

In elementary synthetic geometry, of the constructability of forms in Euclidean space, such triply-self-reflexive circular action, produces what are called "singularities": points, lines, surfaces, and solids. However, this, while correct as far as it goes, is not adequate for the construction of a physics.

Human perception is such, that we can not experience the perception of an instantaneous object. Perception is possible only as the experiencing of some change (transformation) during a finite displacement of physical space-time; a finite amount of time has elapsed between the beginning and conclusion of the smallest possible act of perception. Therefore, if circular action is uniquely axiomatic, we can never perceive circular action in physical space-time, except as spiral action.

If this spiral action is generated at a constant rate, what we perceive is a cylindrical helix. If the action is generated at either a constantly increasing, or constantly decreasing rate, we perceive a conical self-similar-spiral action. The latter, conical self-similar-spiral action, is the correct choice for a generalized physics; this defines the rudimentary form of a Gaussian (constructive) geometry, a Gaussian manifold, or Gaussian continuum.

However, in extending circular action in time, as a spiral action, we must not forget that our circular action, so extended, is triply-self-reflexive circular action. Even a doubly-self-reflexive conic-spiral action, generates a special kind of singularities, ultimately somewhat analogous to, but qualitatively different than, such elementary singularities as points, lines, surfaces, and solids.

In the simplest "ideal" case for a growing economy, the notion of merely doubly-self-reflexive conic-spiral action, presents us with this classic problem.

Given, a growing economy, developing at a constant rate of technological progress, in an energy-intensive, capital-intensive mode. In such an "ideal" case, the growth of the economy is not described merely by an ordinary sort of conic self-similar-spiral action. Conic-spiral action upon conic-spiral action, is typified in effect, by the case in which the ratio of arithmetic to geometric mean-values of spiral-action is increased harmonically over successive cycles. Instead of a simple cone, the locus of the action is a horn with a bell-shaped mouth. In one such case, a side-view of the horn describes an hyperbolic curve, seeming to shoot off into "infinity" in a Cartesian plotting. This apparent "shooting off

Fact Sheet

What experts say on the current breakdown

The following fact sheet was prepared by EIR for use at press conferences in Washington and other cities throughout the United States on April 24, announcing the release of the Special Report on the ecological holocaust (EIR, Vol. 12, No. 17, April 30, 1985).

The Pasteur Institute, Paris

Dr. André Dodin, a leading epidemiologist, stated: "Cholera is all over Africa, malaria too; yellow fever is in a belt going from Senegal to the Central African Republic. Africa has been invaded by these diseases. Diarrhea kills enormous numbers in Africa, especially in the cities, where there is not enough clean water. . . ." He stated that cholera had been spreading since 1971-72 in almost all of Africa, and especially Ivory Coast, Senegal, Mali, Somalia, and Zaire. It is spreading fast because people travel so much today. The other major disease killer in Africa,

he said, is malaria. He commented, "Unfortunately, health is following the economy. If the economy flourishes, health improves. If it deteriorates, so does health."

World Health Organization, Geneva

An official said on April 15, 1985: "One-third of all children's deaths in Africa are due to or associated with diarrhea. The highest diarrheal mortality rates are being recorded in Africa, even higher than Asia. . . . Out of 100 African children born, at least 10 will die before the age of one. One-quarter will die before the age of five. These rates are ten times the rates of Germany or Switzerland. One-third of those children—or 8% of all children in Africa—die of diarrhea."

Center for Disease Control, Atlanta

An infectious disease monitoring expert said on April 16, 1985 that the CDC estimates that there are 200 million cases of malaria worldwide. The subsaharan total population of 350 million people has 74 million official cases of malaria. Furthermore, the majority of people with the disease never get counted in the statistics because they live in remote areas. His colleague at CDC commented further: "We've felt for a while that areas like South America are wide open for cholera, *all* of South America. For example, some parts of Brazil are ripe for outbreaks. It's hard to believe it hasn't been introduced yet, that's the only ele-

into infinity," is a singularity, or, in other words, a mathematical "discontinuity" in the continuous development of the economic process.

However, the economic process does not come to a stop, while the hyperbolic arc seems to "shoot off into infinity." Let the central axis of the horn represent the time-scale. The economy as a physical process continues quite efficiently through the interval at which the mouth of the horn appears to zoom off "in search of Cartesian infinity." What happens, as Riemann supplies preliminary indication of this, in his 1854 "On the Hypotheses Which Underlie Geometry," is that as a physical process generates a singularity of this kind, the metrical characteristics of action in the affected region of physical space-time are altered. As the horn appears to zoom off in search of infinity, the process continues, operating now on a modified metrical basis.

A new hyperbolic, or kindred, curve, is described, with the same general result; and, after that, a third; and, so on. On the time-scale (for the indicated "ideal" case), the intervals between the singularities become shorter, and these successively shorter intervals describe a harmonic series.

This indicates, that another way of measuring negentro-

py, is to measure it in terms of the increasing density of Gaussian-topological discontinuities (singularities) per arbitrarily small interval of time. The point to be stressed now, is that a decreasing density of singularities, is a measure of the relative entropy of a process.

This is a useful vantage-point from which to ask, "What happens, when a biological system, such as a society, falls entropically, to a lower level of existence?"

The negentropic ranking of relative higher and relatively lower orders of living species, may be estimated in terms of the relative density of singularities of the living processes examined. From this vantage-point, it is not necessarily the case, that the human population simply dies of effects of malnutrition.

Society is an integral part of the biosphere, both the biosphere as a whole, and regionally. Rather than measuring the level of relative negentropy of society as such, let us consider the effect of society's development upon the average level of the biosphere which contains that society. This was the crucial feature of the March 1973 memorandum referenced. Rather than viewing a deep fall of the potential relative population-density, as merely a fall in the relative value for

ment lacking. We all thought that after 1975-76, and the revolution in Angola, there would be large cholera moves into Brazil, because cholera was widespread in Angola. Why it hasn't happened yet in Brazil and other parts of South America, I just don't know."

The privately expressed opinion of another CDC expert was: "Cholera is not even being monitored in China and Southeast Asia. In Africa only 20% of the Africans who have cholera are symptomatic, so that the reported figures for cholera should actually be minimally multiplied fivefold."

World cholera expert

"Somebody may be consciously deciding not to treat cholera victims in Somalia. I can't figure out why *anybody* need die of cholera. It makes no sense. The oral rehydration treatment is incredibly cheap, costing the equivalent of 10 cents to at most one dollar per person treated, and it is universally known. There's no way possible anybody could not have heard of it."

Fusion Energy Foundation, Washington

Dr. John Grauerholz declared: "Cholera is now endemic in 96 countries worldwide, and has the potential to rapidly expand, under collapse conditions, into Europe and the United States. Approximately 75 regional subdivisions of African countries have serious cholera prob-

lems, according to recent data from the Center for Disease Control in Atlanta and the regional World Health Organization office in Washington, D.C. The affected countries include: Benin, Burundi, Cameroon, Equatorial Guinea, Ghana, Ivory Coast, Kenya, Liberia, Mali, Mauritania, Niger, Nigeria, Rwanda, Senegal, Somalia, South Africa, Swaziland, Tanzania, Upper Volta, and Zaire. Two other countries known to have endemic cholera problems, but which have not made official reports to the World Health Organization, are Ethiopia and Sudan.

"The African crisis is a direct result of the International Monetary Fund's austerity conditionalities, designed to effect the depopulation policies of the Carter administration's *Global 2000* report. Under these policies, African agriculture, which once produced exportable food surpluses, has been ravaged and the populations herded into refugee camps, which serve to concentrate large numbers of sick and starving people in an environment suitable to the rapid spread of disease and lacking any means of prevention or treatment. These camps serve as giant cultures for growing viruses, bacteria, and parasites, and propagating them in a susceptible population. The IMF response to this breakdown has been to demand even greater austerity and to place increasing pressure on these countries to pay their debt. The only possible result of this policy is to ensure the most rapid possible extermination of the population of black Africa."