

EXPLANATION OF THE UNIVERSE

By Dr. Benjamin Ziegler

This, indeed, is a bold attempt. Let us remind ourselves of a rule formulated by Ernst Mach, physicist and philosopher. Mach says: "Economy of thought requires short laws and comprehensive theories. These laws and theories must cover an enormous number of appearances and an infinite variety of form and size."

Everything can be measured by size. Size varies between the infinitely small and the infinitely big. Mathematic, the science of measuring, is the most exact science, independent of local or temporary influences..

Let us consider two more quotations. One of the Proverbs (VIII, 23) says: "I, wisdom, was set up from everlasting, from the beginning, or ever the earth was." Spinoza says in the Ethics (V,30): "Our mind can know eternal things under the luminous regard of eternity" - sub specie eternitatis.

Here some axioms: 1. Time is eternal, without beginning or end.

2. Space is infinite.

3. Non-existence precedes existence.

Time and space are inter-connected. So are mass and movement. No movement without a moving mass; no mass without movement. The laws of conservation of energy, as well as the laws of the continuity of existing matter are of eternal duration. Both energy and matter are infinite.

Single aspects of these relations were known to the Greek philosophers. Epicurus knew that nothing can come from the non-existent. The Roman poet Lucretius put it in three words: "De nihilo nihil". (De rerum natura, I,149).

Mathematics builds up from infinitely small units. Modern science developed quantum-, atomic, and molecular theories to account for the nature of matter.

Another aspect is the flow of events. The Greek philosopher Heraklit said: "*ἅντα ῥεῖ*" (everything flows). Goethe, in the second part of Faust (Finstere Galerie) put it into two lines:

Gestaltung, Umgestaltung,
Des ewigen Sinnes ewige Unterhaltung.

Formation, transformation - this means slow development and sudden change. It may refer to vast, worldwide bodies as well as to infinitely small ones, the outward world being structured out of infinitely small particles. All events are results of the eternal exchange between mass and energy, depending on size and distance. (Gravitation, magnetism, induction of electric charges).

There is no absolute determination of time, only a relative one. The same is true for space. Continuity of matter is manifested in density, in the three states of matter, and in location. Changes of energy result in changes of wave-length, changes of velocity and of points of interaction. There is no fixed or absolute shape of the universe, only a relative one. There are infinitely various combinations and forms of matter - the most miraculous changes, however, and the least intelligible ones, occurring in the realm of living matter.

Our ability to investigate infinitely small constituents of matter is limited. The same is true for eternal space. Our knowledge is confined by narrow boundaries. Consider, for instance, the infinite number of stars. We may know only a small part of them, as we observe their configurations on the nightly

sky. There may be stars surpassing the solar system in size and energy - there may be stars invisible to us due to distance. Astronomers speak of thousands, even hundred thousands of light years - human intelligence shrinks before such numbers. We can not grasp the infinity of space, or the infinity of time.

The solar system, to which our planet belongs, seems to be of eternal duration. Our own existence is placed in a phase of this duration. We can make out changes for the period of our observation; we can guess about changes previous to our existence. Constant changes - formation and transformation - occurred in the crust and surface of the earth, as far as inanimate matter is concerned. The origin of life, and the steady development of systems of life is miraculous, and dates back to an early and far distant phase of time.

Origin of organic life, development of plants and animals is beyond our knowledge. It is repeated, however, in the lifespan of the individual plant or animal, which always reflects the development of the species, and its philogenetic characteristics. The duration of the entire process, from primitive plants and animals, to the degree of high awareness shown in higher animals, and finally to man with his capacity of thought and adaptation, must have taken an enormous time. Human knowledge is limited. In cases like this, where the subject and the object of thought coincide, we may have to admit our ignorance. "Ignorabimus" - we shall never know it, is Du Bois Raymond's phrase.

Only in the latest phase of time, many thousand years before our own time, man appears on earth, and slowly grows numerous enough to become the prevailing force of life. In his early stages, as well as in later developments he is closely bound to

nature. His system of life is closely related to the energy of the sun. He derives his food from his rustic life, from plants and animals killed on the hunt.

By developing culture, man overpopulates the planet and pushed aside all other creatures. He becomes the primate, the prevailing creature on earth. The rate of reproduction of plants and animals decreases in the development of higher organized individuals. The lifespan of the individual increases, as well as his capacity to resist extinction.

Due to the increase of population, the space necessary for maintaining life is shrinking. The increasing wants of men lead to a struggle for existence, far remote from the paradisiac state of their early life. More and more men, entire people become involved. Lack of living space causes increasing strife and social upheaval. The development and intensification of human culture has a sterilizing effect; it produces ruins instead of new developments; man moves away from nature and from a simple way of life.

How astonishing is human progress, with all the technical inventions of recent times! These inventions are beneficial when used for the good of humanity. They are dreadful and destructive, when used against humanity, for war between men. When man strives against man, they may lead to murderous war, to blind enmity and senseless destruction of human values. They lead to a shedding of blood, to the destruction of irreplaceable human qualities. They thoughtlessly waste the sources of energy available to men - sources of energy limited in size-- and they lead to the destruction of valuable elements of human culture.

Due to this pernicious trend, human culture can destroy the

happy aspect of the flowering earth. War and internal strife mean a certain end of contemplative life, which alone can produce heroes of the spirit, and a noble civilization.

The outlook for life becomes dark and troubled. When love and charity are forgotten, man's lower instincts and acquisitive drives prevail. Men should try to lift himself above his animal origin. He should turn away from his ego and his innate tendency of self-preservation, away from external gain towards his internal better self. He should look at eternity and infinity, and aim at the distant ideals of truth and charity.

Mankind's path to religion.

By Dr. Benjamin Ziegler

When man reaches consciousness - long after his first appearance on earth, and after a primitive stage in which he is governed by animal instincts only - he begins to search for reasons of his miraculous existence. He is overwhelmed by nature, overpowered by phenomena that fill him with fear and terror. He looks around for a creator, he is moved to adoration of higher powers. He reaches religious views of the most different kind. He tries to understand physical as well as metaphysical powers; he forms ideas of God; he tries to represent these ideas according to his imagination and mental capacity.

Belief in one God leads to ideas beyond figural representation; to ideas of perfection that cannot be surpassed. Monotheism puts a moral obligation on the believer. Man is supposed to aim at moral perfection; he himself is to become an image of God. Man is supposed to turn away from finite and sensual desires; he has to overcome his egoism and animal instincts, in order to aim at the infinite. Far from desire, egoism, hatred, and ambition, he must keep his eye on the infinite, like the parallel figures of saints in primitive paintings. He is supposed to serve eternal truth, love and reason; he must aim at moral ends only. Man is to be deified by his sense for the infinite and the eternal; God is not to be humanized by temporal elements, by human attributes or by personification.

A religious spirit very close to this attitude - to the turning away from all finite things, from all desires and instincts - is to be found in early Buddhism. This religion appears in a time untouched by misery, in a country free from want. Buddhist belief commands turning away from this world, complete renunciation of desires, in order to live free from hate, and to aim at the bliss of "Nirvana" by a peaceful way of life. All human endeavour is vain and decaying; all joys and possessions are transitory and causes of suffering.

The original Buddhistic religion knows no image of God, no revelation, no myth of creation, no miracles. There are no prayers to be granted, there is no efficacy of prayer. There is no heaven and no hell; no good or bad spirits, no life after death. There seems to be a belief in metempsychosis, i.e. transmigration of spirits to animal bodies. Later developments of Buddhism show various developments, spiritual progress as well as exterior deterioration.

The Jewish religion and its adherence to monotheism date back to an early time. The Jewish people, first nomads, were oppressed by foreign rulers. Later on, after settling in their own state, they were surrounded by enemy nations, worshipping idols. The Jews acknowledged a single, eternal, all powerful God, creator and mover of the world, not to be imagined by human eyes and not to be represented by an image. God's name should not be used in vain.

Revelations and miracles occurred, in order to confirm the believers. Human attributes were given to God due to the pressure of time; fear of God was to be rewarded, ungodliness was to be punished. The divine service required an elaborate ritual, a hierarchy of priests, sacrifices, strict rules and observances. Leaders of the people were intent on spreading the fear of God, and on maintaining discipline among the people. They had to keep them from worshipping idols, and urged them to avoid the easy and luxurious life of their pagan neighbors. They issued strict commands about morals, hygiene and social matters - some of them in the spirit of humanity and brotherly love. Their main purpose was to keep the people strong and able to resist their enemy neighbours.

Six centuries after Buddha, and after even a longer period of religious history of the Jews, Christianity arose out of the Jewish religion, in a time of narrowing living space and increasing needs of the people. The Jewish homeland was suffering under Roman occupation; the border states of the antique world were far remote from moral ideas and ideals of humanity.

At this juncture, the sublime figure of a founder arose amidst the Jewish people. In the spirit of superhuman goodness and love, of true charity towards people oppressed by labour, want and poverty - in the spirit of pardoning sins instead of retaliation. He walked in complete harmony with religion, was afraid of God. He acted in full compliance with love and goodness; far from literal observance of commandments. He preached love, goodness and charity. He won an immediate following, and the adoration of those oppressed by suffering and want - his followers were poor. He met with the resistance of those in power, the hypocrites (Pharisees) and especially the hierarchy of priests, as well as the power of the Roman state protecting the richer classes.

The religion of love and human kindness, - without the rigorous observances and commandments of the Jewish religion, not easily to be

fulfilled - spread rapidly through the pagan world, exhausted by war and tired by inhuman cultures. Later on, the new religion, Christianity, spread through the entire world. It became one with culture, until the increasing density of human life intensified the struggle for existence. National conceits, arrogance and ignorance of the groups in power lead to a complete denial of humanity - a denial of spiritual and evangelical values resulting in death and destruction. Men died in war, human possessions were destroyed: a waste land spread, where a paradise had begun to flower.