Alfred Korzybski Memorial Lecture

WILLIAM VOGT

ON STRUCTURE AND SURVIVAL

When the Institute of General Semantics did me the great honor of asking me to give the first of the Korzybski Memorial Lectures, I suggested, having in mind the high seriousness of the occasion, that my talk be called 'Dependent Variables and World Revolution.'

M. Kendig figuratively threw up her hands in horror, and objected that such a label would drive people away in droves. We compromised on the announced title and now, having gilded the philosophic pill, I should like to discuss a subject that has occupied my mind for some years—Dependent Variables and World Revolution. I beg that, so far as possible, you delay any initial signal reactions since I am sure you will find that the matter under discussion is part and parcel of the drama of our destiny, and even of the survival of our civilization. Because members of our modern society, from our most influential leaders down to our humblest workers, are acting as though the world we live in does not possess such structure as has been described by Korzybski, the sanity for which he sought so earnestly and so brilliantly through the latter half of his life seems to have escaped us almost beyond hope of recapture.

To what extent the structure I am going to discuss this evening deserves the name Korzybskian, I do not know and I doubt whether Korzybski could have told us himself. John Donne pointed out that, 'No man is an island,' but he might have added that all men are peninsulas; an occasional genius like Korzybski, deeply based on human experience, thrusts forward his own particular time-binding until it creates almost a sub-continent of new dimensions. For an increasing number of thoughtful people his formulations provide a map of contemporary territory which, unlike the maps of the conventional geographers, since it is four-dimensional, is never out of date.

II

Korzybski 'On Function,' 'On Structure,' and 'On Relations' has so much to say of pertinence to the current world situation that certain passages from Science and Sanity must be cited. For those unfamiliar with his work, or with the mathematical structure on which it is based, these notions will be discussed in a few moments in terms of processes actually taking place in the world today. He says (page 134 ff) 'The notion of "function" has played a very great role in the development of modern science and is structurally and semantically fundamental. This notion was apparently first introduced into mathematical literature by Descartes. Leibnitz introduced the term. The notion of a "function" is based on that of a variable. In mathematics, a variable is used as an ∞-valued [infinite-valued] symbol that can represent any one of a series of numerical elements.

'It is useful to enlarge the mathematical meaning of a variable to include any ∞-valued symbol of which the value is not determined. The various determinations which may be assigned to the variable we call the value of the variable. It is important to realize that a mathematical variable does not vary or change in itself, but can take any value within its range. If a particular value is selected for a variable, then this value, and, therefore, the variable, becomes fixed—a one-valued constant. In the use of these terms, we should take into account the behavior of the mathematizer. His "x" is like a container, into which he may pour any or many liquids; but once the selection has been made, the content of the container is one or a constant. So "change" is not inherent in a variable; it is due only to the volition of the mathematizer, who can change one value for another. Thus, the value changes by quanta, in definite lots, according to the pleasure of the operator. This quantum character of the variable has serious structural and semantic consequences....It allows us, without stretching our definitions, to apply the new vocabulary to any problem whatsoever. It is in structural accord with the trend of the quantum theory, and, therefore, with the structure of this world, as we know it at present.

'The notion of a variable originated in mathematics, and, in the beginning, dealt only with numbers.... The notion of a variable is taken always in

an extensional ∞-valued sense, to be explained later, as it always implies structurally a collection of many individuals, out of which collection a selection of one can be made. The notion of a variable is general and, in principle, ∞-valued; a constant is a special one-valued case of a variable in which the collection contains a single element, making alternative selection impossible.

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'The extensional method means dealing structurally with many definite individuals; as, for instance, with 1, 2, 3., a series in which each individual has a special and unique name or symbol. This extensional method is structurally the only one by which we may expect to acquire Non-A ∞-valued s.r. [semantic reactions]. In a strict sense, the problems in life and the sciences do not differ structurally from this mathematical problem. In life and science, one deals with many, actual, unique individuals, and all speaking is using abstractions of a very high order (abstractions from abstraction from abstraction,.). So, whenever we speak, the individual is never completely covered, and some characteristics are left out.

'A rough definition of a function is simple: y is said to be a function of x, if, when x is given, y is determined. Let us start with a simple mathematical illustration: $y = x + 3$. If we select the value 1 for x our $y = 1 + 3 = 4$. If we select $x = 2$ then $y = 2 + 3 = 5$,....

'In general, y is determined when we fulfill all the indicated operations upon the variable x, and so get the final results of these operations. In symbols, $y = f(x)$, which is read, y equals function of x, or y equals f of x.

'In our example, we may call x the independent variable, meaning that it is the one to which we may assign any value at our pleasure, if not limited by the conditions of our problem, and y would then be the dependent variable, which means that its value is no longer dependent on our pleasure but is determined by the selection of the value of x. The terms dependent and independent variables are not absolute, for the dependence is mutual, and we could select either variable as the independent one, according to our wishes.

'The notion of a "function" has been generalized by Bertrand Russell to the very important notion of a "propositional function". For my purpose, a rough definition will be sufficient. By a propositional function, I mean an ∞-valued statement, containing one or more variables, such that when single values are assigned to these variables the expression becomes, in principle, a one-valued proposition. The ∞-valued character of propositional functions seems essential, because we may have a one-valued descriptive function with variables, or a one-valued expression formulating a semantic relational law expressed in variable terms., yet these would be propositions. Thus, the ∞-valued statement, "x is black", would exemplify a propositional function; but the one-valued relation "if x is more than y, and y is more than z, then x is more than z" exemplifies a proposition. This extended m.o [multiordinal] notion of a propositional function becomes of crucial importance in a Non-A system, because most of our speaking is conducted in infinite-valued languages to which we mostly and delusionally ascribe single values, entirely preventing proper evaluation.

'An important characteristic of a propositional function, for instance, "x is black", is that such a statement is neither true nor false, but ambiguous. It is useless to discuss the truth or falsehood of propositional functions, since the terms true or false cannot be applied to them. But if a definite, single value is assigned to the variable x, then the propositional function becomes a proposition which may be true or false. For instance, if we assign to x the value "coal", and say "coal is black", the infinite-valued propositional function has become a one-valued true proposition.'

Later on Korzybski says (page 286): 'The notion of a function involves the notion of a variable. The functional notion has been extended to the propositional function and, finally, to the doctrinal function and system-function.'

Still later, in his unusually lucid discussion of the differential calculus, Korzybski points out (page 575): 'A function may have more than one independent variable; in which case we have a function of several variables. It happens frequently that to one value of the independent variable there may correspond several values of the dependent variable. Then, y is said to be a multiple-valued function of x.'

Bewildering though these formulations may seem when with little mathematical training one first encounters them, they are actually no more difficult than a topographic map when it is first encountered. They merely describe certain processes that are commonplace in the world about us. The fact that we often fail to recognize these commonplaces, and act as though we lived in a world of processes that have no more to do with 'reality' than had Greek mythology, leads us to act upon our delusions and, thus, to wander far from the paths of sanity.

III

Korzybski was principally concerned with man as an organism-as-a-whole and the relationship of the structure of his psycho-logical, time-binding

processes to the world in which man lives. In his profound discussion of the structure of these relationships, Korzybski tended to under-emphasize the environment-as-a-whole in which the organism exists, and perhaps never appreciated fully the contribution he had made to the understanding of this essentially ecological problem. It was because Korzybski's generalized formulation so adequately fitted the structure of ecology—a young science and one from which general principles are only beginning to emerge—that I felt little of the resistance to general semantics that is occasioned by the necessity of many of us to unlearn when we first encounter it.

Ecology, classically defined as the relationship of an organism to its environment, might be more adequately described as the four dimensional interrelationships of the environment-as-a-whole; including the organism-as-a-whole. This means that it is chiefly concerned with variables, that most of these are dependent variables, and that they must therefore be regarded as functions. Just as the organism-as-a-whole is different from the sum of its parts, so is the environment-as-a-whole. This fact has, to an amazing degree, escaped economists, conservation authorities, agronomists, foresters and especially statesmen and administrators, whether they be at the government, international or philanthropic foundation level. The very wide failure to fit psycho-logical processes to the four dimensional, functional world of dependent physical variables has resulted in costly, wasteful, and even destructive and dangerous errors.

We live in, and are dependent on, a physical world that supplies not only the basic means of our survival but the surplus wealth that, operated on by human thinking and skills, makes possible what we consider a high standard of living. Basic to our physical survival are adequate supplies of carbohydrates, fats, proteins, vitamins, etc.; often extremely complex substances, and these are primarily drawn from the soil.

Besides our food we must have, in virtually every part of the globe, adequate housing and this again has frequently been drawn from the soil in the form of lumber if only as the wattles supporting adobe walls.

In all except the most primitive societies, usually but not always restricted to the tropics, we must be adequately clothed and for the vast majority of the people on the face of this globe clothing comes either in the form of plant fibres from cotton, or animal fibres from sheep. The cotton is derived directly from the soil and the wool indirectly through pastures and ranges.

Water is an equal necessity with food; since, deprived of water, a human organism dies much more rapidly than when it is deprived of food, perhaps water should be considered more important than food. Water is required not only for drinking but for agriculture, manufacturing, sanitation, power, etc., and as the standard of living increases the per capita use of water necessarily goes up at a geometric rate—in the U.S. to more than 1,000 gallons a day per capita! Great shifts of human populations have been set in motion by climatic changes resulting in reduced availability of water; in many parts of the world today lack of water or the extreme costliness of securing it, not only in terms of money but in terms of energy and materials, is one of the most powerful factors limiting the potentialities of human 'progress'.

The various elements making up our productive world—soil, water, forests, and grasslands—seem relatively simple and are thus considered by many people. In fact, however, each one of them is a dependent variable and is frequently part of a structure that could be described only by an extremely complex equation, were it possible to describe it mathematically.

Soils, for example, are functions—that is to say the resultant of inter-actions—of the parent material or rock from which they are derived; of insolation—a particularly powerful influence in the tropics; the chemical action of air and rain; of slope—some soils have a higher angle of repose than others; temperature, in reference to absolute amounts, range, and distribution throughout the year; of water in relation to total precipitation, its distribution throughout the year, and the amount deposited in brief periods of time; of wind, as an evaporative and erosive force; fire, caused by friction, lightning or man; of plants as they condition the soil through their successions and as they protect it against erosion; of the animals that live in and condition the soil—protozoans, isopods, insects, earthworms, and larger burrowing forms, plus grazing animals that may destroy plant cover and initiate erosion with their cutting hooves; of time; etc.

Even the parent material is a function of tectonic movements; volcanic eruptions; climate; glaciation; time; etc.

Slope is a function of parent material; winds; precipitation; temperature, which by freezing tends to loosen the surface of sloping rocks and soil and thus to advance levelling; plants, which by root action may break down slopes or by protective action may hold sloping soils in place; and animals which may act as either stabilizing or erosive forces; time; etc.

Temperature is a function of slope; evaporation; wind; plant cover; proximity to large bodies of

water; the parent material, as, for example, on the guano Islands of Peru where contrasts in color of the sub-stratum will frequently result in temperature differences within a few meters of 15 degrees centigrade or more; time; etc.

Winds are a function of slope; temperature; proximity to deserts or large bodies of water; vegetation, which may act as a significant wind control in the microclimate and as a means of reducing the violence of convection currents; time; etc.

Fire may be a function of vegetation; precipitation; wind; slope; time; etc.

Plants will be a function of soil; slope; temperature; precipitation; evaporation; wind; fire—as an example might be mentioned the jack pines of Michigan which occur as a part of the plant succession following forest fires; of other plants, which act through soil conditioning, competition, etc.; of animals which affect plants through destruction as in the case of insects, through seed dispersal, through actual planting as discussed in Dr. Joseph Grinnell's classic paper, 'Uphill Planters,' through grazing; of time; etc.

The animals in a given biota will be functions of soil; temperature; precipitation; wind; fire—Kirtland's warbler nests only in the Michigan jack pines described above; plants providing food and cover; other animals that act through competition, predation, parasitism, etc; time; etc.

This perhaps tiresome catalogue of inter-relationships is far from exhaustive. I have merely abstracted some of the salient facts. It is not to be thought that all of them are present in every environment. Deserts and the Arctic are especially appealing to ecologists as research areas because the number of elements is reduced and the possibility of understanding inter-relationships is correspondingly much greater. The most complex environments are probably found in the sea at the convergence of major current areas as, for example, where the Humboldt or Peru current meets the Equatorial Counter Current, or in tropical forests. It is largely because of the complexity of the dependent variables in this last region that civilized man has encountered such great difficulty in coming to terms with it.

When so many variables in these environments are dependent upon the status of other elements, each of which, as a variable, is also unstable, we should expect to find a natural environment in a state of flux. This is, as every field naturalist knows, the normal situation.

One need not have much technical training as zoologist or botanist to see the changes that are taking place around the edge of shallow lakes filling with decaying vegetation, or receiving a normal complement of silt; areas that have been swept by fire; bays where one or more variables have been altered by such a major force as the disease that some ten years ago swept through the eel grass (Zostera marina) of the Atlantic coast; or in the great swaths that have been ripped through eastern forests by recent wind storms, smashing down trees, opening the forest floor to the full impact of the sunlight, exposing the soil to the effect of rain and wind, etc. Here, what might be called dominant variables have been affected and the impact of this on the host of variables dependent upon them is dramatic.

Climax is the name given to an area in which the relationships of the dependent variables have, usually after a long period of time, finally balanced one another and achieved an equilibrium except in micro-areas. Examples of the climax are our own short grass prairies, the beech-maple forest of our southeast, and the Taiga, or vast belt of coniferous forest that sweeps across Canada, northern Europe and Siberia. Even in such landscapes as this, wherever lakes are being filled by silt or decaying vegetation, where there has been a fire, or trees have been felled by wind, one can see the reversal of the processes and the struggle to regain the equilibrium on a small area. Once a climax has been achieved it will maintain itself during centuries, unless disturbed by some such factor as a shift in climate. In this case, in effect, the change in temperature and/or distribution of precipitation acting upon the other dependent variables in the complex, reverses the trend toward equilibrium and places the erstwhile climax in the status of a sub-climax which must now adjust itself to the new conditions. A change in x brings about a corresponding change in y.

IV

In the discussion so far there has been little mention of man. The reason for this is that until recently, in most of the world, he has been an insignificant factor in the physical complex. In 1650, only 300 years ago, his total population probably did not much exceed that of Pakistan and India today. His time-binding characteristic, to which so much weight is given by Korzybski, has acted as an effective force only during the last 10,000 years or so—or probably less than one percent of the time since he emerged as a time-binding anthropoid.

For millenia, man, too, was a part of the natural climax; he had to be, or perish. Korzybski (page 39) observed that 'in the case of primitive tribes which apparently have not progressed at all for many thousands of years, we always find, among other reasons, some special doctrines or creeds, which proclaim very efficiently, often by killing off individuals (who always are responsible for progress

in general), that any progress or departure from "time-honored" habits or prejudices "is a mortal sin" or what not.' Here a significant phrase, apparently given little weight by Korzybski is 'which apparently have not progressed at all for many thousands of years.'

Many human aggregates in all parts of the world have evolved culture patterns—time-binding structural relationships—that so little disturbed the equilibrium developed among the dependent variables of the physical environment in which they live that, measured by the biological criterion of survival, they have been extremely successful. Notable examples are primitive tribes in Africa, South America and Australia, and peasant societies in south China and western Europe. Indeed, these last two evolved ways of life that so well fit into the structure of dependent variables of their respective geographies that it would seem they must be considered functions of the physical environment. It should be noted that these particular cultures, in primitive and peasant states, have lived close to the process level and have been relatively little influenced by such high order abstractions as money, legal codes, political doctrine, etc. Perhaps there is a moral here but this is not the occasion to attempt to state it.

These human societies that have maintained stability over long periods have developed what might be called a cultural climax. Their agriculture, industry if any, economic system, medicine, family structure, religion, value systems, ethical codes, justice, military capacity, many of which involve such lower order abstractions that they are virtually at the process level, and all involving dependent variables, have arrived at an equilibrium comparable to that found in the Taiga or short-grass prairie. That we may consider this climax inferior to our way of life is beside the point; it would scarcely seem our province—though this would be rank heresy to some of our active do-gooders—to say that these people are better or worse off than we. (A cynical friend of mine, attached to our diplomatic service in one of the so-called backward countries, remarked, 'The first function of our Point IV program is to make people realize how unhappy they are.')

Whether we particularly desire it or not, our culture and by that I mean especially American culture, is impinging on cultural climaxes or near climaxes in many parts of the world. Our missionaries, attacking first of all the beliefs by which men live—in other words, their semantic reactions—where they are successful may have such a profound influence in altering dependent variables with which they (the missionaries) are not primarily concerned, that the results of their activities may be drastic and far-reaching. Three examples might be mentioned: the spread of tuberculosis which in some of the Pacific islands has resulted at least in part from the missionaries' imposition of European clothes; the avitaminosis resulting from the prohibition of use of pulque in Mexico, and similar mildly intoxicating drinks in the Peruvian Selva; and the overpopulation growing out of the termination of African intertribal warfare.

Business men who follow hard on the heels of the missionaries may be even more destructive of the cultural climax, whether through the institution of a money economy, with its American and European emphasis on the virtue of labor, or by developing destructive processes such as the use of the moldboard plow on the sloping, laterized soils of the tropics. Whereas in some mountainous areas, such as Central America, people have got along successfully for hundreds of years by planting their maize in a hole scratched with a digging stick, the modern plow literally cuts the ground out from under them. Yet in the short-term interest of 'good business', or because of the process of identification by county agents and other technicians—'farm land is farm land'—this process is speeded up and over millions of acres the consequent changes in dependent variables destroy fertility and convert productive soil into desert. The 'technical assistance' rendered by 16th and 17th Century Spaniards to the Mexicans, through introduction of cattle, sheep and goats, as Lesley Byrd Simpson has recently shown, turned millions of productive acres into sterile desert that still persists.

Even such an altruistic impulse as the spread of modern medicine, where its effect on the system of dependent variables is not considered and allowed for, has a shattering and even disastrous effect. Mankind has, over thousands of years, developed a reproductive capacity sufficient to compensate for the very high mortality rates normal to what we might call a pre-Listerine society; this reproductive rate is a dependent variable. With a normal life expectancy in the neighborhood of thirty years, large families were necessary if a species was to survive and nature took care of killing them off rapidly enough so that, except at relatively long intervals in most of the world, the number of human beings did not make inordinate demands upon the food supply. Then, within a few decades, perhaps 0.1 percent of his existence as a species, man suddenly learned how to impose death control on a species that had developed its reproductive pattern over a period of thousands of generations. The high birth rate was an integral part of the human climax pattern, as was the high death rate. When the latter was nullified there was an immediate sharp increase in human numbers that probably more than quintupled the world population of human beings in three hundred years. This has resulted, inevitably, in drastic changes in other dependent variables in

human society with resultant war, revolution, forced migrations, soil erosion, deforestation, starvation, etc.

If there is one lesson we should learn from an understanding of structure—the organism-as-a-whole in the environment-as-a-whole—it is that it is indefensible to consider any of these factors in isolation, but that they must be seen as part of the total situation. And, as we look at any set of dependent variables in the sub-climax stage, we must be fully aware of the fourth dimension. The rapid increase of the population in Great Britain resulted in many accomplishments that would generally be conceded to be 'good' but most of these have been variables dependent on forces that the British can no longer control, and it would be a rash individual indeed who, following the British trend through from the 19th Century, would today say that it is 'good'. Sweden, whose complex of dependent variables is widely admired, has developed most of her structure on two variables over which she exerts no control: importation of raw materials, including fuel, food and fertilizer; and sale of her manufactured products in foreign markets. Should either of these variables be significantly changed as by war or depression, the effect on the structure of the Swede-in-his-environment could be profound.

Since the Renaissance, and especially since the Industrial Revolution, improved means of transportation and communication have not only in effect reduced distances, they have increased integration and therefore the interdependence among variables. One example of this on the process level involving semantic reactions, has been brilliantly described in a book that deserves to be known far better than it is, Years of Blindness by Quarritch Wales. In this volume the author shows how improved communication between London and the British Colonies, especially in Southeast Asia, tended to put inferior types of Englishmen, representing the government or the great commercial organizations, in the field. In the early days, when the only communication was by means of sailing vessels, it was imperative to select men of intelligence, courage, decision and responsibility who, cut off from their superiors for months at a time, would be capable of making sound decisions and living with them. Steam and the Suez Canal reduced the time needed for communication with the home office. Airmail made communication with headquarters a matter of only a few days and the radio and radio-telephone, of a few minutes. It was far easier and cheaper to find new types of men, little better than clerks, to go into the field, and these were respected to a lessening extent by the people they were supposed to supervise.

More and more decisions, based on such high order abstractions as government reports, were made in London instead of by the man on the ground who was in close contact with whatever situation arose, and more mistakes were made. Both the government and the commercial firms appear to have been too far removed from the people of the colonial areas to evaluate their changing attitudes and it is to these changing conditions that Wales ascribes much of the loss of British prestige, power, influence and security in Southeastern Asia. The London decisions were functions of ever-higher orders of abstraction and were increasingly distant from the process level.

I have often watched the same process in operation in our own Foreign Service where decisions could not be made, or would not be made, by men in the field, but must come from Washington where those making the decisions would often have relatively slight knowledge of the people, geography, political situation, economic situation, etc., involved.

V

To a very considerable extent the increased integration results from dependence on such high order abstractions as money, newspapers, with their wire services such as the Associated Press and the United Press, and most recently the radio. Not many years ago a president could blunder and blush relatively unseen; today his blunder (if not his blush) is reported within a few hours upon the front pages of newspapers in every major city in the world. The Word, man's most useful time-binding device, has been given a currency that even fifty years ago would have been considered unbelievable. Unfortunately the increase in communication has not been accompanied by a comparable increase in our powers of evaluation and the Big Lie has become a most dangerous tool, not only in the hands of the advertising profession but in the service of such dictators as Mussolini, Hitler and Stalin. This, most of us in the West are agreed upon.

Not many of us, however, are aware of the fact that the half-lie, a label we might in all fairness pin on the half-truths that have so much currency today, may in the end prove to be as dangerous as the Big Lie. That these half-lies are spread in good faith does not draw their fangs; they may have an equally potent influence on the dependent variables by which men live, and when the truth finally prevails, the reaction against the half-lie may be as violent as against the Big Lie. Such promises as President Truman, in all good faith, made in announcing his Point IV program will rise to plague us.

Not all of the half-lies originate in official propaganda sources. One of their most fruitful spawning beds today is Hollywood, and the high-level abstractions we call supercolossal features

have today convinced hundreds of millions of people that we must be a rather despicable nation. On a number of occasions I have had foreigners say to me, 'Oh yes, I know all about the United States. I go to the movies.' A friend in the Malayan Forest Service told me of an argument he heard between two boatmen, with whom he was traveling, as to whether Tarzan or Tom Mix was the greatest man in America! The dress, ethics, and it is said, even the sex habits of peoples throughout the world have been influenced by what a small group of people in Hollywood thinks will have a box-office appeal. So has, perhaps, the destiny of the last great free power in the world.

As a matter of unhappy fact, the abstractions which are words, like the abstractions which are motion pictures, are constantly identified, as Korzybski points out repeatedly, with 'reality'. When this is done even by our own leaders, how can we expect the millions of India, Ceylon, Africa, etc., to be any wiser? It is extremely important to recognize that upon the structure of dependent variables that make up our physical world, we are attempting, Canute-wise, to impose a controlling structure of symbolic, semantic variables. And as we alter these, in a revolutionary manner, and as a consequence attempt—through Point IV, Marshall and Colombo plans—to torture physical structure into a shape that will conform to our verbal structure, we are reversing the natural order and trying to make the territory fit the map. For example, when in the name of Democracy, Christianity and Capitalism we deliberately superimpose a western demographic and economic structure upon peoples living in tropical rain forest, we are simply asking for trouble.

Notions such as are expressed by the words democracy, justice, and human rights—multiordinal terms—are dependent variables. Such a high order abstraction as 'democracy' represents a structure of dependent variables that make up a culture pattern. One of the most important of these variables is education, which can be developed only through a system of schools, provided with books, based on scholarship and scientific research, and adequately staffed with teachers. The availability of these, and especially their quality, will depend upon sufficient surplus wealth to support activities, and provide physical materials, in ways that are only remotely productive. Each of these elements is itself a dependent variable that, if it were possible to evaluate it mathematically, would have to be given a different rating in Guatemala and New Zealand, Mississippi and California. In poverty-stricken, overcrowded, countries like India and China, where the vast majority of the people live on the bare edge of subsistence and where even the raw materials of buildings, laboratories, books, libraries, and a free press are available in only minute quantities per person, the abstraction 'education' has little reference to what it might be in the United States and Sweden and is far removed, indeed, from the process level at which education operates.

Because the actual scarcity of physical materials is an all too potent factor limiting the process 'education', and the dependence of this variable on such a withered, anaemic base results in a process that is of little use in helping those who receive the 'education' to adjust themselves adequately to the complex modern world, they are likely to continue to be deluded by high order abstractions, to identify these with 'reality', and thus to fall victim to communist and fascist dictators. Just as an absence of education may prove an effective limiting factor on democracy, so may a lack of understanding of and respect for lawful processes, and an unwillingness to abide by the decision of the majority, etc. In the parts of the world where the normal processes of democratic elections are replaced by assassination as the means of changing the government—and this would seem to include much of Latin America, Africa, and the Near, Middle and Far East—'democracy' differs little from Korzybski's blah-blah.

Our system of political democracy, which has never functioned perfectly, has always consisted of a structure of variables that, since they were dependent upon many other variables, have constantly undergone changes that may or may not have been for the better. Nineteenth century thinkers increased their understanding of the structural relationship between political democracy and economic democracy and, for a time at least, changed both processes so that they became increasingly satisfactory to the majority of the peoples of many western countries. Economic democracy, however, involves a very complex structure in which the process world is inextricably mixed with very high order abstractions such as money, in a rapidly changing system of dependent variables. While the structure was initially built on the process level, abstractions of higher orders, farther and farther removed from the process level of land and barter, have come to exert increasingly greater influence; and verbal, symbolic abstractions are actually affecting the process level. An instance of this is the policy of the United States Department of Agriculture which, through its system of parity payments, has induced the farmers of the United States to accept vast quantities of the symbol 'money', a dependent variable of an extremely high order of abstraction, in exchange for the fertility, structure and water retention capacity of their soil. As the money variable decreases in its power to accumulate objects that the farmers require, the government simply increases the number of symbols, or substitutes others marked with numbers of a higher order. Meanwhile the calcium, phosphorus, potassium, nitrogen, a host of micro-elements,

colloids, and organic matter are removed from the farmer's land at an increasingly greater rate. This is done, in part, so that we can ship the products of the American farmers' land to foreign countries that, identifying the abstractions human rights, justice, economics, democracy, etc., with some sort of 'reality' at the process level, feel they are entitled to receive them—even though these crops have been produced through destructive processes!*

In the early 19th Century, Thomas Robert Malthus, writing of Norway, said:

> Norway is, I believe almost the only country in Europe where a traveller will hear any apprehensions expressed of a redundant population, and where the danger to the happiness of the lower classes of people from this cause is in some degree seen and understood. This obviously arises from the smallness of the population altogether, and the consequent narrowness of the subject. If our attention were confined to one parish, and there were no power of emigrating from it, the most careless observer could not fail to remark that, if all married at twenty, it would be perfectly impossible for the farmers, however carefully they might improve their land, to find employment and food for those that would grow up; but when a great number of these parishes are added together in a populous kingdom, the largeness of the subject, and the power of moving from place to place, obscure and confuse our view. We lose sight of a truth which before appeared completely obvious; and in a most unaccountable manner, attribute to the aggregate quantity of land a power of supporting people beyond comparison greater than the sum of all its parts. (An Essay on Population, New York, n.d. I, p. 163)

The world island is now dangerously close to being filled with human beings and (within the present structure of dependent variables, including education, communication, scientific knowledge, technology and its application) can no longer safely permit the structure of dependent variables at submicroscopic, microscopic, and macroscopic process levels to be distorted to fit the structure of semantic, verbal maps—a reversal of the natural order and, therefore un-sane.

The United Nations' Universal Declaration of Human Rights, for example, is totally unrelated to the structure of dependent variables in the multitude of areas to which its idealistic originators would have it apply, when it states:

> Article 22: ...Everyone, as a member of society, has the right to social security....
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> Article 23: 1) Everyone has the right to work, to free choice of employment, to just and favorable conditions of work and to protection against unemployment.... 3) Everyone who works has the right to just and favorable remuneration insuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection....
>
> Article 25: 1) Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control....

In this U.N. statement such phrases as 'social security,' 'right,' 'human dignity,' etc., represent variables and are as free from content as is the $\underline{x}$ in Korzybski's 'x is black.' They are infinite-valued, multiordinal terms. Obviously 'social security' in India where the per capita income is $54 per year, or Costa Rica where the entire national budget is around $15,000,000 is a very different thing from what it is in the United States, Norway and the U.S.S.R. Only a person with a highly developed talent for ignoring 'reality' would expect such process level security in Haiti, India or Egypt within decades—or even centuries.

These U.N. articles, without specific values assigned to them, are propositional functions rather than propositions and, thus, are neither true nor false; they are merely ambiguous. If we assign to their x's such values as they would have among the dependent variables that make up the American and Canadian structure for example, they would in no wise fit the structural territory of Italy, Greece, Haiti, India or any other part of the world varying widely in physical and/or semantic structure. The electric refrigerator is such a symbol of progress in many areas of Latin America that when a family has been fortunate enough to secure one, it is often pridefully placed in the parlor. Thousands, however, who would aspire to this symbol are so conditioned by a different value system that they would

*For extended discussion of many factors ignored under Point IV and other present policy trends which are relevant to the author's points of view in this and succeeding paragraphs, see his article in the Saturday Evening Post for 23 July 1949, 'Let's Examine Our Santa Claus Complex.' A mimeographed reprint may be secured by writing to Mr. William Vogt, 501 Madison Avenue, New York 22, N.Y.

not be willing to labor and save sufficiently to get it. They do not see it as a variable dependent on a number of socio-economic processes involving self-discipline, self-denial, etc.—not to mention an adequate resource base that is also made up of dependent variables.

VI

We are, at the present time, in the midst of one of the most profound revolutions in the history of the world, if not the most profound. Not only is the physical structure of dependent variables being altered more thoroughly, through the application of physics, chemistry, genetics, engineering, etc., than at any period since the Renaissance, the 17th Century's agricultural revolution, the 18th Century's Industrial Revolution, and the 19th Century's Sanitary—or Vital—Revolution. The 20th Century's physical revolution is indivisibly part of a semantic revolution that is more effective at the psychological level—and therefore at the physical level—than the Christian revolution, the Reformation, the Franco-American revolutions, or the Darwinian revolution that freed mankind from thralldom to priestcraft.

Though man is in more complete control of the structure of physical variables than at any time in his history, and today's commonplace would have been yesterday's miracle, in the most literal sense, he is at once master and captive of his semantic structure to an extent that would have been equally incredible a few decades ago.

He is captive in Moscow, Belgrade, Rome, Peiping, Washington, etc.—wherever he has identified the word with the process, the propositional function with the proposition. This, unhappily, means that he is captive nearly everywhere since the structure of our semantic reactions is such that we have elaborated a beautiful map on which our modern semantic fantasies are as carefully delineated as the Neptunes, sea serpents, Aeoluses, etc., of the 15th Century charts. Our symbols are Aristotelian but without a date to indicate that they were valid 2,000 or more years ago; or Marxian, without an indication that they were charted in the library of the British Museum in the middle of the last century. We still navigate by these maps and it is small wonder that at times we pile up on shoals, or even continental shelves, that were unknown when the Aristotelian, and/or Marxian maps were devised.

Man is in command of his semantic structure only where he has been quite as willing to reject what he has 'learned' in the past, as to use what he 'learned' where he has brought his maps down to date.

Those who have re-educated themselves in 1952, non-Aristotelian structure, through the formulations of Korzybski or some of his colleagues, will have learned to discriminate among orders of abstraction, to separate symbol and 'reality', to date and extensionalize—i.e., to work by formulations that correspond to the world of process as it is now understood by science.

The percentage of those who have learned not to confuse orders of abstraction, not only in the total world population but among world leaders, is dismayingly small. The vast bulk of mankind, acting upon what was taught to their parents before the latter were eight years of age (a reasonable enough procedure when societies, like the physical world, were characterized by the equilibrium of the climax) is acting upon assumptions that have little to do with the present 'reality' of rapidly changing systems of dependent variables.

When, in a four-dimensional process world one's behavior is adapted to a verbal, symbolic structure that approximates such a three-dimensional world as never was, chaos, catastrophe and destruction are not far ahead. Korzybski's formulations, difficult though they may seem, and imperfect as he admitted them to be, are one of the few charts that fit not only 1952's territory, but that of the few years in the world's immediate future. Is it vain to hope that those bearing the responsibility of charting our survival, will at least give respectful consideration to his up-to-the-minute presentation of the structure in which we have our being?

CONTRIBUTORS TO THIS ISSUE (Cont'd from Page 6)

nals, compiled Audubon's Birds of America, etc. Beginning in 1939 he was Consulting Ecologist to the Compañía Administradora del Guano at Lima, Peru; in 1942 he received a Fellowship to study climatology in Chile.

During World War II he served, in 1942, as Consultant on South America to the U.S. War Department, and (1942-43) as Associate Director of the Division of Science and Education of the Office of Coordinator of Inter-American Affairs. Chiefly for the use of country school teachers in South America, in 1944 he wrote El Hombre y la Tierra (Man and the Earth).

As Chief of the Conservation Section of the Pan-American Union (1943-49) he became increasingly concerned with the relationships between population trends and the earth's food supply. In his present position he has recently studied the resources and population problems of India when he attended the Third International Conference on Planned Parenthood there as a member of the American delegation. This summer he will go to Norway and Sweden, where he will make further studies for a book on how the Scandinavians have come to terms with their environment -- a sequel, in a way, to Road to Survival. An article about Mr. Vogt appears in the March 1953 issue of Current Biography: Who's News and Why.