always two important characteristics:

1. The 'selectional situation' is always the one it is because of what has happened in the past.

2. Selection operates in terms of 'here and now'.

In other words: selection is a matter of past and present. The future is not within the picture at all.

The amount of Dowry and Patrimony in terms of information stored in the world of living beings is literally unmeasurable: not only has it taken hundreds of millions of years to generate all this information — the only yardstick one could have thought of to measure it — it is also wildly improbable that the evolutionary process will ever repeat itself. Extinction of species represents irreversible destruction of Dowry and Patrimony."
Geneticists have demonstrated the primordial role, in the reproduction of life, of certain acids — deoxyribonucleic acid (DNA) and ribonucleic acid (RNA). DNA is a carrier of coded information and contains the programmes required to synthesize all the proteins a given cell can manufacture. RNA acts as the cell’s messenger by copying the programme (gene) information in the nucleus DNA and carrying to the area where the cell manufactures its proteins. The code carried by the messenger RNA is usually a faithful copy of what was found in the DNA; however, if the copy is not faithful it becomes the origin of a variant. If it represents an advance and the environmental conditions are favourable to it, the error is transmitted to the descendants... where it accumulates in their genetic D & P.

Selection therefore operates inside the cell itself at three different levels: the gene; the individual considered as a set of genes; and the species. “By a kind of cycle, the substrate of heredity ends up by being also that of evolution.”

Feeding, breathing and reproduction are functional requirements common to all living organisms. Continuity is associated with functions, rather than with the means of implementing these functions.

(d) Mutations and value deducted. Do advances in medicine have negative as well as positive effects and do they favour the accumulation of harmful genes in the hereditary D & P? If this should be the case, then this modification of the genetic D & P is quite certainly an example of a value deducted associated with medical technology, since without it the “unfavourable variants” would have been eliminated by natural selection.

Prudence, however, is essential. Genetic studies have shown that over 50 generations are necessary before the incidence of recessive gene occurrence doubles. This is rather negligible.

There is something more serious, however: artificial ionizing radiation and many chemicals have definite if little understood mutagenic and teratogenic effects. These effects give rise to particular concern in the case of radioaction substances with long half-lives. Accumulation occurs and unacceptable levels may be built up in the body. An even more important hazard results from our inadequate knowledge of the mutagenic action of new chemicals. “Less than 7 or 8% of spontaneous mutations are due to ionizing radiation, the rest being essentially associated with the
various chemical processes taking place in the cells; any modification of the conditions in which these processes take place can therefore have dramatic consequences. This is only a possibility — most substances, in all probability, are strictly inoffensive as far as our genetic D & P is concerned, yet this is only a hope unsupported by the least objective proof. In face of this paucity of information, the only reasonable attitude is one of prudence; it would appear that this attitude is not always adopted by our society.”

Since most of these new substances are synthetic products that nature can not always absorb, the result might possibly be a degradation of our genetic D & P by modification of our chromosome structure; this would be a value deducted following on a technological advance, and must therefore be monitored closely.*

3.1.3. MAN-MADE ACCUMULATION

(a) Cultural accumulation. Human culture and nature are not two separate, unrelated domains. Any culture takes root in the common compost of biological needs (breathing, eating, reproduction, resting, sleeping, etc.) as much as in the aspirations proper to human nature (striving to attain goals, artistic creation, etc). In society, man is, to a very large extent, occupied by his biological survival. The division of labour, the storage and preservation of foodstuffs, progress in agriculture and transport, the expansion of trade up to a certain point, appreciably facilitate man’s task of survival. He tends (or hopes) to move from a subsistence existence to an increasingly intellectual mastery of his environment, his relations to that environment, their meaning and their future evolution.

Humankind by responding to its environment, invents behavioural patterns and creates values**-and institutions to satisfy certain needs (biological, spiritual and, often, both) by means of individual or joint activities which contribute to the community or social organization. Even in the most primitive societies, gathering food, hunting, keeping the fire


**Archie Bahm (University of New Mexico) comments: “Our D & P includes not only ethics, but lack of it, not only understanding of ethics, but also lack of understanding of ethics”.}
alight, cooking food and ensuring the safety of the group, are not left to chance. The very survival of the members of the group is at stake. Shelter, tools, hunting weapons no matter how rudimentary, are just so many cultural responses, their number, variety and complexity depending on local conditions: climate, hydrology, availability and use of natural resources, etc. Once they have appeared, these derived or secondary needs create a type of secondary conditioning. This happens every time a new cultural need appears, whether by invention or dissemination, so that one can talk of cultural sedimentation in respect of this evolutive process: once fire had been discovered, the security, the warmth and the light which it offered and the cooked food it made possible became necessary for man’s life and he never stopped improving his original condition by increasing the uses of fire. Similarly, the design and construction of forms of shelter are being constantly perfected to achieve more effective protection, and today considerable losses in welfare and even in human life accompany any large scale and abrupt regression from solid buildings in the direction of the mud hut or thatched hut. These derived needs, in turn, influence biological needs:* consumption of cooked food modifies eating habits and has repercussions on the alimentary functions; from a herbivorous or carnivorous animal, depending on his location, man became an omnivorous animal, increasingly suited to a diversified diet; subsequently, the invention of food storage and preservation techniques ensured him a food reserve which gave him further advantage in the incessant struggle for survival.

Any cultural process is therefore a continuum in the course of which humankind, following a series of adaptations to his environment, tends to replace external constraint by a constraint of which he is simultaneously both the subject and the object. Any culture expresses the capacity of the individual to invest instrumental mediations between himself and his

*The reciprocal interaction of the primary (domain of biological needs) and secondary (domain of cultural needs) environments may be schematically represented as shown below:

![Diagram](attachment:image.png)

The two sets of needs are linked by circular causality.
natural environment and to select them. However, animal societies are also capable of inventing instrumental mediations. Human society is distinguished from animal societies by its ability to transmit acquired or accumulated behaviour by tradition: "One goes from the abilities and the precultural executions of the animal to this stable and permanent organization of activities which we call culture, when habit becomes custom, when instead of instruments that happened to be available, one uses a set of objects specially fashioned and transmitted by tradition, when habits which are constantly lost and found again are replaced by traditional rules and, finally, when the individual sporadic act gives way to group behaviour organized in a permanent manner." In man's transmission and assimilation of professional competence and scientific knowledge, the role of an articulate language is clearly decisive. Moreover, the maintenance and the stability of a culture are conditioned by the vigour of its institutions which set the values of the social group, govern behaviour at the workplace, in school, in the family, etc.: in this respect, the group's cohesion is in part subordinated to its power of integration.

The expression "cultural sedimentation" used above thus implies an accumulation phenomenon.

A person's education, instruction and training are the results of an apprenticeship* which allows him to assimilate the know-how, language and other symbolic tools of his culture and locate himself in a system of institutions that define his setting in life. During this apprenticeship, he benefits from the achievements of his predecessors in preparing the environment which is to accommodate him. This apprenticeship process takes place at both individual and group levels and is both quantitative and qualitative in nature. As an individual or a community expand their knowledge and activity, they refine their perception of their environment, and rise from a sensory level to an intellectual and conceptual level.

In the organized group, cultural accumulation does not mean blind perpetuation of existing lifestyles; new behaviour forms are adopted, new values acquired and new institutions founded which progressively replace and obliterate the previous ones by a process of continuous adaptation. As

*The apprenticeship is not limited to knowledge acquired at school, in the university or in the family. "The school of life", the sum of observations, reflections, physical experiences... is an essential component of knowledge, if not the exclusive source.
man reaches each new stage in the control of his environment, his capabilities are better served by more appropriate means. The behaviour, values and institutions which previously served as a reference become obsolete, out-moded or unsuitable; in short, they become less operative or even inoperative.

Cultural characteristics, which do not disappear as a result of the evolution of human societies, are survivals. A survival is "a cultural characteristic which does not correspond to its environment. It persists rather than functions, or its function is out of place in the contemporary culture."  

Culture is thus the whole set of values, institutions and behaviours, including material productions, specific to a given human group which, by a series of evolutive adaptations, constitutes a specific D & P comprising a series of accumulations, sedimentations and selections. This process may also frequently be negative and lead to a culture's decline or disappearance. During regressive cycles, certain cultural characteristics are destroyed and not replaced — as when the ancient Greek cities lost their freedom and the pre-Columbian civilizations in America were destroyed by conquest and the spread of new diseases.

*"Also in cultural evolution, selection is active, in the mind as well as in material practice: Inadequate innovations are dismissed, either in the mind, on the drawing board, or after unsatisfactory performance. Other innovations come to stay. By what kind of criteria?"

1. By criteria of the actual situation. An invention can be introduced in vain, and the same invention can get a break-through for good some years later. It all depends on the actual situation, and that is determined by the past.
2. By criteria of performance here and now, 'now' may include some near future; the distant future is completely out.

So, in terms of cybernetics, there seems to be an important parallelism between biological and cultural evolution: In neither of them is the future really within the picture" (Anders Munk).

We would stress the fact, though, that human culture introduces more and more the future under the form of expectations, hopes, forecasts, myths, religious beliefs, utopias which are all, of course, images lived and acted upon in the present. The present, in human cultures, appears to be more and more mirrored by images of the future, in a rather similar way as images of the past are also "selected" by the present. The philosopher, B. Croce, used to say that history is always "contemporary": we would add that the future is "contemporary" too. They both contribute to our judgement, behaviour, in other words, to our selection system, which operates always — and we agree on this with Anders Munk — in the present. The only real future is now.
Cultural diversity thus proceeds from the variety of the natural environments to which human communities are exposed and the capacity of these communities to invent appropriate cultural responses. The tradition of the Industrial Revolution has been essentially one of attempting to develop or promote ostensibly "universal" models for the organization of society. At least two of these models, the North American and the Soviet ones, are based on an "industrial vision" of development. They postulate the absolute priority of a certain concept of science and technology over all other domains of social life. Technical progress, once initiated, become autonomous and imposes the transformation of social relationships along a linear pathway.

The implicit hypothesis is, therefore, one of cultural evolutionism which qualifies cultural differences merely as obstacles on the path to "development": in this line of thought, diversities are simply the expression of different evolutionary stages or degrees in the movement toward a unique model.

If, on the contrary, the wealth of mankind stems from diversity and the inter-communication of diversity between our multitude of cultural D & Ps, the radical impoverishment which a uniform "world culture" would engender must be seen as a net value deducted. The utilization value is, in effect, intimately connected with the development of the D & P potential proper to each culture. The cultural responses — relationship to nature, the group, material goods, work, life, etc. — are closely linked with each community's own D & P. Maintenance of the diversity of the particular cultural D & Ps is a guarantee for optimization of the utilization value in each particular case. The accumulation of diversities is a source of wealth whereas stereotyped accumulation is a cause of poverty.

(b) Accumulation by means of money. The possibility of accumulating goods and services in time and space is limited by their very nature (size, weight, location, durability, etc.). It is possible to optimize the systems that increase time-space mobility by inventing tools: the invention of the wheel and the domestication of horses helped in transporting people and goods from one place to the other. The Inca empire had neither wheels nor horses available and therefore, free food was available along the road for people making long journeys; thus the social system — in
this case a communitarian view of food ownership — can, at least partially, replace a specific tool. Using such systems, the scope of travel can be extended — the Inca empire was an enormous one, stretching over 1600 km from North to South.

However, with money which is universally recognized and accepted (which implies a certain cultural adaptation) — one can have in one’s pocket enough food, shelter and transport to travel the world for years.

As such, money has been known and used — in various forms — for thousands of years, at least in certain parts of the world. Nevertheless, as the paragraph on economic duality will show in greater detail, up until the beginning of the Industrial Revolution, money was an economic tool of a secondary nature.

When the new technology, as we have seen in the previous dossier, began to require increasingly large concentrations of resources in a given place, money became essential for the very development of the economy itself. From being a partial means of limited exchange, it developed into a means of productive accumulation. Without the accumulation and diffusion in time and space that money made possible, the modern world as such would never have existed.

Parallel to the development of technology, financial technology has developed to dimensions which were impossible to even imagine at the beginning of the Industrial Revolution. At that time, personal family saving was the form of accumulation providing the means to concentrate the first simple tools of production. Only in the course of the last century, in response to the need for capital and the limits of individual and family saving, did the corporation (based on the collection of capital through shares) start its great development. As such, it was welcomed by economists like John Stuart Mill but — as we have seen — essentially rejected by Adam Smith who saw it as a destructor of individual enterprise (another point that Karl Marx was to develop further).

It was only later that the banking system developed as an important institute for accumulation and investment lending.

Banks had existed long before the industrial revolution, but they were essentially an aid to trade: at only a very late stage they really became an essential and integrated part of the industrial system. Even today, there still exist in many “advanced” countries, representatives of the old industries (such as the textile sector) who until recently resisted the principle of
obtaining investment funds from the banking system.

Banks have now become gigantic institutions but even so, investment projects have grown to such a size and the sums of money involved have become so huge that the banks have had to form consortia to pool their resources to face up to the situation.

Financial intermediation is thus also essentially a cultural tool permitting through capital formation an unprecedented increase in human intervention in overall D & P formation. It is the same synergy process observable in other cases of general D & P formation: new technology makes new resources accessible thus increasing the available and accessible D & P; in the same way money — by the type of accumulation it makes possible — is an essential tool for increasing such accessibility. The money system, as well as any other technology, “creates” D & P, and more directly that part of monetarized D & P we call “capital”. Of course, this creation is not necessarily entirely and always positive. Like any other tool or process of D & P formation, it may be directly or indirectly negative. It is inescapable: the production of powerful tools is one thing, but the definition of their goals and their positive utilization is a matter of human choice and responsibility. Power, instead of merely making life easier, does, in fact, oblige man to be more responsible and more “human” than ever. The penalty is the growth of potential deducted values which can ultimately lead to the annihilation of the human race.

3.1.4. THE COMPLEMENTARITY OF D & P AND CAPITAL: THE CASE OF ENERGY

Man’s exploitation of natural and useful resources* is the whole set of acts which transform his environment, determining the mutation of the environment, its change from one state to another, the potential D & P of natural resources becoming effective and useful D & P.** Put in extreme, schematic terms, man’s life on earth is in the last analysis the multiplication of the initiatives tending to make available to him ever more abundant and varied “wealth”. Let us take the example of energy.**

*This term does not restrict this exploitation to the extraction of raw materials. It includes the production and distribution processes and their quantitative and qualitative changes, and hence all scientific discovery.

The Charts in Figures 3.1, 3.2 and 3.3 below show the considerable acceleration in the rate of energy consumption during the industrial age, and highlight a major factor: the combination of capital and technology, from the time of “industrial man” (Figures 3.2 and 3.3), has enormously increased the size of the accumulation, and has increasingly shifted its source from renewable raw materials to non-renewable raw materials.

“...In the United States, total primary energy consumption has grown at the rate of about 3% annually since 1850, although the rate has increased to over 4% during the past 10 years. In 1850, 90% of this energy was supplied by renewable sources — wood, water, and wind power. Currently, more than 75% is supplied by hydrocarbon fuels, petroleum, and natural gas.”

The real big task of technology in the next decades will

Source: James O'Toole and the University of Southern California Centre for Future Research, *Energy and Social Change*, p. 11, Massachusetts Institute of Technology.

**FIG. 3.1. Man’s use of Energy Through the Millenia**
thus be either to try to "renew" the energy basis of D & P, or to find new sources of the renewable type, without, of course, producing other or new types of deducted values.

For the time being, it is obvious that, reduced to a geological time scale, the "disaccumulation" of D & P caused by human activities has no equivalent. What nature has patiently accumulated over millions or even billions of years is being "disaccumulated" in a few decades by human action combined "bulimic technology" as is illustrated by Figures 3.4. and 3.5. on pp. 190 and 191.

Although geological phenomena are measured on a relative time scale, human activities are governed by real time; this time has steadily shrunk under the influence of the technical progress achieved so far by the Industrial Revolution using a combination of science-based technology and monetary capital. Now that natural resources are, in some cases, tending to

![Graph showing daily per capita consumption for six stages in human development](image)

*The hatched area indicates the portion of energy needs fulfilled by electricity.*

Source: James O'Toole and the University of Southern California for Future Research, *Energy and Social Change*, p. 12, Massachusetts Institute of Technology.

FIG. 3.2. Daily Consumption of Energy per capita for Six Stages in Human Development
become depleted,* the temptation is to accelerate exploitation of the D & P through capital investment of very low or even negative real productivity. The prospect of oil scarcity stimulates exploitation of other energy sources. Nuclear energy is an alternative frequently encouraged by certain private and public authorities. Is it an acceptable alternative? How far do the technologies of nuclear-energy production tend to increase the subsidy from other energy sources? Uranium extraction and transport, nuclear-power station construction and operation, radioactive-waste storage, the disposal of worn-out nuclear plants, vulnerability control, etc., are costly

*The concept of natural resources is a fluid concept since the available, useful reserves depend on the level of technology reached. Nevertheless, the distinction between renewable and non-renewable natural resources retains its full validity; the first represent a finite quantity, and new discoveries are exploitable only at an ever-increasing technological cost, generally because of difficulties of access: North Sea oil, Siberian reserves, depth of terrestrial deposits — nodules found on the ocean floor, for instance.
operations in terms of energy. If the increase of this subsidy is such that these technologies might become major users (directly and indirectly) of energy, the continuation of nuclear power station construction would hit important economic barriers in terms of real value produced. From the point of view of constantly increasing the GNP, the construction of nuclear power stations definitely has a positive effect in accounting terms: but this is at least partly illusory. If the energy-production system would tend to consume a very large part of the energy it produces, its effects on D & P "disaccumulation" should be carefully evaluated.

On a more general level, the concept which regards any increase in the GNP as an improvement in social well-being has masked a major fact: capital accumulation is often no more than an apparent accumulation since, by correlation, the D & P may be destroyed in its substance as the result of industrialized activity. In other words, the concept of value added (VA) must be corrected by a variable which is a measure of this loss of substance. This, as we have seen, is the value deducted (VD). Consequently, the effect of a new investment into the economic circuits should be appreciated only if \((VA - VD) > 0\). This equation neatly expresses the
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FIG. 3.5. Diagrammatic Plot to Illustrate the Rapidly Accelerating Trend of World Petroleum Consumption

need to properly integrate the value of capital into the value of the D & P in any strategy affecting our well-being.

3.1.5. D & P DEPLETION

\((VA + VD) > 0\) and \((VA + VD) < 0\) are the two aspects, positive and negative, of a single phenomenon: the evolution of the state of wealth. The uses of monetary capital cannot have a neutral effect on the overall D & P. Any economic activity will generate a value deducted: if there is accumulation somewhere, there will be “disaccumulation” elsewhere.

*Certainly the choice is between \((VA + VD) > 0\) and \((VA + VD) < 0\), but this is not sufficient. The magnitude of VA and VD is not without significance; the greater the VA and the smaller VD, the more rational is the management of the D & P. The efficacy of an economic activity would then be measured not so much as a function of its contribution to the growth of the GNP but rather as a function of its VD which should tend to be zero.
Moreover, the first equation may be considered to express a reduction in the conflict between D & P and capital to the point where the real value-added triumphs over the value-deducted, whereas the second equation portrays the relentless nature of this conflict.

The production of values-deducted is intolerable when capital accumulation is fostered by the squandering of D & P which is unthinkingly wasted instead of being rationally husbanded. Of course, it is not so much a question of denying the potential efficacy of monetary capital rather than of modulating its employment as an instrument of aggression on D & P.

Numerous examples confirm the pertinence and the necessity of escaping from the constraints of value-added as the sole gauge of “growth” which, in certain cases, by threatening the perenniality of the “service stocks” at the disposal of mankind, may eventually even be acting contrary to man’s true interests. The following three examples illustrate the damage that can be caused by inadequately controlled economic development: the first exposes economic gigantism; the second, the harmful effects on geographical topography of the intensive exploitation of underground resources; the third, the ineluctable result of aggressively destructive technology.

In Egypt, the construction of the Aswan dam on the Nile was completed in 1965. The objectives of this project were to control the waters of the Nile, to generate electricity, to develop irrigation and permit the establishment of a fishing industry in the Lake Nasser region. The advantages were incontestable but the wisdom of constructing the dam is now being questioned since a number of negative repercussions have been observed, particularly on the Egyptian fluvial and agricultural systems.

The rich alluvium regularly deposited by the Nile's floodwaters on the Egyptian agricultural plain has been an essential factor in the soil's fertility since the time of the Pharaohs. This alluvium is now held back by the dam and has had to be replaced by chemical fertilizers.

With the Nile's flood controlled by the dam, the river's effect on the Delta configuration has been terminated. The sea, no longer restrained by the force of the river current, is steadily encroaching on the Delta region, the rise in the level of salinity has made the soil unsuitable for agriculture, and the existence of freshwater lakes protected by narrow strips of sand is threatened.
In the lower Nile region, an accelerated process of erosion of the river bed and banks has started. Fishing has declined significantly in the eastern Mediterranean and the Delta lakes region.

Parasitic diseases such as schistosomiasis are spreading along the irrigation channels.

Evaporation from the immense Lake Nasser — 5860 km² in area — is intense and the loss resulting from this is estimated at 12% of the annual floodwater of the Nile. It is feared that evaporative loss will be further increased if the lake is invaded by aquatic plants as had happened in the world’s largest artificial reservoir, Lake Kariba in Southern Africa.¹²

Last but not least, the dam’s entry into service has accelerated land concentration and the exodus of the rural population towards the large towns of the Delta, especially Cairo, which are already overpopulated and incapable of assimilating these newcomers.

The cumulative effect of these values deducted is a refutation of the wisdom of building the dam — monetary capital has contributed to the depletion of D & P. Projects of more modest size and better adapted to local conditions would have achieved the same overall objectives without causing damage on such a scale.* Studies of impact and subsequent effect would have contributed to ensuring a more harmonious balance between VA and VD and to optimizing the utilization value of the Egyptian natural D & P.

A little-known phenomenon is the land subsidence resulting from the intensive exploitation of underground resources. In the Southern part of the Californian Central Valley, the pumping of underground water for irrigation purposes is progressively exhausting the ground water table which has a stabilizing effect on the topography. Very large areas (approximately 7800 km²) have been affected by land subsidence. Topographical observations have shown that, in some places, subsidence is as much as several meters. Figure 3.6. shows how the affected zones account for a considerable portion of certain California counties. Without going to the extreme of halting operation of all the wells, it would nevertheless be

*In the United States and other countries, concern is now being expressed about the dams built to date, the pressure they exert on the earth crust, and the disaster hazard that they might constitute. This is another example of enhanced vulnerability that has not been taken into account in monetary balances. See “Dam Design — is Technology Faulty?”, by P. Williams, New Scientist, February 2, 1978, pp. 280–284.
possible to reduce pumping to a more moderate level and continue to exploit only those water tables where there is adequate security or halt building in zones likely to be affected by land subsidence. Massive extraction of gaseous or liquid fluids in numerous areas of the world gives rise to the same kind of problem. In the Po delta, on the Adriatic coast of North East Italy, extraction of the natural gas from poorly consolidated sediments has caused local subsidence of 30 cm per year. The situation has become so serious that cessation of extraction has been envisaged.

In the High Plains region of the United States, water is used intensely in spite of its relative rarity. In the States of Texas, New Mexico, Oklahoma, Colorado, Nebraska and Kansas, tens of thousands of square kilometers of semi-arid land are irrigated, thanks to an immense underground water table, the Oglallala reservoir. Without it, regular harvests would be impossible in this region which currently produces 20% of America’s sorghum and cotton, and 3% of its wheat and corn; nor would it be possible to fatten the large herds of livestock now maintained.

It took millions of years for the water in this reservoir to accumulate; however, if exploitation continues at the present rate, supplies will be virtually exhausted by the close of the century. In Texas, for example, the water level is falling at an average rate of 2 to 7 feet a year, whereas in this same region of the High Plains, water infiltrates into the reservoir at a rate of only one tenth of an inch a year. In Colorado, the situation is no better: research workers at Colorado State University have estimated that a pump drawing water from this reservoir at a rate of 2000 litres per minute lowers the water-table level by half-an-inch every two weeks over the equivalent area of the reservoir. Some agricultural operations use 4000 litres per minute for a 4-acre section. At this rate, the level of the water table is falling by half-inch every two days. Since 1948, the exploitation of the Oglallala lake has accelerated continuously: the number of irrigation wells in the High Plains of Texas has increased from 8400 in 1948 to 52,000 in 1963 and 71,000 in 1976; they are of increasing depth and the area irrigated per well is decreasing as is shown in Figure 3.7.

Some farmers are already deprived of water and, faced with the prospects of a shortage in the near future, some of them have increased (!) the rate of pumping. The farmers of this region are squandering a precious D & P, which is non-renewable on the timescale of human life, and,
FIG. 3.6. Sketch Map of Part of the State of California. Darkened Zones Indicate Areas Affected by Land Subsidence Due to Man's Activities.


FIG. 3.7. The Diminishing Returns of Irrigation
moreover, they are doing it at a considerable cost in energy. The example of the Oglallala reservoir emphasizes another aspect of the danger of indiscriminate use of investment — triggering-off a cumulative process — D & P wastage. To protect their livelihood and the very basis of their economic existence as farmers, those engaged in the agricultural exploitation of this region have formed a lobby to persuade the Federal authorities to subsidize a project for diverting the waters of the Mississippi to Arkansas via a network of pipes and canals. The cost is estimated at 3 billion dollars; however, there is considerable uncertainty about two major aspects — the energy cost of raising the water from sea level to a height of 1000 meters, and the impact on the environment — which have not yet been determined. Instead of this type of development which sacrifices irremediably a “stock of services” to monetary returns, value of utilization to value added and the future to the present, would it not be possible to adopt a technology more economical of water and energy resources, and with greater respect for the natural cycles and their duration? In this way, by better conciliating monetary and non-monetary D & P, it would be possible to really plan the agricultural survival of the High Plains of the United States.

Admittedly, these are all cases of limited extent but they are nevertheless examples and not isolated instances.13

Similar situations can be observed in many other fields.* For instance, the insecticide spraying has long been considered an efficient means of malaria control and, in fact, considerable achievements have been made. However after a period of decline the disease is spreading once again: in India, the number of cases of malaria rose from 60,000 in 1962 to 6 million in 1976; and the world wide figure is now estimated at about 300 million.14 Moreover, there is a recurrence of the disease in zones from which it was thought to have been eliminated, such as Southern Europe.

The strains of mosquito vector have developed resistance to chemical insecticides.15

Insecticides therefore also tend to produce net deducted value, when they “produce” the conditions for a reinforcement of the disease. The approach must therefore be rigorously systemic so as to find the best equilibrium level thus enabling disease control to be “optimized”.

*The story of the so called “green revolution” is another bitter point in case.
Still more decisive in the long term, in view of its effect on the biosphere, is the thoughtless destruction of the tropical forests. It is estimated that some 40% of these forests may already have been destroyed and “what is left is being burnt or felled at the rate of 20 hectares a minute.”\textsuperscript{16} What price then the project to “exploit” the Amazonian subsoil with the concomitant destruction of its vegetation which, according to the experts, is a major source for the renewal of the Earth’s oxygen?

The repercussions of this profligacy are unpredictable since once the threshold of the intolerable is attained, curative action may be too late.

3.1.6. WEALTH AND POVERTY

D & P depletion is clearly an index of increasing poverty, even if — and precisely because — it is accompanied by increasing costs in the monetarized economy.

Poverty in the world today has two main roots: “classical” poverty which even the modern world has not succeeded in suppressing completely and “modern” poverty, which is produced through increased, industrialized D & P depletion.

“Classical” poverty is measured, in part, in terms of disposable income which determines the solvable demand. Modern poverty is measured in terms of increasing costs which require increasingly high disposable income and effort to provide access to a constant, or even decreasing, level of services.

Official statistics of poverty are generally derived from quantitative analyses of individual income. In 1975, Robert S. McNamara, President of the World Bank, estimated that some 900 million people were living on an income of less than US $75, and provided the following description of absolute poverty:

“They are absolute poor, living in situations so deprived as to be below any rational definition of human decency (absolute poverty is a condition of life so limited by illiteracy, malnutrition, disease, high infant mortality, and low life expectancy as to deny its victims the very potential of the genes with which they are born). In effect it is life at the margins of existence.”\textsuperscript{18}

In an attempt to define poverty and stimulate action against it, an ILO report entitled “Employment Growth and Basic Needs”, divides the
relevant populations of Asia, Africa and Latin America into two categories: "seriously poor" and "destitute". These two levels of poverty are defined respectively in relation to the average earnings of unskilled workers in large Indian firms and on the basis of one rupee per person per day. The cost of a typical shopping basket of the goods consumed by the poor is calculated at the equivalent of US $1 in Western Europe, 20 cents in Asia, 23 cents in Africa and 36 cents in Latin America. On this basis, the "seriously poor" poverty level would involve an annual personal income of: US $500 in Western Europe, US $180 in Latin America, US $115 in Africa and US $100 in Asia. The corresponding figures for the "destitute" level would be US $250 in Western Europe, US $90 in Latin America, US $59 in Africa and US $50 in Asia.

These figures, are of course, supposed to represent very low standards of living. Nevertheless, their meaningfulness can be disputed. With a total annual income of US $500, a European could not of course meet even his basic needs: a subsistence level of food, clothing and housing. If he is still alive at the end of the year, it means he must have other sources of revenue, and that his monetary income is only a part of his total income.

By its apparent neutrality, monetary income gives an inaccurate picture of development. "Absolute poverty" would relate to the circumstances of persons reduced to the level of biological survival, and "relative poverty" to the situation of those who had risen above this level but still had no access to the sociocultural services which any industrialized country makes available to its citizens. Thus, the difference between absolute poverty and relative poverty would be one not only of degree but also of nature. There is a shift in the scale of values, from the area of basic needs to that of the priority and the legitimacy of industrial development. "Malnutrition is the consequence of poverty, the misfortune which only a society which has arrived at the stage of maturity, the society of mass consumption, as Rostow\(^{19}\) says, makes it possible to transcend."

If, in reality, there were a mechanical response to this linear scheme of development, the number of destitute would decrease when economic growth increased in real terms. However, despite the rapid economic growth between 1963 and 1972 in most Third World countries, the number of poor has increased by 40 million even though, in view of population growth, the proportion of poor in the total population has
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decreased slightly during the same period. As for illiterates, according to
UNESCO, the number increased, from 700 million to 760 million.

In fact, the division is not between the absolute poverty of the destitute
in Third World countries and the relative poverty of the destitute in the
industrialized countries. Extreme destitution is the lot of those living at
the limit of survival who are subject to all the diseases inherent in
deficient nutrition and whose sole preoccupation is their daily search for
food to the exclusion of all desires other than the biophysical. This
extreme destitution, frequent in the Third World countries of Asia and
Africa and, to a smaller extent, in Latin America, has become more rare in
the industrialized countries, but has not disappeared. Far from it.

The term “culture of the poor” used by Oscar Lewis in the introduction
to his book Les Enfants de Sanchez, defines serious poverty in a convincing
manner. Serious poverty is, in certain cases, the effect of industrialization
and urbanization on private and family life. The victims are the least
favoured social classes: unskilled workers, small farmers, plantation
workers and what is commonly termed the “Lumpenproletariat”. The
two main characteristics of the “culture of the poor” are the persistence
of poverty, even in industrially advanced social systems, as in the West for
instance, and its universal nature. Oscar Lewis, in fact, noted great similarity
between the poor classes of Glasgow, Paris, Harlem and Mexico with
respect to family structure, relations between people, use of time and
money, the hierarchy of values, and community spirit. The main charac-
teristics of the “culture of the poor” are described by Lewis in the
following terms.

“The economic facts most characteristic of the culture of the poor are
the constant struggle for life, under-employment, unemployment, low
wages, a variety of unskilled jobs, child labour, the absence of saving, a
chronic shortage of liquid funds, the absence of food reserves in house-
holds, the habit of buying small quantities of food several times a day as
required, the pawning of personal possessions, borrowing from local
money lenders at usurious rates, ad hoc unofficial credit systems....”

“Among other social and psychological characteristics, there is that of
living in quarters where there is a high density of population, the lack of
intimity, the gregarious instinct, alcoholism, frequent recourse to violence
to settle disputes, corporal punishment of children, wife battering, pre-
cocious initiation in sexual life, cohabitation...."
Albert Tévoédjrè has recently written a book with a paradoxical title: *Poverty, the Wealth of People.* This defence of poverty is the defence of those (utilization) values which constitute an essential basis for wealth and which, too often — since they are not accounted — are sacrificed to the exclusively monetarized notion of wealth.

It must be clear, as it is clear for Albert Tévoédjrè: we all want to be wealthy. What is at stake is real wealth, real *material* wealth as well as cultural wealth. In one word: real maximum freedom.

The reference base here is the availability and accessibility of D & P: a D & P which industrialization can help to increase, but only up to the point at which an equivalent — or even worse — higher level of deducted values is produced.

A major objective of economic policy should therefore be to protect and develop our D & Ps whilst giving due account to all their complexities. To achieve this, D & Ps must first be recognized, identified and their additions and losses accounted for.

We need new ways of assessing wealth and welfare.

3.2. Assessing Wealth and Welfare

3.2.1. D & P AND VALUE

The concept of wealth is identified in economics by a certain notion of value. The notion of added value is very often used to indicate the standard of living and, as such, it is accepted as a more or less adequate definition and quantification of wealth and welfare. The advantage of this notion of added value is that it is easy to define and quantify; even when its limitations are admitted, it is in practice still the most used tool for measuring wealth. Another reason for the practical success of added value is that it fits into a general economic theory.

Over recent decades, it has often been admitted that the concept of added value is inadequate and incomplete for defining real wealth and welfare. As a consequence, many other ways and means of identifying and quantifying wealth and welfare have been discussed: in particular, a large number of so-called indicators have been proposed and used in both a socioeconomic context ("social accounting"), in an institutional or
company context ("social audit") or even in an individual context ("satisfaction indices").

The problems and criticism of such indices vary and are briefly resumed and commented below.

The first criticism, coming from economists, is that social indicators are sociological tools which do not directly concern economics: this criticism derives (once more) from the identification of economics with the monetarized economy. In fact, it should be recognized that these indicators are related to the definition of and search for wealth and welfare and that their existence and even proliferation are a sign of the growing dissatisfaction with the traditional tools of economic measurement, precisely in view of economic goals and research objectives.

The second criticism is that the indicators are very often too qualitative and difficult to quantify. This is obvious; however, there are also clearly many cases in which quantification is, in reality, a meaningless process. For example, since value added entails certain deducted values, it can no longer be considered a reliable indication of wealth and welfare even though it can be measured relatively easily: the first requirement is to be sure that the measurement in question has the expected significance. To select factors in a system on the basis of their direct measurability and not in terms of the behaviour of the system in itself and of its goals, will clearly lead to aberrations.

The third criticism relates to the multiplicity and variety of these indicators: the "indicators" movement may seem to be the outcome of different situations; it leads to very different types of measurements, and is, apparently, based on very different types of motivation. Two types of answers can be discussed here. The first is that wealth and welfare can be differently defined in different places and cultures, as well as in different moments in time. It is the very inflexibility of the traditional concept of value in economics, that may constitute an acceptable factor since it presupposes a world in which living conditions, constraints and appreciations are uniform. However, the diversity which, in fact, exists should not be taken as evidence of any

*A recent interesting effort has been made by two economists to "Determine comparative values for unpriced things" under the assumption that "Valid comparisons can be made without always resorting to monetary prices". See J. Snider and A. Worrell: Unpriced Values", New York, 1979.
lack of consistency and logic of the "indicator" movement. On the other hand, the above-mentioned lack of any adequate theory of wealth and welfare has probably impeded a more successful use of such indicators. A more comprehensive theory of wealth and welfare of the kind proposed here tries to provided a basis for a more consistent approach and actually encourages utilization of the indicators. In fact, the whole target of this report can be redefined in the following way:

(a) define first a new theory of value (utilization value)
(b) devise then the most appropriate methods and possibilities of measurement and the judgment (selection of indicators)
(c) open in this way the possibility of defining new operational economic policies (for instance in the fiscal and monetary field as we shall see later).

We will therefore bring together the various ideas on D & P, utilization value, deducted and added value exposed in previous sections and chapters, in an attempt to set out a systematic reference framework for assessing wealth and welfare.

\[\text{FIG. 3.8. The Dynamics of D & P}\]

The above diagram proposes a logical sequence of D & P formation and use in time and space — a prerequisite for any comment as to its general structure.

Central to the notion of wealth and welfare is the concept of Dowry
Dowry and Patrimony (D & P) and Capital

and Patrimony (D & P, Box 1), including every available resource and asset, material and non-material, monetarized and non-monetarized.

D & P, as we have already indicated has a utilization value (Box 2) which represents the (objective) availability of D & P (apples on a tree, the music of Beethoven, a bank account) and the (subjective) accessibility to it (both material and cultural: I appreciate Beethoven, I am in a position to use my bank account and to get the apples from the tree). It represents, to use a word much in favour with economists, the notion of utility in its widest sense.

Utilization value allows mankind to live and therefore to produce (positive and negative yields, added and deducted values in their monetary and non-monetary sense). Box (3) relates to man-made formation and depletion of D & P and box (4) indicates the natural D & P formation and depletion process which influences directly the total D & P, but which develops in synergy (point 5) with the man-made process.

Boxes (3) and (4), in their synergy (point 5) determine the level of total D & P.

This dynamic sequence entails several implications of considerable interest.

(a) The first is a great apparent paradox: contrary to what is normally assumed in the industrial production process namely that “production” precedes “consumption”, we discover that “consumption” actually precedes “production”.

Such a paradox is not new in economics, where it is normally admitted, in monetary field, that although the individual needs money first before he can spend it, the creation of money in the general monetary sense is the result of a debt situation.

In the case in question, the paradox is much easier to accept and verify: — historically, it is intuitively acceptable to imagine that mankind initially exploited the available natural D & P with very little personal effort to build it up. We can consider from this angle the fact that at the start of the Industrial Revolution, Britain was a rather prosperous country which had the resources to expand its activity in the new technology: a relatively rich D & P was the pre-condition for the start of the Industrial Revolution itself.

— in our personal existence, we start at birth, as consumers and net users and remain so for sometime before becoming “producers”.
Moreover society clearly does not consume at any given moment the products it is simultaneously producing — what happens in a given moment is a product exchange. An acquisition can be consumed either virtually instantaneously (e.g. a cup of coffee in a restaurant) or over a period of years or even decades (a car, a house, a book, a foreign language). In other words, the exchange act determines the allocation of D & P constituents — it is a form of distribution — in time and space — of the utilization value.

(b) Dynamically, wealth use at a given moment is possible because of past wealth production activities (up to the moment of use). On the other hand, current production (be it positive or negative), relates exclusively to the future. The only point then at which past and future meet is during the act of exchange; utilization and production are dynamic realities which take place in different relative time dimensions. All present actions and decisions are therefore constituents of the future, because they have a life-cycle (a behaviour) in the future (from now on): they make the future. Thus, we propose here to consider the problems of planning from a point of view rather different from the traditional one, which consists in defining first a probable or desirable scenario of the future, whereas it is, in our view, essential to start first from the study of the inertias of the present.

In the dynamic perspective, it can be perceived that D & P is not only the starting or reference point of wealth (in time $t_0$), but that it is also the final objective (in time $t_2$). At the limit, $t_0$ can be equal to $t_2$ but, in fact, $t_0$ incorporates “eternity until now” and $t_2$ concerns “now till eternity”.

Paradoxically, when “production” is understood as something which precedes consumption, the “goal” or future is in fact inevitably determined by the past and there is no freedom or simple means of escaping a pre-determined and unidirectional mechanism. In fact, this kind of determinism is clearly the result of an optical illusion, linked to the Cartesian fiction of static time dimensions.*

*From this point of view it becomes obvious that “Historical Determinism” is “wrong”, especially when linked to economic facts and the “production” of D & P.
It can now also be understood why, both philosophically as well as merely psychologically, if "production" is considered as occurring before "consumption", then it is axiomatic to believe that the act of consuming legitimizes the act of producing to the point of believing that traditional added value is "real" value.

It is necessary to underline the concept of D & P as both a goal and a result — the result provides our utilization value, and the goal is determined by our action and interreaction with different types of D & P. The goal is not something which can be determined in an absolute freedom: freedom itself is a notion derived from the human D & P, but which is overcome by the constraints imposed by the interrelations with all other D & Ps. The drama of mankind is that this limited freedom is often wasted either because it is consciously relinquished or because goals are defined passively: since all actions are inevitably the expression of a goal (conscious or not, stated or not), one must know whether responsibility is being taken to recognize them as such. Assuming such responsibility is the pathway of civilization.

We can now try to recognize and systematize the different forms of wealth and welfare indicators in this scheme.

3.2.2. ASSESSING WORLD D & P

D & P, as we have defined it, is a very wide concept and its assessment and enlargement is a constant and diverse process. Scientific research, learning and intuitive knowledge (the arts) are all part of human endeavour in assessing and creating D & P. Knowledge can also bring destruction; therefore, certain moral attitudes must also be included in the D & P as a tool for inhibiting this destruction potential.

Going back to the previous chapter where an analogy was made with the electromagnetic-wave spectrum, it is possible to restrict the analysis to that of D & P as a basis for material welfare.

As early as 1957, Bertrand de Jouvenel was regretting that free goods and services on the one hand and commercial values on the other were not integrated into economic analysis. He attributed this to the "intellectual edifice erected by the economists" who had limited their research to the
field of well-being in relation to the monetary measuring unit. The origins of this attitude lie in the distant past — as was seen in Chapter 2.

The work of Bertrand de Jouvenel did not form part of a new, general, coherent economic scheme but certainly prefigured it. How could he have gone further, when an era of new technological advance had just started and the multiplication of the fields of investigation hid the degradation of the natural D & P? Hence, a rejection phenomenon occurred and the rigidity of the classical conceptual framework remained intact.

At that time it was not yet possible to talk of the diminishing returns of technology or of value deducted, thereby making it necessary to acknowledge the limits of industrial growth and its dependence on global D & P. But now more and more the recognition — even if often implicit — of the diminishing returns of technology and of the existence of deducted values, is well underway.

For instance, at the level of the State in which the responsibility of preserving the national D&P is to a large extent vested, such new prospects are more and more frequently being outlined:


Other quotations of importance in this context are:

“Of these (human needs), some are satisfied by the use we make of certain things that nature freely provides, such as air, water, sunlight. We can call these things natural wealth because nature alone is responsible for them. As they are given to everybody, no one is obliged to acquire them at the cost of any sacrifice whatsoever. They have therefore no exchange value” — T. B. Fay:

“Traité d’économie politique ou simple exposition de la manière dont se forment, se distribuent et se consomment les richesses”, Volume Two, Chapter 1, 1918 edition, p. 5.

“The natural agents are not charged for since they are inexhaustible and available to all. Thus, the brewer, the distiller and the dyer make constant use of air and water in the production of their goods but since their abundancy is unlimited there is no price attached to their use” — David Ricardo: On the Principles of Political Economy and Taxation, Chapter II: “On Rent”, published by Saffa, Cambridge, 1951, p. 69.


“In the exploitation of Nature, the only thing considered is the expenditure of human effort, so that what we take from the common patrimony of the human race does not leave us open to any revendication — Arcadie, p. 244.

“As for energy, it is different, since we are burning our stocks: in this sense, our process of social enrichment is a process of consumption of the patrimony” — Arcadie, p. 246.
"The acute problems raised by the transformation of nature have led the
governments of the technologically most advanced countries (USA,
Europe, Japan, ...) to consider the systematic management of the natural
environment, the source of all wealth, as a matter for concern. This
patrimony, long considered inexhaustible and invulnerable, is showing
itself to be limited and fragile once the power of technology, the need
for raw materials and energy and the complete transformation in the
modes of populating the world affect nature considered as capital. It is
probable, in fact, that having previously lived on the interest associated
with this capital we are now living off the capital itself."26

Is the above statement the prelude to a radical change in our mentality,
behaviour and socioeconomic practice? Does it herald the day when we
will consider Dowry and Patrimony as our most precious possession?

Governments of the industrialized countries are, at last, accepting the
idea of natural D & P accounting. Here again, Bertrand de Jouvenel has
proved a forerunner. In a proposal to the "Commission des Comptes de la
Nation" (National Auditing Commission), made in May 1966,27 he
suggested no less than an accounting system for the D & P in which he
would have included: flows of services which were not the object of any
commercial transaction, the negative flows which are nuisances, and
drawings on nature.

It is thus an old idea which those responsible for national accounting
are attempting to adapt to current needs. According to Paul Cornière "we
are entering an epoch where, by fair means or foul, dialectic props will be
established between those managing an active Nature and those managing
human activities."28 The table on p. 208 gives some idea of these attempts.

In referring to these examples, the following points should be con-
sidered:

- The concept of D & P should not be just parallel and separate from
  that of monetarized wealth.* The problem is more basic than that of
  accounting the contribution of nature to wealth: it touches on the very
  revision of our concept of wealth. It should be the result of a new

*Just as the evolution of monetarized D & Ps should not be considered as the
ultimate measure of wealth, although such studies are of greatest interest. See
"Eléments de Comparaison Internationale des Patrimoines des Ménages" by D.
125.
TABLE 3.3. Examples of D & P Components and Resources which should be Included in any D & P Management Strategy

<table>
<thead>
<tr>
<th>Components of D &amp; P</th>
<th>Resources</th>
<th>Points to be watched</th>
<th>D &amp; P conservation</th>
<th>Resource husbanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun + atmosphere</td>
<td>Solar radiation absorbed by the earth</td>
<td>Composition of the atmosphere (carbon dioxide, ozone...) Earth albedo</td>
<td>Solar energy utilization balance sheet</td>
<td></td>
</tr>
<tr>
<td>Physical cycles:</td>
<td>Biological production (surplus)</td>
<td>Disappearance of species</td>
<td>- Condition of soil - Biological contamination - Size of populations - Land area devoted to agriculture - Consumption of known natural reserves and reserve substitution - Agricultural and silvicultural practices - Equipment</td>
<td></td>
</tr>
<tr>
<td>ocean currents</td>
<td>Non-renewable resources (ores, sands and gravels, fossil energy)</td>
<td>- Rate of culling - Organic matter balance sheet - Materials balance sheet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biochemical cycles:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>nitrogen</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Genetic D &amp; Ps</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal and Vegetable populations</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Countrysides</td>
<td>Water</td>
<td>Water quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundwater</td>
<td>Wood</td>
<td>Areas by categories</td>
<td></td>
<td>Timber and wood products balance sheet</td>
</tr>
<tr>
<td>Forests</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dowry and Patrimony (D & P) and Capital

discipline of welfare, derived from the synthesis of economics and ecology.

- The concept of D & P depends very much on the concept of general economic value, and this relationship should not be avoided or considered solved by the acceptance of the idea that “natural” D & P must be protected. Real protection and promotion and promotion of “natural” D & P will really become a matter of efficient policy when it will be considered within the general framework of the utilization value.

- Unlike Gross National Income, the concept of D & P cannot be reduced even with the best will, to a specific nation-state dimension: national histories and traditions as well as resources of any kind coincide only very partially with existing political institutions.

At this point in time, the definition and the assessment of world D & P would be a valid activity in itself: by improving awareness of the resources and limitations (utilization value) of our space vessel, goals can be better specified and the means of achieving them defined.

3.2.3. INDICATORS OF WELFARE (UTILIZATION VALUE):
SOCIAL INDICATORS

This section will review the various attempts made to measure welfare, bearing in mind that such attempts always relate to an explicit notion of value.

(a) Gross national product (GNP) and the Measure of economic welfare (MEW). The traditional indicator of welfare for economists has been, and still largely is value added, as computed in Gross National Product.

However, some economists have now started to openly criticize this approach. “Gross national product is not a measure of economic welfare. Economists all know that, and yet their everyday use of GNP as the standard measure of economic performance apparently conveys the impression that they are evangelistic worshippers of GNP. An obvious shortcoming of GNP is that it is an index of production and not of consumption.”29 Using these considerations as their starting point, W. Nordhaus and J. Tobin, propose the calculation of a “Measure of Economic Welfare”
Dialogue on Wealth and Welfare

(MEW) in an "attempt to allow for the more obvious discrepancies between GNP and economic welfare."

The following graph plots both the MEW and GNP for the United States, and indicates for each major reference year, the extent to which MEW was greater than GNP.

The authors conclude that "MEW has been growing and the progress indicated by conventional measures is not just a myth". The present report too has underlined that real wealth has progressed considerably during this period of the Industrial Revolution. However, the following remarks should be made concerning MEW accounting methods and the conclusions drawn by Nordhaus and Tobin:

- it is striking that MEW increases more rapidly during periods of economic difficulties: during the periods 1929–1935 and 1945–1947, when GNP diminished, MEW increased rapidly and even more rapidly than during other periods. One should not, however, necessarily draw conclusion that, in order to boost welfare as measured be "MEW", it is advisable to drastically induce a negative GNP growth rate as was the case in the two above-mentioned periods. . . .
- the accounting method is based essentially on a reclassification of GNP final expenditures and on imputations for capital services, leisure and non-market work.

![Graph showing MEW and GNP](image)

FIG. 3.9. GNP and MEW from 1929 through 1965 in the United States
It might be noted here that, although some items regarded as instrumental and intermediate to final output have been subtracted, and even though some external diseconomies have been taken into account, we are still faced essentially with the same type of methodological inadequacies as are encountered in the GNP indicator. The latter cannot be improved as an indicator of welfare, essentially because it measures a flow of expenditures (and, in the case of MEW, of efforts as well). Welfare can be measured or estimated only from the situation and the degree of access to a stock of assets.

Furthermore, welfare — even if limited to material welfare — simply cannot be measured on the basis of a concept of value which does not distinguish between “costs adding to D & P” and “costs subtracting from D & P”, beyond what are normally accepted as negative externalities.

To measure or indicate welfare, entails the development of new methods, founded on a more adequate notion of value.

(b) Social indicators: the physical quality of life index (PQLI). In their MEW study, Nordhaus and Tobin acknowledge the existence of the trend toward “social indicators”29a but also admit that these “still lack a coherent, integrative conceptual and statistical framework”.

In fact, this form of “accounting” is the outcome of several factors and different implicit theories: frequently, these are of sociological origin and, as such, they try to constitute a parallel or an alternative to economic analysis. They may also be developed as an extension of existing, accepted economic paradigms — as in the case of MEW. Sometimes they are developed as an application of accounting theories. Finally, and frequently they are produced to meet a need to identify specific situations.

This is a point that must be insisted upon: the proliferation of such indicators, is a clear sign of the inadequacy of the existing, official methods of measuring wealth and welfare. Their overall coherence can be found in a more adequate concept of value which they could use as a reference point.

Elements of this (often implicit) search for a new value theory, can be found in many attempts to construct social indicators, as in the case of the Physical Quality of Life Index (PQLI). In a paper describing such indicators, James P. Grant30 writes:
"The indicators are about ends, not means" and "the indicators have the advantages that they do not make any assumptions about special patterns of development and that they measure results rather than input".

Ends and results: here are the two connotations of utilization value (case 2 in Fig. 3.8. on page 202) in relation to D & P.

Furthermore, in an attempt to identify which variable affects individual physical well-being (physical health), J. Grant puts forward the following complex model (p. 213) which inevitably integrates what we called the monetarized and non-monetarized factors.

The development of indicators such as PQLI derives from the fact that, if the correlation between average income and welfare are as close as its devotees suggest, how can one explain the fact that, in Sri Lanka, with an average income of US $130, life expectancy in the 1970s was about the same as that in the State of Washington, where the average income was US $5000. Can there be any doubt that life expectancy is — in most if not all cases -- an integral part of welfare?

The table on p. 214 compares income with indicators of life expectancy at birth, infantile mortality, educational level and birth rate.

A number of international conferences (the United Nations Conference on Population in Bucharest in 1974, the Conference on Housing in Vancouver in 1976, the Conference on Food in Rome in 1974, and the ILOs World Employment Conference in 1976) have provided a sounding-board for new approaches in this direction. For example, the World Employment Conference defined basic needs in terms of adequate food, satisfactory housing and hygiene conditions, clean drinking-water, access to health services and education, etc.

Substantial progress was made, but still not enough. How indeed is a common specification of basic-needs to be achieved when present levels differ between geographic regions and climatic zones and even according to the structure of the basic social unit? This does not mean that indicators are not useful as a yardstick for reducing disparities between the advanced industrialized countries and the Third World countries, or that they are of only minor importance in any policy for improving the welfare of societies and individuals.* It merely means that their limitations as social

*Although the Satisfaction of Basic Needs Index has now been overtaken by more recent developments in thinking, the fact that economists have had recourse to this type of index combining data on nutrition, housing, employment and medical services definitely represents something of a breakthrough.
Source: J. P. Grant, op. cit. p. 7.

FIG. 3.10. A Model of Individual Physical Well-being
<table>
<thead>
<tr>
<th></th>
<th>Average per capita GNP 1970–75</th>
<th>PQLI</th>
<th>Life expectancy at birth</th>
<th>Infant mortality per 1,000 births</th>
<th>Literacy (%)</th>
<th>Birth rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low-Income Countries</strong></td>
<td></td>
<td></td>
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<tr>
<td>Mali</td>
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<td>39</td>
<td>48</td>
<td>136</td>
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<td>India</td>
<td>90</td>
<td>14</td>
<td>38</td>
<td>188</td>
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<td>Kerala, India</td>
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<td>41</td>
<td>49</td>
<td>129</td>
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<td>Sri Lanka</td>
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<td>61</td>
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<td>Bangladesh</td>
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<td>82</td>
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<td>Bangladesh</td>
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<td>32</td>
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<td>153</td>
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<td>47</td>
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<td><strong>Lower Middle-Income Countries</strong></td>
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<td>95</td>
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<tr>
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<td>Zambia</td>
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<td>82</td>
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<tr>
<td>Angola</td>
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<td>38</td>
<td>44</td>
<td>159</td>
<td>47</td>
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<tr>
<td>Angola</td>
<td>600</td>
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<td>38</td>
<td>203</td>
<td>13</td>
<td>47</td>
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<td><strong>Upper Middle-Income Countries</strong></td>
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<tr>
<td>Iran</td>
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<td>37</td>
<td>104</td>
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<td>Mexico</td>
<td>1,260</td>
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<td>96</td>
<td>74</td>
<td>11</td>
<td>98</td>
<td>13</td>
</tr>
</tbody>
</table>

*Income categories include only the 127 countries listed in the World Bank’s “Derived Atlas Series.”


**Source:** Grant, James P.: _op. cit._
indicators of development must be recognized. Hence, the interest of indexes which represent aggregate and comparable indicators together, as is the case of the Physical Quality of Life Index (PQLI). This index incorporates data on life expectancy, infantile mortality and literacy.* Because such indexes reflect over-all development and bring together the effects of over-all economic and social policy — including the way in which investment profits are allocated — they provide a better indication of progress in combating the worst evils that result from poverty than can GNP or development-input figures.** Since the factors they measure are more or less universal objectives, they provide a suitable standard for meaningful comparisons between different regions of the globe. The fact that they are valued per se does not, of course, mean that all possible directions of development are covered: "welfare" and "standard of living" — and this can never be repeated enough — are not one and the same thing.

Life expectancy at one year and infantile mortality rate are very important indicators of social progress, since they show the combined effect of all the means and types of action employed in the war against poverty: improved nutrition, greater access to health and education services, healthier housing conditions, improved water supply, etc. — whatever the pattern of resource allocation. At the same time, they reflect the situation of individuals vis-à-vis the social and natural environment: the

*Morris D. Morris: "Measuring the Condition of the World’s Poor" The Physical Quality of Life Index, ODC, 1978. See also Morris D. Morris and Florizelle B. Liser, The PQLI Index — Measuring Progress in Meeting Human Needs, ODC; In the PQLI each variable is expressed as an index on the scale from 1 to 100 so that the progress of economic and social development can be observed within a stable framework of upper and lower limits. Thus, an increase of life expectancy from 40 to 45 years over a period of ten years will be shown as an annual rate of 5%; a fall in infantile mortality will appear as a percentage drop from the initial level (from 100 to 85, for example) and progress in literacy will be indicated in a percentage rise (from 60 to 70 or 75%, for example).

**Especially of the contribution made by the non-monetarized sector. Such an index cannot therefore be considered neutral in the sense of implying a nonvalue-judgment regarding the choice of development model. By substituting export crops for food crops (i.e. a monetarized economy for a mainly non-monetarized economy) some governments have made poverty worse and, in some cases, forced part of the population below the absolute poverty threshold where life expectancy declines and infantile mortality rises. In other words, they have opted for a confiscatory type of income distribution, obtaining foreign exchange for industrial development — or conspicuous spending — by destroying the structure of subsistence production that is not compensated by the low level of wages.
level of infantile mortality is affected by the woman's position in society; life expectancy at one year depends on the general environment and the level of nutrition; the degree of literacy is an indication both of the welfare level and of the ability of individuals to accept and spread proposed reforms.

The research group headed by Jan Tinbergen\textsuperscript{31} has suggested for the developing countries the following targets for the end of the century: life expectancy of at least 65 years as compared with the present average of 48 years in low-income countries; an infantile mortality rate of 50 per thousand in contrast to the present rate of 125; a birth rate of 25 per thousand as compared with the present 40 per thousand; and a literacy rate of 75\% instead of the present 33\%. The targets set by Jan Tinbergen and his team are most desirable but one may wonder whether a decline of 3.5\% per year in infantile mortality is really possible. Past experience suggests that it is.

In Sri Lanka, infantile mortality was reduced from 218 per thousand in 1911 to 141 per thousand in 1946, and then fell to 71 in 1953, corresponding to an annual decline of 1.3\% in the first period and of 10\% in the second. In 1963, infantile mortality dropped to 56 per thousand (an annual fall of 2.7\%) and then to 43 per thousand in the early 1970s (2.9\%).\textsuperscript{*}

In Romania, the number of infantile deaths per thousand births during each five-year period from the late 1940s to the late 1960s was 54, 27, 15 and 13. This remarkable result was achieved with a very low level of per capita income (the Romanian average in 1965 was US $440). Taiwan did even better in the period between the early 1930s and the early 1950s.

Nor is it unrealistic to predict that life expectancy will increase from 48 to 65 years by the end of the century. Between 1940 and 1960, life expectancy in Puerto Rico rose from 45 to 70 years. In China and Sri Lanka, it rose from 45 to 62 years.

The aim here is not to exclude entirely the use of average income as an indicator of development but rather to propose that income, when combined with other indicators such as PQLI, would give a truer picture of development in various regions, nations and cities. A quite different

\textsuperscript{*}This may be compared with the fact that, in Mali, over 350 children per thousand die before the age of five years (Claire Brisset "Le désert médical du Tiers-Monde" \textit{Le Monde}, 6 September 1978).
picture of needs is emerging, associated with a renewed emphasis on the
mobilization of national resources, including the non-monetarized economy
in particular. This is because the total resources comprise more than just
the stock of money and imported, capital-intensive technologies. The
eradication of poverty and its attendant human evils of infantile mortality,
premature death* and illiteracy is dependent only partially — and some-
times very partially — on the volume of the money stock and on the
number and complexity of the relevant technologies. Consequently, in
setting targets for welfare policies, more importance should be attached to
social indicators than to GNP data.

Since infantile mortality, premature death, etc. are more common
features of daily life in Third World countries, there is a tendency to
regard social indicators as something peculiar to these countries. However,
it should not be forgotten that the excesses of industrial development
(unbalanced urbanization, over-rich and unsuitable nutrition, smoking and
various types of public health hazard and nuisance) are also contributory
factors in increased morbidity and mortality, especially due to cancer and
cardiovascular diseases. Such factors which have an increasing impact on
the growing cost of individual health care could be more systematically
monitored by adequate indicators taken as the prime basis for national
social and economic policies in the more industrialized countries.

(c) The OECD study on social indicators. A recent OECD publication
illustrates both the interest of the social indicators to official institutions,

*The new WHO doctrine of “primary health care” opens up a new sphere of
action for the non-monetarized economy. This proposes a radical change in health
policies giving priority to the health of rural populations rather than to the
building of hospitals in the towns. Mali had already anticipated this trend by
drawing up a plan for systematic medical coverage in the rural areas which have been
divided into zones of 100,000 inhabitants, each with a doctor and team of nurses
working in the field and using an urban centre as their base. Each nurse has a group
of nursing assistants to operate the village pharmacies financed by the local inhabi-
tants. At the lowest level, “primary health officers” chosen by and from the villagers
and working under the control of the nursing assistant, are responsible for distri-
buting the medicaments needed to improve health in the district. In the last resort,
arrangements are made to evacuate sick persons to the chief town in the zone, where the
doctor has access to an operating centre. Clearly, the non-monetarized sector is able
to make a very substantial contribution since it even covers the whole work of the
operating centre at the top of the medical infrastructure.
and the practical difficulties encountered when good intentions stumble on the obstacle of a methodology which still depends on the traditional concept of value.

The publication is entitled: "Measurement of social well-being — Progress achieved in the elaboration of social indicators," and if the content were faithful to the title, it would give an overview of the thought being devoted to the subject of social indicators in the industrialized countries. In fact, the first part of the book does display the same preoccupations as those raised in our research.

The authors have implicitly accepted the concept of D & P. In fact, it is stated that material wealth extends to such resources as: pure water, clean air, silence, ecological equilibrium and open spaces. Scarce resources — and goods having no monetary value — the report continues, are being increasingly exhausted or destroyed as the quantities of products and services traditionally considered as important rise. D & P degradation — value deducted — is therefore accepted as a fact and as the direct consequence of the increase in products and services traditionally considered as important. Analysis based on consumption and production models for the industrialized countries, together with deductive reasoning, provides an insight into the nature of the techniques used.

Human well-being is reinstated as the factor of prime importance, at the nerve centre of man’s relations with his fellow beings and the physical environment. A direct link is established between identification of the elements of well-being and the basic question of the scale of values in our existence. Here, the report breaks with the unilateral concept of well-being as directly and automatically related to the level of net disposable income and questions the operational function of disposable income in the light of cultural diversity. It would be tempting to follow up this new approach by affirming that values are as numerous as cultures and consequently have no hierarchy, and to acknowledge that the cultural factor is an essential component of development. Moreover, the report regrets the fact that nothing has been done to elaborate indicators relating to the maintenance and the development of cultural heritage.

As far as development resources are concerned, the report poses three questions, opening the way to the renaissance and redeployment of the non-monetarized sector:
“— What resources permit the acquisition of goods and services?
How secure are these resources in the event of a crisis? If the inadequacy or precariousness of the monetary resources in uncertain situations were not involved, there would be no reason for this question.

How can we ensure a minimum of resources? How then can a minimum level of resources be restored?”

In recognizing that choice is an element of well-being and that the accessibility of goods and services has grown more important than their actual use, the report demonstrates clearly that it neither mistakes nor underestimates the rigid structures engendered by the current economic and social system: educational structures, vocational training and promotion systems, constraints to the organization of health-service and staff distribution, and to the production system, etc.

The report also concedes the significance of the subjective element in well-being: “The perception of fundamental aspects of their well-being by individuals and groups is a necessary and important component of a programme of social indicators. This type of information gives a new dimension to reality and may also bring out certain factors relating to objectives which have not previously been recognized as significant.*

Finally, it is stated that the social indicator is “a direct and valid statistical measure which will allow observation of the level and the variations with time of a basic social preoccupation.”**

Unfortunately, the remainder of the report reduces these promising premises to mere wishful thinking. Moreover, abandoning the concept of “societal well-being” is an omen: the authors state that this concept, their own invention, encompasses a reform of the institutional structures of society but does not form part of the OECD programme on social indicators. This fortuitous or intentional exclusion of the concept is an admission: the details are changed but the reference basis remains. The role finally attributed to social indicators confirms this intention. These

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**Idem, p. 15.
indicators are completely subject to monetarized logic. Revenue is stated to encompass “all” sources of revenue — but these are all monetary:
— Salaries and payment in cash
— Salaries and payments in kind (cost to the employer of food, housing and working clothes which he may provide free or at reduced cost)
— Revenue of the enterprise (essentially net rental of dwellings occupied by their owner plus the net rental of other buildings, net income from other individual enterprises)
— Property revenue (essentially interest, dividends, farm rents, etc.)
— Current transfers received (social security and accident insurance payments, private pension fund allowances, transfers from other households, etc.).

In such a perspective, wealth and welfare are again based, de facto, on the traditional concept of value. A concept which allows that the production of poverty, provided it costs large amounts of money, adds to apparent wealth.

(d) Social indicators at the corporate level. Over recent years, social indicators have been increasingly applied at the micro-economic level. Much research and many specific applications have seen the light.*

It is necessary to pick out the more immediate motives that have, in certain cases, encouraged corporations and other institutions to present a “social audit”. Frequently the motive is the need to find a more convincing way of selling the company’s or institution’s image, or even to find better ways of “controlling” the situation.

Nevertheless, this type of social audit does have a more basic motive:
• there is a growing feeling that welfare can not be measured by distributed monetarized income if this income is accompanied by new and growing direct or indirect costs (monetarized or not).
• there is a need for greater realization that service and investment are closely linked to the “quality” of an increasingly complex environment.

The “social audit” that simply presents the promoter’s case in a more skilful way, will eventually give way in the face of the fundamental question

*See for instance: The Study entitled “Corporate Social Audit” of Battelle, Geneva Research Centre. The “Bilan Social” presented in 1978 by the MIGROS in Switzerland.
of how to organize, in every society, a type of wealth based on a more adequate and comprehensive concept of value.

3.2.4. INDICATORS OF COST AND EFFORT: GOALS AND MEANS

(a) Costs and deducted values. Let us now consider case (3) shown in Fig. 3.8. on page 202.

Finally, we come, in due course, to the concept of cost. Gross, monetarized cost, which is often improperly identified with added value, is, in fact, a measure of gross effort in monetarized terms.

Once again, we return to the concept of deducted value that can be applied at two levels.

— if we limit our analysis to the monetarized system, a distinction should be made between the different types of added values normally accounted: those which quantify the financial resources used to increase D & P; and those which are induced by the industrialization process (the monetarized economic organization), itself. The deducted value is, in a sense, the expression of a cost or effort which has missed its objective.

— we can extend the concept of deducted value to the whole synergic process (case 5) by which D & P is depleted by a combination of natural and man-made activity.

In either of these cases, the deducted value applies to D & P and — as was noted in Chapter 2 — necessarily covers both the monetarized and the non-monetarized system.

Some attempts have been made, in the formulation of economic policies for developing countries in particular, to devise and use indicators of effort and thus extend beyond the simple identification of monetarized costs.* “Real” costs are also being approached from other angles: in fact, many indicators that have been devised for ecological purposes are indicators not of D & P and of its utilization value as we have defined them, but rather of non-monetarized costs (i.e. they are part of the general concept of deducted value).

This latter idea of accounting for “ecological constraints” has also

*See “Effort-satisfaction analysis (E-) in the formulation of Integrated development policies”, Battelle Geneva Notebooks, June 1972. We can also mention a study by the UNCTAD secretariat (New York, 1970) on “The Measurement of Development Effort”. Here again the monetarized effort is privileged.
given rise to proposals for specific indicators. The elements considered are essentially: rarity of resources, and their potential hazards.* Each resource is attributed an “equivalence coefficient”, which indicates its costs in terms of the ecological equilibrium. Innovations such as this provide evidence of the growing interest in the accounting of deducted values.

(b) Means and goals. In the final analysis, the fact that expenditure and effort can lead to global negative results is not such a strange one. What is strange is that the disciplines dealing with wealth and welfare have not previously attempted this type of accounting more seriously. The evidence is there for all to see: a war is a cost, a seismic disaster is a cost too — and yet, when a country is destroyed for one reason or another, no audit is ever made of how many “national income equivalents” have been lost. Paradoxically, a devastated country or region is often presented as providing an “opportunity” for increasing “value added”. The concept of value added is thus a strange notion since it sometimes seems to conceal the need to destroy in order subsequently to “increase”. How can officialdom continue to insist on the use of a definition of wealth linked to the GNP rather than to the level and accessibility of D & P?

Should we not start to talk about real wealth and the cost and effort entailed in attaining our (implicit and explicit) goals rather than believing that goals are identified by their means, even when they are “wrong”?

Money itself is a means, and finally the definition of and convergence towards common (implicit and explicit) goals in D & P formation will mobilize this means better than any purely financial plan. We must stress the point that in the concept of value and of D & P proposed in this report, capital is technically different from the capital of traditional economics. In our dynamic system, capital is the part of D & P which exists in monetarized form and which, by this characteristic, renders resources more easily available and attainable in time and space (and increases therefore the global D & P). The only difference between “investment” in a loaf of

*R. Mueller-Wenk: “Die oekologische Buchhaltung”, Campus Verlag, Zuerich, 1979. The principles described in this book have been used to establish an “ecological audit” of a food company.
bread to be eaten within the space of ten minutes and “investment” in the purchase of a house, is the duration of utilization of the assets purchased. In the same line of thought by traditional standards a house which burns down in ten minutes after being purchased becomes “consumer” goods whereas a piece of bread bought to form part of a collection of different bread types becomes “durable” goods.

Money is then a tool to expand (or destroy) D & P and, as indicated in the paragraph of the “dialogue” dealing with “investment capital” its use should be developed to the extent that it contributes to human effort to expand D & P.

The problem of capital formation and mobilization does not exist per se, but only within a framework of defined (or implicit) goals — of natural and man-made constraints.

In the face of these limits and opportunities, enormous potential exists for improving the development and the use of the tool itself. This will be the subject of our study in Chapter 4.


In order to complete this analysis of wealth and welfare in their relation to monetarized and non-monetarized factors, we will examine in this paragraph various aspects of economic duality that point to the shortcomings of current-day economics in approaching economic problems exclusively from a monetarized angle. In this, attention will be drawn to qualitative differences between monetarized and non-monetarized economic activities and the duality within the monetarized system itself (i.e. the “official” and the “grey”* economy).

3.3.1. THE PREDOMINANCE OF THE MONETARIZED ECONOMIC SYSTEM: A RECENT DEVELOPMENT

Today, in the industrialized countries at least, the monetarized economic system has permeated all exchanges to such an extent that it is almost

*Also called “underground” or “dual” economy. See L'Economie duale, by J. J. Gerschuny, Economie et Humanisme, Caluire, 1979, pp. 66–71.
impossible to imagine that any other type of economic system could have existed. Nevertheless, economic history provides ample proof that the monetarized economy has emerged as a predominant economic system only comparatively recently. Although specific figures are all too often lacking, numerous data exist to show the importance of the non-monetarized sector up until the nineteenth and even into the early twentieth century. In 1775, Adam Smith states that in one Scottish village "it is not infrequent to see the craftsman bring nails instead of money to baker and brewer".

In other regions of Europe at this time, barter was used extensively as a means of exchange. According to Fernand Braudel "Innumerable examples can be quoted: the Solingen cutlers, the miners, the Pforzheim weavers, the peasant clockmakers of the Black Forest, all paid in barter, with victuals, salt, cloth, brass wire, corn measures — all of which commodities were exorbitantly priced. This "barter system" prevailed in Germany, Holland, England and France. Even German Empire "officials", a fortiori the municipal ones, were paid partly in kind. And, as late as the last century, how many times were the schoolmasters remunerated with poultry, butter, corn!"

Significantly, in 1791, Clavières and Brissot, well-known personalities of the French Revolution, wrote in their book on the United States: "instead of money, incessantly passing and re-passing through the same hands, direct barter is used as a reciprocal means of supplying the needs in country areas. Tailor and cobbler come to practise their trade in the home of the farmer, who very often provides them with the materials they need and pays for their wares in foodstuffs. This type of exchange extends to a multitude of commodities; parties inform each other in writing of what shall be given and received at the year's end, and thus a very small quantity of currency winds up a great number of transactions which in Europe would only be possible against a large amount of money... an important means of money-less circulation has thus been established."

In Japan, the monetarized economic system took root only during the seventeenth century, and in some countries, penetration of monetarization occurred even later... for instance in Corsica not until after the First World War.

This does not mean that, at other times and in other places, money has
not been a significant instrument of trade: Fernand Braudel relates that, during the Ming rule in China (1368–1644), silver mixed with antimony was the incentive to a monetary and capitalistic economy, but only for large-scale exchange.

Today, the ascendancy of the monetarized economic system follows several centuries of slow gestation during which the important role of small-scale agricultural and artisanal production is all too often overshadowed by the priority most historians accord to the spectacular rise of large-scale industry during the first, and later, the second Industrial Revolutions. Nevertheless, the strength of these scattered but numerous, small-scale producers made a major contribution to economic wealth and D & P accumulation.

Thus, after depicting the contribution to general wealth of petty agriculture and craftsmanship in the Grenoble area — made up almost entirely of family businesses or farms — Le Roy Ladurie writes: “a combination of this type is characteristic of a certain growth, which can be defined as lower-middle-class and “non-soiling” and which is visible almost everywhere during the nineteenth century in European countries, more especially in meridional areas. Today, it is gradually disappearing ... routed by the more “successful” feats of big capitalistic banks and industries which nowadays monopolize far too much of the limelight. And yet it is to this type of “petty” development, efficient and unassuming, that vast sections of modern humanity owe their infrastructure — in the Central and Mediterranean regions of France, in Italy and Spain ... but not, of course, in smoke-logged areas such as Lancashire, where the “real” Industrial Revolution took place; however, only this latter is recognized by historians, because it gained supremacy in later years. The example of the country doctor gives the true measure of the artisan’s progress towards modernization; he stands opposite to Germinal ... pain-filled epos of another type of growth.”

Thus Karl Marx’s description of industrial capitalism anticipates by many years the disappearance of a sector economy where “plots, shops and workshops will survive as essential ingredients of Western economy until 1910 or even 1950 or later.”

The development of economic monetarization during the nineteenth and twentieth centuries should not obscure our vision of the long-term trend in which it evolves. The return to a subsistence economy, caused
frequently by market shrinkage, alternates with a revival of the monetarized economy, which shows that the progression of the latter is a discontinuous process. Thus, "in agriculture: the development of capitalistic seigniorial and physiocratic farming (before 1789) shifted to a strong revival of peasant, family and plot farming and small-holdings, in the nineteenth century."37

Clearly, the latter is more conducive than the former to subsistence economy. It can also happen that, in the event of a sudden and short-lived monetarization of the economy, sectors of subsistence may exist side by side with sectors in the throes of monetary flux. Nevertheless, for example, "in the sixteenth century up to about 1560, Upper Normandy farmers were increasingly obliged to enter the market circuit, increase their crop yields and employ and pay a larger labour force. Although in some cases, international market pressures resulted in the introduction of certain crops, e.g. the vine in the Nantes area between 1550 and 1570, subsistence farming predominated in a rural area where 80% of the corn produced was consumed by the peasants who accounted for at least 85% of France's population at the end of the sixteenth century. Even in a country like France which was in the full throes of industrialization, certain areas of the economy were almost entirely untouched by monetarization."38 Taking the example of Brittany in the nineteenth century, Le Roy Ladurie states "The nineteenth century in Brittany reminds me more of the twelfth century and the mass land-clearance that took place then, of parcelling out: of the burgeoning of family poly-cultivation, of the mass abolishment of fallow and waste land due uniquely to demographic growth, of the maintenance and even the expansion of a menial proletariat lodged on the premises, which accentuated the family aspect of soil cultivation, Lastly, of the progression of small property ownership, to the detriment of land where "notice to quit" could be given, and of tenant farming, although this latter was more conducive to the growth of true agricultural capitalism."38

One of the main clues to monetarization of the economy is certainly the growth of the towns. Since money is used less in rural areas than in the towns, where industry, commerce and the civil service are predominantly located, the lack of currency is a major factor in the maintenance of a non-monetarized economic system. Emmanuel Le Roy Ladurie in discussing a rich country squire from the West of France states "...but
these days, when money from America is oiling the cogs of the most highly commercialized sectors of the economy, a rich gentleman, the likes of our Squire, can never be short of money, certainly ... at the most lacking “change”. In his Journal, expressions similar to the one below occur repeatedly: “bought cloth in Cherbourg; did not pay for it for want of change ... will pay on Monday.” According to Fernand Braudel, the situation was no better in Colonial America where monetary economy was a feature only in the large towns of mining countries such as Mexico and Peru.

Sometimes, currency was not available even in the towns: in 1721, a merchant from Philadelphia, unable to obtain financing because of the lack of means of payment, complained to his correspondent in Madeira that, for this reason, he had been unable to despatch a shipment of corn. That coin was rare in European rural areas as late as the nineteenth century is adequately demonstrated by the expedients resorted to by the rural population of France; Le Roy Ladurie states that, due to the practice of fostering out children, common between 1700 and 1850, “silver pieces made their way into even the humblest homes, which otherwise would only have had an economy of subsistence, hardly monetarized at all.”

The structure of property ownership has an importance that should not be underestimated since it may act as a brake or an accelerator to monetarization of the economy. The breakdown of the smallholding structure was an essential factor in the development of agrarian capitalism and the integration of the rural economy into national or international markets, as proved the case in England after the eighteenth century, when agrarian capitalism* reached its peak — i.e., following the take-over of the peasant’s common land by the nobility and the conversion of arable land to pasturage. This was accompanied by expropriation of smallholder farmers who following the abolition of serfdom at the end of the sixteenth century had gradually constituted the large majority of the rural population.

Another important factor conditioning the monetarization of the economic system is, of course, the slowness with which attitudes and behaviour are modified.

*In the section entitled “The dual economy and development” (section 3.3.4), we shall illustrate the close link between the evolution of agrarian structures and different forms of income which, in turn, correspond to different forms of economy: the non-monetarized, semi-monetarized and monetarized.
Even after the Bank of France was founded in 1801, the notes it issued evoked practically no interest at all in provincial areas. As late as 1752, David Hume writes of “this new invention, paper money”, although the Bank of England had been issuing notes since 1694.

Even today, when monetarization seems to dominate most forms of exchange, we must realize that the adoption of this phenomenon has been gradual, discontinuous and irregular. However, is the non-monetarized economic system today no more than a relic of times past? If islets or even whole areas of activity resist and escape monetarization, should not an effort at least be made to estimate their contribution to individual welfare? The need is all the more acute when we realize that monetarization has its limits and covers only part of the tools contributing to the production of wealth and welfare. Moreover, there is an optimum level of monetarization which, if exceeded, can produce deducted values.

Our intention is not, of course, to propose a return to a barter economy but rather to stimulate recognition of the value of that segment of the economy that is not apparent in the monetarized exchange system.

In theory the need for such recognition may seem self evident; however, in practice it is not the case. Books about money deal only essentially with the history of money and almost never with the economic system’s transition to monetarization.

3.3.2. THE PERSISTENCE OF NON-MONETARIZED ECONOMIC ACTIVITIES IN ADVANCED INDUSTRIAL COUNTRIES

(a) Some examples. Superficial examination may suggest that in the advanced industrial countries monetarization has permeated throughout the entire fabric of the private and public sectors of the economy. However, the “D sector” which overlaps with and extends beyond the non-monetarized sector and has been defined by Yona Friedman as the part of the “non-active” population which performs a socially useful task — albeit not included in the Gross National Product (GNP) — is a major component of economic and social relations, both as a stimulator of the latter and an indicator of social well-being. Let us list some of the related activities which immediately spring to mind.*

The usefulness and indispensability of domestic work cannot be denied. The housewife’s* many-sided activities have an important bearing on the physical and mental equilibrium of the members of the family circle. If it were possible to determine and measure the importance of domestic work in relation to all the factors that most influence “production” efficiency, it would most certainly prove one of the most decisive. Even when it is recognized and sometimes evaluated,** this socially useful activity never figures in official economic tables.

Is not auto-consumption a relic of the agricultural economy, in which it was normal practice? It is certainly true in the case of farmers who, in almost every instance, consume some part, at least, of their own produce. Even in the cereal and wine-growing regions, the farmer will almost always have a kitchen-garden or small orchard to supply his needs of fruit and vegetables. Many town dwellers have an allotment which provides both indirect income and leisure activity.

These examples reveal that the non-monetarized sector still exists as an economic force and also that conventional indices (e.g. GNP) are not an adequate measure of social well-being.

Is the non-monetarized sector likely to spread or will it die, will it progress or regress? Does its subsequent development depend on political trends or is it, in fact, maintained by economic and social forces, which even help it thrive and expand?

Yona Friedman believes a subsequent extension to the “modernized D sector”*** to be essential based on the fact that, currently, with the slackening in industrial and agricultural growth rates, increased instability, persistent inflation, maladjustment of monetary mechanisms, rising bankruptcy, and the difficulties experienced by more and more sectors of

*On the social consequences of the subdivision of the economy into monetarized and non-monetarized activities and its effect on the marginalization of women, age and social minorities and even “ecologists” see Hazel Henderson “The Coming of the Solar Age”, Resurgence, Vol. 10, N. 2, August 1979, pp. 6–9 and E. Dodson Gray: Why the Green Nigger, Wellesley (Massachusetts), 1979.

**The Liberty life insurance company has calculated that, in Great Britain, the cost of replacing a woman working at home and looking after two young children was £90 a week – and even more in London (£114.80).

***Yona Friedman’s D sector is wider than the non-monetarized sector since, by definition, it does not exclude moonlighting. The “modernized D sector” would then cover both monetarized and non-monetarized activities.
the economy, governments are impeded in the efficient implementation of their programmes.

One of the most significant cases in the non-monetarized system is for the unemployed to undertake additional activities in their competence: producing part of the family food, household maintenance (fixing a leaky gutter or a faulty electrical installation), offering services to a neighbour in exchange for fruit, vegetables, or... gratitude. All such measures contribute to reconciling a relative shortage of money with the maintenance of a standard of living... and habits formed during unemployment may persist when employment is found. Craft work may come within the non-monetarized system if part of the payment is effected in kind. In view of the persistent unemployment in the majority of industrialized countries, the non-monetarized sector would with advantage, make up for the loss of paid jobs, thus contributing, at least partially, to the avoidance of a drastic reduction in living standards. In this connection, a reduction in working hours could possibly be beneficial in two ways: by reducing unemployment; and by giving individuals the time to earn additional non-monetary income.*

These cases are comparable to efforts to obtain partial freedom from the constraints of monetarization — in particular that of having to exercise a paid activity — since such a trend offers the possibility of individual subsistence living — a situation which is now being taken more seriously and is sufficiently rooted in the past for it not to be ascribed to a purely passing fad.**

(b) The diminishing returns of monetarization. In examining the persistence of the non-monetarized sector in advanced industrial countries, one might conclude that although not negligible, this sector is still marginal and assumes importance only in exceptional circumstances such as war.

*At the general economic level, serious consideration should be given to the adjustment of other constraints such as the cost of working, on the one hand, and the cost of unemployment on the other.

**It is paradoxical to note in some cases how advanced technology even favours some new developments of barter trade: "The Electronic Rebirth of Bartering". The computer in fact does help information storage and distribution for goods and services exchanged without the use of money (Business Week, September 19, 1979, p. 108).
In fact, the monetarization process may also be subject to its own law of diminishing returns. Increased monetarization was essential for the Industrial Revolution; however, is such an increase always positive, or may it also be subject to the law of diminishing or even negative returns and consequently have an overall negative effect even in purely material terms?

Accepting that wealth and welfare are derived from D & P and utilization value, it may be profitable to reflect on some current, typical manifestations of advanced “monetarized” countries.

Take first the cost of eating. We can buy the products and prepare them ourselves — the work of lunch preparation being a “non-monetarized”, “do-it-yourself” activity. At a restaurant or cafeteria, the meal costs more owing in part to the paid work of those employed there. Thus “free” or “non-monetarized” work has been replaced by monetarized work. There has been no increase in D & P (unless the meal we prepare is very bad in comparison with that offered by the restaurant — although the opposite may apply); non-remunerated work has been substituted by remunerated one. The monetarized component of D & P has, of course, increased (increased GNP) but without necessarily any change in the total real wealth. It is admitted that there is normally a gain in specialization and any economist would immediately identify this.

Let us now take a step further: with the development and concentration of the catering industry, diminishing returns may become apparent. To maintain the monetary system (i.e. to ensure no monetary loss), restaurants are obliged to hold down costs, especially those of labour. Labour costs can be reduced by technology offering new cooking and washing processes of real utilization value. However, subsequently costs can often be controlled only by retransferring at least a part of the effort to the non-monetarized sector e.g. by requiring the client to service the meal himself. The goal of monetarized equilibrium becomes dissociated from an increase in total real wealth.

The health sector provides an even more dramatic example. Hospital costs are skyrocketing, not merely as a result of increased equipment and treatment costs but also because hospitals are now less of a community service organization (with a large voluntary benevolent infrastructure) and more a monetarized machine. If today, hospitals are financially often in worse shape than restaurants, it is because they cannot retransfer costs to the non-monetarized sector as easily as can restaurants. Current
trends to health care decentralization and domiciliary care constitute a clear indication that recourse is being had to the "non-monetarized" sector.

These two examples show once more that the monetarized and the non-monetarized systems are intricately interrelated. If we do not measure the real increase of total utilization value, we subject ourselves to the monetarized system's partial logic which is illusory especially when the monetarized system needs increasingly disguised "subsidization" by the non-monetarized system. Promotion of "Do-it-yourself" is therefore not just a way of getting people to do more with their hands but often also an outcome of the need to maximize transfer from the "monetarized" to the non-monetarized sector in order to maintain monetary profits. It is not a question of whether "do-it-yourself" is good or bad but of which combination of monetarized and non-monetarized activities produces more real utilization value. Monitoring the balance between the monetarized and the non-monetarized activities is an important procedure in organizing wealth and in avoiding the negative returns of monetarization, that occur when a single tool becomes identified with the overall goal.

New types of accounting should be used to identify and to stimulate the non-monetarized system's contribution to real global wealth's increase.

(c) Stimulating the non-monetary sector. Expansion of the non-monetarized sector does not imply exclusion of the monetarized sector, but rather its coordination. Economic policy might thus be aimed at providing more opportunity for both monetarized and non-monetarized production.

In view of the continuing rise in unemployment in the industrialized countries, it might be possible to offer new occupations rather than to create new jobs, in particular activities in the social sector, where the public's needs are far from being satisfied: help for the elderly, day-nurseries, cultural activities, etc. This cannot, however, be done benevolently unless individuals have the wherewithall to meet their basic needs.

A more liberal approach to authorizations and permits would encourage the appearance of new "small trades" and the proliferation of old ones, the latter being conducive to non-monetary trading. There would be a deliberate policy of encouraging "monetarized" investment in non-monetarized occupations and production.

Certain services could also be developed if, for example, everyone was
given elementary medical instruction for the detection and prevention of certain common diseases,* etc., or the technical know-how needed to repair a washing machine or a motor-car; the principle being to augment utilization value by transforming certain monetarized costs into self-produced or self-managed “no-cost” activities.

Non-monetarized sector development naturally implies some modification to the tax system: this is dealt with in the next dossier.

Extension of the non-monetarized sector depends not only on cooperation between State authorities and the public, but also on a change in individual and collective behaviour; currently, food product or consumer goods accumulation is considered an indication of social status, and monetary income is considered, rightly or wrongly, as the most certain means of achieving this objective. The example of social groups initiating non-monetarized activities would, no doubt, be the best stimulus to accomplishing this behavioural change.

World-wide discussion of the concept of value would probably help and encourage this cultural adaptation. Even though the individual and the community are often practically confronted with real deducted values, attitudes and behaviour will not change all the while if they are seen simply as a transient malfunctioning of the traditional — but still “right” — way to consider wealth and welfare. We are in a period in which it might be useful to “recognize” what our real interests are.

Recognizing and searching for our Dowry and Patrimony, both locally and worldwide, as our real basis of wealth and welfare will produce practical actions to increase them, at both the material** and non-material level.

*No doubt it is in China that this type of medicine — the barefoot doctor — has been encouraged the most. Why should it not be possible to achieve in the industrialized countries the successful results obtained by a semi-industrial country, even at the expense of certain adaptations?

**French forests are a good example of how the non-monetarized “material” sector could be extended. France has a total forest area equal to that of all the other Common Market countries together, but is unable to meet its own timber needs. Annual wood imports amount to several billion francs. This is due partly to the abandonment of the forest by those who previously tended it: woodcutters, resin-collectors etc., and is marked by the encroachment of brushwood and the gradual disappearance of forest-groves, which are much more suitable for industrial purposes. It might perhaps be possible to plan tree-felling and subsequent reforestation on a non-monetary basis. Taxation in kind might be ideally applicable to reforestation. Similarly, forest-oriented jobs could be re-established, e.g. resin-collection, etc.
3.3.3. THE GREY ECONOMY

Current discussion of the contradictions within the economy centres, in general, on another problem: the existence of economic dualism within the monetarized system itself — the phenomenon of the "underground" or "grey economy". This phenomenon affects activities in the monetarized sector but appears only partially or not at all in national accounts. The reasons behind it are varied but most often linked with tax evasion.

In certain countries, the grey economy is so extensive and so dynamic that it may be considered to indicate the monetarized economy's need to have growing recourse to this type of disguised subsidy in order to maintain itself as the dominant economic system.

How important is the grey economy?

Peter Gutmann, Professor at Baruch College, University of New York, has estimated that, in the USA, the grey economy accounted for US $176,000 million in 1976 and to US $195,000 in 1977, i.e. somewhat more than 10% of the official GNP.

No comparable figures are available for France but the Government estimates that 25% of French workers have a second, undeclared job.

In Italy, the "grey economy" is said to involve 2 million workers — over 10% of the total labour force — and the rhythm is accelerating.

The phenomenon is universal, regardless of its name: "fiddling" in England; "travail au noir" in France; "Schwarzarbeit" in Federal Germany; "hidden income" in Japan; "second economy" in the USSR.

In the United States, economists have tried to identify and evaluate the sources of the "grey economy". In Business Week, Seymour Zucker added to undeclared wages, the undeclared income of self-employed persons, their income from letting, profits of small companies and interest on undeclared income. He obtained a figure of US $100,000 million. In addition, income from illegal activities should not be underestimated: dealing in drugs, prostitution and gambling (the latter being all the more important because of its public acceptance) probably amounts to US $150,000 million. Similar figures have been advanced elsewhere, for example by James Henry in The Washington Monthly (May 1976).*

*Obviously no figures are available for the Eastern bloc countries, but the "grey economy" is just as thriving there as in the Western countries. In Czechoslovakia, for example, a large proportion of the economically active population does a second day's work after the legal working hours.
Who contributes to the maintenance and expansion of this “grey economy”?

Almost all social categories are involved: agriculturists, office employees, manual workers, self-employed persons. In general, anyone who receives cash in payment of a transaction can participate in the “grey economy”, and this covers a wide range of activities: retailing, personal services, casual or part-time work, illegal or quasi-legal activities...

The dynamic nature of the “grey economy” owes more, it would seem, to the large number of workers who hold one or more undeclared jobs in addition to their declared occupation, than it does to practice of one or more illegal activities. According to Peter Gutmann, even if the latter were to account for 10% of those contributing to the maintenance of the “grey economy”, the official unemployment statistics in the USA should be corrected downward and 820,000 units be added to the number of economically active persons. Moreover, the official figure should be viewed with caution since the authorities have an interest in underestimating the volume of “moonlighting” in order to prevent voluntary payment of taxes being adversely affected by the truth about tax evasion.

Do any indicators exist for evaluating the “grey economy”?

Peter Gutmann proposes observation of movements in two components of M₁ money supply figures, i.e. money in circulation and current accounts.

Up to the end of the Second World War, the historical trend was towards the amount of money in circulation to be small in comparison with the amount in current accounts. In 1892, for each US $1000 deposited in current accounts, US $352 remained in circulation; in 1941, the corresponding figures were US $1000 and US $219 and, by the end of the Second World War, US $1000 and US $363. The earlier decline in extra-bank monetary circulation has been followed by an opposite trend which has continued regularly since 1961. By December 1976, the volume of extra-bank monetary circulation had risen to approximately US $380.68 per person.* It is believed that some of this liquidity goes to sustain the flow of undeclared income and “moonlighting”, i.e. a veritable under-

*There are two other explanations for the strong growth of money in circulation. The first attributes to the increase in interest rates the displacement of demand deposits to time deposits. The second sees technical innovations as the cause of the reduction in current accounts — e.g. RPs (a type of corporate lending where a company’s demand deposits are lent overnight or longer and the demand deposits thus do not appear in Government demand deposit statistics).
ground economy which escapes all taxation and is substantially ignored. Of the US $77,800 million circulating outside the banking system, US $28,700 million are said to be channelled into the “grey economy”, enabling US $200,000 million worth of goods and services to be produced.*

Some economists question the value of this indicator. For example Philip Cagan of the University of Columbia states, “But the estimates that you get this way are only suggestive. You can’t pinpoint the amount of cash that should be outstanding and then conclude the residual is due to the subterranean economy”. Cagan gives the example of liquid money sent abroad.

Let us consider some of the causes of the “underground economy”.

The “underground economy” is alleged to be the direct result of income tax, of the complexity and growing burden of the tax system in general, and of limitations affecting the access of specific social groups to legal jobs (foreigners, for example) and prohibitions on certain activities. Its existence is bound up with the impossibility of procuring certain goods or services by other means or with the fact that they are too expensive. Without claiming to be exhaustive, mention may be made of ever higher income taxes and consumer taxes (VAT in Western Europe is a good example) which encourage payments in cash in order to avoid taxes, and the repetition of such payments as often as possible in order to circumvent the statutory tax procedures. Social security beneficiaries whose earnings potential is limited, retired persons and pensioners may also have recourse to the “grey economy”. Three factors have a more decisive effect in the medium- and long-term because they indicate that a turning-point has, perhaps, been reached which threatens the equilibrium of the entire political and economic system in Western societies at least: the acceleration in the operating expenses of the State apparatus; inflation which reduces the individual’s real income and obliges him to take refuge in the “grey economy”; and the political concept of income redistribution which seems less and less to be a significant preoccupation for the individual.

What are the remedies for the “grey economy”?*

The size of the present study must necessarily limit our ambitions in this respect, and we must confine ourselves to indicating some paths that might be followed for further research.

*See the table on the importance of the “grey economy” in the United States, on p. 238.
Taxpayers, today, too often have the feeling that the number of those who pay considerably exceeds the number of those who benefit.* An effective income redistribution policy should, it would seem, increase the number of beneficiaries without diluting the benefits. This would be achieved by concentrating, for example, on services likely to provide advantages for the greatest number: social services, assistance — in the form of subsidies — for the purchase of sites intended for producer cooperatives. Such an approach might, moreover, considerably expand the monetarized economy. In any case, an accounting of effects on the D & P would be essential.

State bureaucracy absorbs an ever growing volume of tax revenue and this excessive growth of the State apparatus is not unrelated to the taxpayer’s reticence or refusal to pay his taxes. Decentralization would provide a remedy to the extent that it led to the creation, closer to the citizen, of civil-service posts occupied on a rotation basis, with everyone becoming a citizen-administrator in turn. Moreover, it could be desirable for wage-earning to be replaced gradually and partially by honorary work.

The complexity of tax declaration forms is one of the reasons why people resort to the “grey economy”, and consequently simplification of these forms would be a way of not discouraging the goodwill of taxpayers.

The tax system is a blocking factor for social mobility when it becomes a brake on the improvement of social status. Reducing income taxes at all levels encourages social mobility at the upper level. Increasing death duties, taxation on gifts inter vivos promotes social mobility at the lower level.

The growing rejection of the way in which society is organized is leading to a monetarized economy which tends to resist all regulation. A manifestation of the monetarized economy, the “grey economy” is working clandestinely towards ensuring its survival as the dominant economic system. Thus, it is not an exaggeration to regard the “grey economy” as a form of disguised subsidy to the legal economy. The remedies mentioned above may correct this deviant behaviour; however, are not more radical changes necessary and why should not the non-monetarized economy provide the inspiration?

The “grey economy” is a phenomenon of sufficient importance that it

*Particularly if payments are in “real” value and if benefits include a larger and larger portion of “deducted” values.
TABLE 3.5. Importance of the “Grey Economy” in the USA

<table>
<thead>
<tr>
<th></th>
<th>1937–41</th>
<th>1976 = M₁ = % = GNP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(billions)</td>
</tr>
<tr>
<td>Currency</td>
<td>Illegal</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Legal</td>
<td>21.7%</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$304.0</td>
</tr>
</tbody>
</table>

(a) The amount of currency required for legal transactions in 1976 is assumed to be the same percentage of demand deposits as in 1937–41. The amount of currency required for subterranean transactions is obtained by subtraction.

(b) The amount of GNP lubricated by one dollar of M₁ — whether currency or demand deposits — is assumed to be the same for both legal and subterranean activities.

Source: Across the board, Vol. XV, No. 8, August 1978.

Perceptibly affects the true state of the entire economy; in certain cases, it is probably more effective than the measures some governments take to “strength the economy” or handle a crisis. It also reveals the limits of the official action in economic policy. Consideration must be given to both the “non-monetary” and the “underground” economies if a realistic picture is to be obtained of the true economic situation.

3.3.4. THE DUAL ECONOMY AND DEVELOPMENT

Whereas in the industrialized countries, the monetarized economy has absorbed a greater part of the production and distribution of goods and services, in the Third World countries, the non-monetarized economy is still the predominant economic system.

In a study of agricultural workers’ incomes in Central and East Africa, J. Freyssinet and A. Mounier identified three main forms of the organization of production and exchange: the self-sufficient economy; the small-trade* production economy; and the plantation economy.

The first is characterized by the absence of trading within the social group: family, tribe, ethnic group, etc. and the direct sharing of the

*It must be clear that “trade”, in this research means strictly monetarized exchange.
product among its members. The small-trade production economy is based on sale-orientated crops, side by side with the production of foodstuffs which continue to fulfil main needs and generate income in kind as opposed to monetary income. In the plantation economy, the income issues from trade and assumes monetary form. Even here, autoconsumption based on food production is appreciable.

None of these three forms of economy are pure or exclusive: interpenetration takes place in various ways and monetarized and non-monetarized sectors co-exist within each other.*

How should this co-existence and its development in time be evaluated? The best method is by application of a criterion reflecting the rate of transition of the economy from one of subsistence to one of exchange, from a non-monetarized to a monetarized economy, the downswing of the one and the upswing of the other. This criterion is the structure of income. In the determination of its components, both kind and money, the latter represents one measure among others, since agricultural workers also take into account direct utilities and costs.

Thus measurement of the actual quantities produced or consumed is better suited to the autoconsumption or trade-in-kind and to social obligations as regards gifts. Human effort involved in acquiring goods or services is a better reference for comparing the level of arduous labour with the utility value that this effort confers on the goods and services in question.

Income is defined by Freyssinet and Mounier as being “the total material assets and services at the disposal of an economic agent to satisfy his needs, either by immediate consumption or by the extension of his patrimony”.

The stress placed here on the finality of income, its determination and distribution would be incomprehensible without a knowledge of the mechanisms of solidarity — i.e. the customary system of transfer employed by the individual in his adherence to a specific social group** — which ensure group cohesion.

*François Perroux has noted recently: “Everything pushes us to make a deeper analysis of what exists beyond and under the market (monetarized) economy.... The new development makes economic thinking younger”, in Le Monde, Paris, October 9, 1979, p. 21.

**Gifts and taxes pertaining to ritual festivities or family celebrations at births, weddings and deaths.
Is a reduction of the non-monetarized sector desirable? Is it possible? This last question is bound up with an examination of the expansion factors of the monetarized sector and of the resistance factors of the non-monetarized sector.

The expansion factors of the monetarized sector include:

— easier communication tends to expand trade zones, leads to dealing in new commodities and generates a demand for a general equivalent.
— in numerous Third World countries, during the harvest period the peasant may have difficulty in making ends meet and consequently appeals outside the group to an agent with monetary savings.
— the trade economy uses bush commerce channels to introduce products manufactured in rural zones. Demonstration creates demand which encourages seasonal and even permanent migration to stable, salaried work.46 What is the impact of this migratory movement on the traditional economy? The monetarization it generates would seem to favour the breakdown of traditional social structures. However, experience shows that cash inflow can also act as an “oxygen balloon” providing protection against external disruptive influences.*

The role of the State in reducing the non-monetarized sector should not be underestimated. In Central and East African territories, over 30% of State resources originate from taxes levied on the product of agricultural activity. Since export-oriented crops are the sole important currency generators, it is feared that the State will encourage the development of big plantations to the detriment of the self-consumption sector.**

One sign of this trend is the replacement of bush commerce by public commerce offices which are directly opposed to the dispersion of production locations and accelerate the shift from a subsistence to a plantation economy.

Some authorities believe that the non-monetarized sector has such resistance factors that a big monetarized sector should not be expected to emerge in the foreseeable future. Progressive replacement of non-monetary by monetary circuits does not necessarily result in de-structuri-

*Resistance to external disruptive influences probably depends on the quantity and density of the solidarity networks that ensure group cohesion.
**The fear is a very real one since this policy does, in fact, lead to a reduction in the farmer’s disposable income. Monetary income increases but overall income decreases because monetary income does not compensate for the resultant shortage of foodstuffs for local consumption.
zation of the traditional environment, at least not in the short or medium term.

Robert Badoin claims that this duality, far from weakening the existing system, infuses it with new creativity and vigour. We would not go as far as this but, nevertheless, admit that customs, hierarchies and structures can be absorbed and beneficially assimilated. Contrary to today’s most prevalent theories, increased income would not necessarily lead to additional productive effort: as soon as the customary needs have been fulfilled, productive effort often loses its object.

This has been the experience in Senegal, where those who introduced harnessed tillage have increased the income; however, surplus income has not been invested in new production facilities but rather squandered on enhancing the splendour of ritual festivities and on offering more valuable gifts to religious chiefs.* In Senegal, the act of saving does not have the same significance as in an industrialized economy; it is subordinate to the logic of the traditional system which possesses a rationality of its own. The concept of D & P is based on different cultural values.

Can it be said that a reduction of the traditional sector is desirable? Yes, if economic development is thereby favoured, as depicted by Arthur Lewis47 and Barber.48 The theories of these two authors run on the following lines.

According to Lewis, the labour supply in the modern sectors of the economy is generated by its relationship with the traditional economy. Proceeding from a marginalist concept, he shows that, as marginal productivity is weak or non-existent in the traditional spheres of economic activity, and high in the modern sectors, the pay level in the latter spheres depends not on the difference in productivity but on the difference between the average incomes in the two spheres. The difference necessary for a population shift from the traditional to the modern sectors is estimated by Lewis at 50%. Until the traditional economy has been demolished by complete resorption of the traditional sectors, this afflux of cheap labour will support the international competitiveness of Third World

*However, one cannot definitely state that the lower the needs, the quicker the labour offer starts to decline; generalization of this behaviour would generate the reversal of the desired effect, i.e., the higher the income, the lower the productive effort. It should be remembered that no mechanism is absolute and that other factors may intervene to counteract the above phenomenon. The effect of demonstration is certainly not the least influential.
countries in relation to industrialized countries, where, says Lewis, dualism (i.e. the antagonism between traditional and modern economy) has disappeared.*

Barber’s theory, essentially the same, corrects Lewis on one point: traditional forms of activity are not reduced to the point of extinction; when modern forms extend beyond a certain point, the traditional sector is reduced through slow conversion. He estimates that if the manning of the traditional system were reduced by 50%, the human resources necessary for it to function properly would no longer be available and that a transformation of the agricultural system through the introduction of harnessed tillage and fertilizer would then become inevitable.

However, to procure the means of increased production it is necessary to buy, and buying . . . means selling!

Though it is true to say that low salaries are an important factor in the industrial competitiveness of Third World countries and that the average incomes in the traditional sectors partly determine the salaries in the modern sectors of the economy, Lewis’ theory can be criticized on several heads: it is based on an assumption and implies two hypotheses. The assumption is the comparison of income in the modern and traditional sectors on a monetary basis. The study by T. Freyssinet and A. Mounier advises the greatest caution in this respect: the estimation of income by the sole means of a monetary criterion is not sufficient in economic systems which are still largely non-monetarized; other criteria are required here: the physical quantities produced and consumed, the human effort involved . . .

The two implied hypotheses are the abusive faith in the absorption capacity of the modern sector and the prejudice about the structural weakness of the traditional sector. In fact, demographic growth** and the

*This theory has been developed partially in “The Theory of Economic Growth” and more systematically in Lewis’ article “Economic Development with Unlimited Supplies of Labour”.

**The population growth rate in African countries is reckoned to be in the region of 2.3% to 2.5%, and the population doubles from one generation to the next. Today the under-fifteen age-group represents approximately 45% of the total population.

A disastrous consequence of the demographic increase is the unbounded growth of numerous Third World towns, which is characterized more by slum accumulation than by the construction of areas providing decent living conditions. Concentration-linked industrialization clearly induces the production of relevant “deducted values”.
too frequent choice of capital intensive techniques* in Third World countries set a double limit, objective and subjective, to the modern sector’s absorption capacity. Moreover, we have stressed the recuperative powers of the traditional sector, and its effects should not be minimized, at least in the initial stage of monetarization of the economy.

Barber’s theory is more convincing. It gives a truer reflection of the effects of monetarization: a slow and discontinuous process which leaves large, non-monetary sectors intact. Hence the structure of income as defined by Freyssinet and Monier becomes an excellent criterion whereby to judge the real economic trend and estimate the degree of interpenetration of monetarized and non-monetary sectors.

The monetarization of agricultural incomes renders farmers more and more dependent on their productive effort when this is accompanied by the replacement of foodstuff cultivation for subsistence by large-scale plantation crops. The latter, grown for export, submit farmers’ incomes to exogenous factors over which the farmers themselves have no control.

We have enumerated some of the factors which, in Third World countries, hinder the absorption of agricultural labour by capital-intensive industries. Extensive farming and agrobusiness, based on agricultural mechanization also seem to be unsuitable for absorbing an appreciable portion of the population from the non-monetary sector.

Normally, the agriculture of small-trade production or of plantation farming does not seem to be generated by a transformation of the traditional system: rather they are merely grafted onto the traditional system since the peasant does not develop such innovations unless they can co-exist with self-sufficient production. This attitude is justified by the supply of labour made available by the agricultural cycle and by the low practical efficiency of modern systems. Commercial practices also have an important effect. “The price of groundnuts, in husk and seed is highest at the beginning of the farming cycle, when the peasant is unwilling to

*The choice of capital-intensive techniques could be considered reasonable if the profits were and could be locally re-invested so as to have a diffusive effect which would encourage the implantation of processing industries. This process has already started in some Third World countries – some oil-producing Arab States are a case in point – but it is still too rare for other development alternatives to be desirable. A policy of income distribution deliberately aimed at creating a vast domestic market would still be the best vector for monetarization of the economy.
part with his produce. The price falls by half after the first harvest and declines progressively the nearer the approach of the trading period; the peasant who decided to sell part of his harvest at lower prices a few weeks before the trading season only does so when in dire straits. The merchant is well aware of this and uses it to lower the prices."

Thus the shortcomings of self-sufficient production would not be compensated by a monetary income, which, in the same way as income in kind from the non-monetaryized sector, appears to be more a complementary income of subsistence than one of accumulation.

All these factors combine in favour of maintaining a large non-monetaryized sector in Third World countries, in the most of which it may remain the predominant sector for some considerable time to come.

Even though the non-monetaryized sector must be considered with care in the framework of any development policy, it does not mean, of course, that monetarization of the economy is undesirable. The current indebtedness of Third World countries illustrates, though, the dangers inherent in a mass appeal to outside monetarized savings, not to mention the fact that savings formation and utilization are strictly related to cultural pattern.

A UNESCO report observes the important relation between savings and their "squandering" (in light of western economic rationality) on religious and family festivities, in some Third World countries.

"The sums spent on different ceremonies represent, in rural areas in India, 7.2% of the income per inhabitant. An even more significant figure reveals that, if the money spent in these areas on wedding and funeral ceremonies were used to acquire productive goods, it would swell the total investments by 50%...."

"The money spent by one family in the course of its existence on wedding and funeral ceremonies represents approximately one fifth of the total non-renewable expenditures."

On the other hand, taking into account monetarized and non-monetaryized saving, accumulation in low-income countries is underestimated.*

Real saving is, in fact, effected by accumulation of durable goods, non-monetary circuits here being considered by economic agents as a

*Simon Kuznets claims that the share of savings in the national product is much higher than in the developed economies, Economic Development and Cultural Change, July, 1960.
means of protection against wastage, when the latter is stimulated by liquid assets. The monetarization of the economy, therefore, also runs the risk in certain cases of generating increased consumption rather than the growth of the mobilizable real savings potential. Such forms of behaviour, which normally escape macroeconomic analysis, are absolutely rational on the microeconomic scale. Nevertheless, the classical economic concepts make it impossible to comprehend the behaviour of economic agents in Third World countries.

G. Abraham-Frois provides a good example in this context when he observes that if savings are a function of the liquidity preference, it is not because the economic agents save more the higher they are paid, but because of their tendency to transform the structure of their assets. Seen in this light, the interest rate would not be the price of savings, but that of renunciation of net assets, or more precisely, the price of conversion of non-mobilizable real assets into mobilizable financial assets, i.e. the price of the conversion of treasury to capital.

Once more, wealth is a question of a well balanced Dowry and Patrimony.

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