

SOME IDEAS FOR A HISTORY DYNAMICS MODEL

F.J. Torrealdea and M. Graña
 Universidad del País Vasco
 Facultad de Informática. Apartado 649
 San Sebastián, Spain

ABSTRACT

In this paper some of the ideas of Ortega y Gasset about the dynamics of history have been gathered and organized according to the system dynamics diagrams. A cyclic process, characteristic of every normal course of history, is described as well as the dynamics hypothesis responsible for it. Human life, as far as it affects history, is shown as being composed of five age groups each of them covering fifteen years of life. Two of these groups, two generations acting simultaneously in the field of history, are presented as taking the main responsibility for the dynamics of history.

1.- Introduction

Ortega y Gasset's work represents, according to Aracil (1), "a nursery for systemic thought,...and a task that someone will have to undertake if that nursery is to be exploited". In particular his description of the dynamics of history is a clear example of a systemic approach to the understanding of the universe. This paper takes Ortega's formal description as a base of the dynamic hypothesis that will lead to the construction of an initial small-scale model (2) of the dynamics of history.

Forrester's representation proves to be very apposite in revealing the systemic character, with its particular structure, of the historic process. History is the science of the changes in human lives and the variables interacting are, in many cases, difficult to quantify. However, the nature of cause and effect in the dynamics of certain variables, or that of the accumulation of actions propagated throughout the system in the dynamics of others, is patent. The present work has not attempted to build up a precise model (in the sense of

having the detail needed to be computed) but a compact set of dynamics hypotheses responsible, according to Ortega, for the historic flow. The selection of ideas could have been clumsy or the linking have distorted the sense of the great philosopher's thought, but in any case, our purpose has been to make it clear that his work can be of great interest to the paradigm of systems. The flow diagrams that follow should be understood as adjusting qualitative contents rather than quantitative variables. The specification of the equations (if such is possible) is put off until the development of a more mature model.

2.- Fundamental ideas of the model

We shall admit that the phenomena of history have a structure, that is, that history is not a pure accident indocile to any forecast. In any epoch a thousand accidents happen but the epoch itself is not an accident, the epoch possesses a fixed and unequivocal structure. When history deals with the mass of human lives it finds itself in the same situation as physics faced with the movement of bodies. There is so much movement and in so many ways, that it would be vain to try to learn from them what movement is. If movement did not have an essential always identical structure from which the singular movements of the bodies are pure variants, mechanics would be impossible. We should admit that the many different forms of human life hide an essential and identical structure of which they are different manifestations.

According to Ortega the driving force of history is neither politics nor economics nor the class struggle, these phenomena being important but superficial manifestations of the normal course of history. From the point of view of Ortega history moves and changes because man tries to adapt his ideas, convictions and technology to an ever changing reality that we shall call "vital sensitivity". Culture—by which we mean a highly aggregated variable which includes religion, art, politics, science, technology, social customs,

etc. - is man's answer to the set of problems his life consists of. The universe of problems depends on what matters arise to man as problems, that is, of what his "vital sensitivity" consists. Vital sensitivity refers to the quantity and quality of subjects to which the social body is sensitive in a historical moment. That vital sensitivity will depend on the state of the culture at that moment and on the nature of that social body, that is on each generation. Each generation entails a change of the vital sensitivity. The dynamics of the generations do not consist, at least exclusively, of following each other but of a simultaneous coexistence: "Today and in every today, coexist several intermingled generations; and the relations that appear among them, according to the different conditions of their ages, represent the dynamic system of attractions and repulsions, of agreement and polemic, that constitute the reality of the historic life at any moment" (3).

3.- Great historic cycles

One important area of historical research that should be made is to discover the historic rhythms. A surprising event, repeated over and over again in history, is that man periodically gets rid of his culture. Most surprising aspect of this phenomenon is its reiteration, its repetition throughout the known historic process. This phenomenon is called a historical crisis.

As we have already stated, we shall use "culture" as a highly aggregated variable meaning the accumulation of solutions with which man reacts against the problems that arise in his life, or better, of which his life consists. Culture is the interpretation man gives to his life, the series of solutions, more or less satisfactory, he invents to get over his problems and necessities, material as well as spiritual.

In a very symbolic way we can represent a historic cycle as it is shown on figure 1. The first period in the cycle is of creation of culture. Man, to live, needs to find out what is that medium, that circumstance, in what he is

immersed. He contemplates his surrounding circumstances and builds up a plan, an architecture of the chaos which primarily constitutes the circumstance in which he lives. This architecture that his thought imposes on his environment, he names his world or universe. The world or universe is, already, an intellectual solution with which man reacts against the inexorable problems that his circumstance gives rise to.

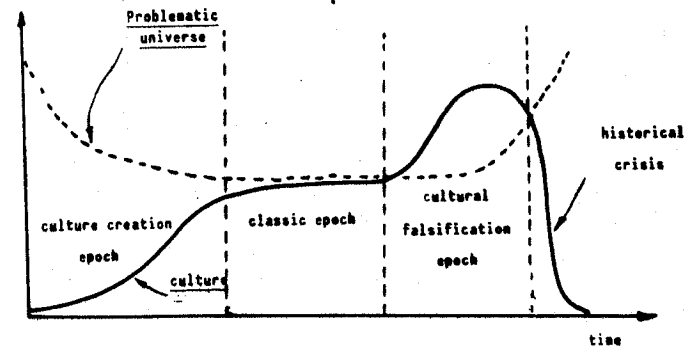


fig.1 Great historic cycle

In the second period man believes he knows what to abide by regard to his circumstance: he possesses a firm system of convictions and his world has a minimum of insoluble problems. This is the period known as the classical epoch.

The appearance of a historical crisis is related to a process of growth and falsification of culture. There is a lack of correspondence between the problems ostensibly being solved and the set of solutions being produced. The new generations receive the solutions before sensing the problems; this means that the problems are not felt properly as such, and the culture falsifies itself. Culture, lacking any real content, begins to grow in volume and gets complicated. It is an inexorable process in which culture, the purest product of vital authenticity, eventually becomes the falsification of life. Man feels drowned by his cultural environment, in

the same way as he was before by his cosmic environment. He has no alternative but to attack this culture and return to nature, that is to say to what is autochthonous in man, in front of and against what is cultured and educated in him.

Following the ideas of the previous paragraph, we can represent the dynamics hypothesis responsible for the historic process described by means of the flow diagram of figure 2.

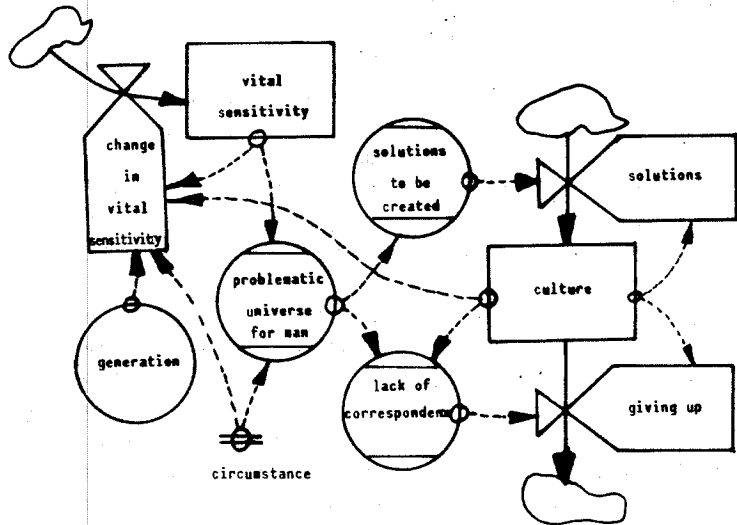


fig. 2 Dynamics of a historic cycle

The level of solutions that man develops depends on the type of problems which any historical moment presses upon him. Today material problems do not press upon man in the same way as they did in the paleolithic age. Man's life has the same fundamental structure, but the perspective of problems is different. The universe of problems he has to solve depends on the vital sensitivity, or radical attitude before

life, and on the circumstances he lives in. The vital sensitivity varies from one generation to the next and depends, in a feedback way, on the culture of the moment.

4.- The dynamics of generations

The presented model appears to be appropriate to describe a complete historic cycle. For a clearer understanding of history dynamics at any moment it is convenient to disaggregate slightly the level of culture. Besides that, we shall need to specify how the change in vital sensitivity is produced. To do that we shall introduce the dynamics of generations. The variable culture will be disaggregated in two of its more characteristics components (fig. 3):

- 1º) The convictions of man about what the world is, that is, his ideology.
- 2º) The degree of control of the environment, so, the stage of the technology. We shall include in this - level the degree of political development.

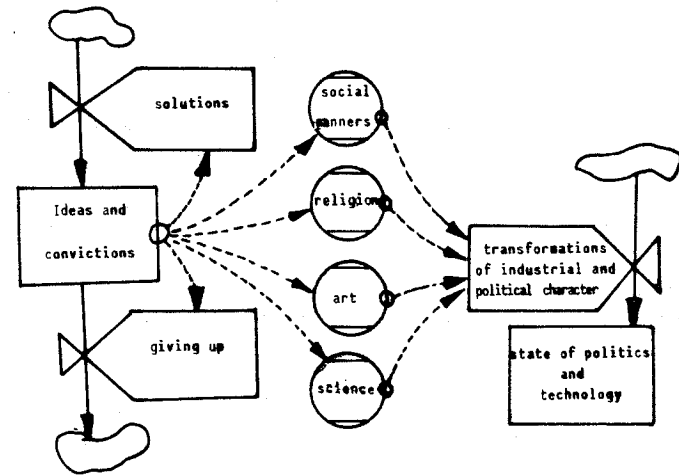


fig. 3 Disaggregation of the level "culture"

Figure 3 shows politics and technique as being dependent, with a certain delay, on the ideas and convictions which are an answer to the vital sensitivity which is the last cause, the deepest, of the historic flow.

Every life, be it of an individual or a society, is immersed inside the system we are describing. Every life is immersed inside that vital structure. First of all history is interpretation, which means inclusion of every insolated fact into the organic structure of a vital system. The subject of history is not human life, which is a philosophical subject, but the changes, the variations of that life. So, the basic question of history is: What changes have there been in the vital structure?. When, how and why does life change?.

During the first stage of a man's life, up to the age of thirty he is only concerned with learning and understanding the world he has to live in. At that age, man begins to react against the world he has found, he invents new ideas about the world's problems, science, technology, religion, politics, industry, art, social manners. So the day comes that he finds his renewed world, the one that is his creation, as being in force. At that moment a new stage of his life begins: man supports the world he has made, he leads it, he manages it, he defends it. He defends it against some thirty year old men that begin, on their own account, to react against this new world in force. The fullest historic reality is carried out by men who are in two different stages of life, each of them over fifteen years: from thirty to forty five, stage of gestation or creation and polemic; from forty five to sixty, stage of predominance and defence of the world in force. Two more different forms of life are not possible. There are two generations which are in charge of historic reality at the same time. The essential point is not that they follow each other but, on the contrary, that they live together and they are contemporaneous but not coetaneous. Lodged in the same external and chronological time, several different "vital

times" live together. Due to that internal lack of balance history moves and changes.

From this point of view with regard to history man's life is divided into five age groups of fifteen years each; childhood, youth, introduction, predominance and old age. The really historical parts are the two mature ages: introduction and predominance. This period from thirty up to sixty of full historic activity of man has usually been considered as a single generation, as a homogenous form of life. On the contrary, this period is considered here as covering two generations, each of them over fifteen years.

But the ages that have been mentioned are ages of our lives and not, primarily of our organism - they are different stages into which our vital duty is segmented. Each age is a particular type of duty. The disaggregation is, more precisely, a disaggregation in vital dutys. This disaggregation is the reason why every fifteen years a change in the vital sensitivity is produced. In the model each generation sends a signal that changes the vital sensitivity. The essential thing is that it happens every fifteen years. Figure 4 shows a qualitative flow diagram of the historic process. The disaggregation of ages is not fully expressed, after the "introduction in the history task" level the level of predominance is, in fact, "ideas and convictions" and the level of old age does not appear.

5.- Conclusions

A small-scale model of history dynamics has been presented as well as a complete historic cycle ending with a historical crisis. The model is not based on political or economic theories but on something very much deeper and more subtle: the ideas and beliefs with which man lives. Every change in the life of mankind, that is to say, history, is as a last resort a change in its deepest beliefs.

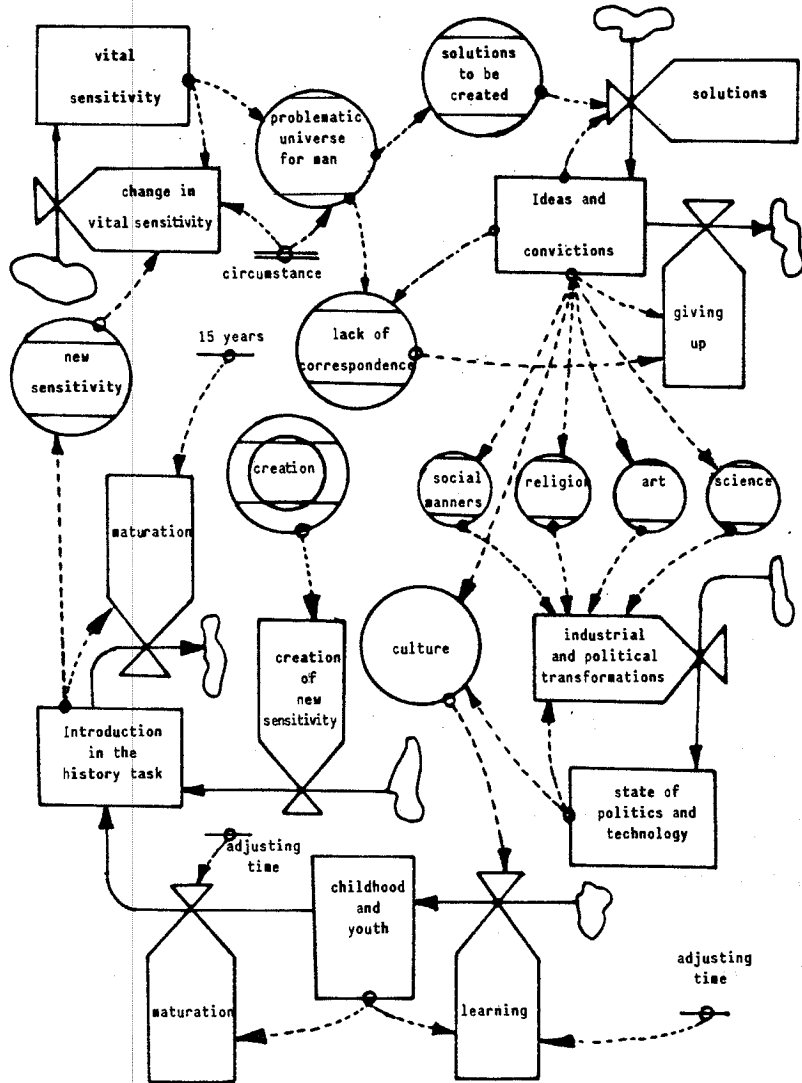


fig. 4 Dynamics hypotesis for the historic process

The conceptual material used to build up the model has been gathered from the work of Ortega y Gasset, we hope we have been faithful to the sense of his ideas. However the risk of having to a certain extent falsified his thought is great due, besides to our ignorance, to the great conceptual richness of Ortega's work which is impossible to put into the model.

In any case, granted that we may have falsified Ortega's thought, we are not too worried about. We were not so interested in the underlying philosophy in the model - any sympathizer with Marx or Hegel would reject it immediately - as in the model itself, in the fact that a model fairly similar to system dynamics models can be built. We are concerned that the challenge made by Aracil regarding Ortega's contribution to systemic thought, be taken up. We have, clumsily, begun with these ideas about history. We are not historians; we hope that our boldness will be forgiven.

Although the Forrester representation has been used, the model presented is not, strictly speaking, a system dynamics model. To be so it should be possible to simulate the model, that is, to write the equations necessary to implement the model in the computer. Although the variables might be quantified and the equations written, it doesn't appear to be necessary in this particular case. To quantify would deprive the model of riches and realism. Even with a non quantifiable system the Forrester representation proves to be equally capable of capturing the structure of the system, to increase our insight into reality through the model. In short, the conceptual apparatus of system dynamics can be used to modelize systems even if they are not easily quantifiable.

References

- (1) Aracil J., "Cibernética y Sistemas", Dissertation to the Real Academia de Medicina de Sevilla, 1982, Sevilla.
- (2) Randers J., "Guidelines for Model Conceptualization", Elements of the System Dynamics Method, - Mit-Press, 1980, Cambridge - Massachussetts.
- (3) Ortega y Gasset J., "Entorno a Galileo", Ediciones - de la Revista de Occidente 4ª edición, -- 1976, Madrid.