JAN KOZIAR

Expanding Earth with basic geotectonics

Course lectures based on the author's own studies given at the University of Wrocław, 2001–2008

CONTENTS

Wrocław 2014
Digital edition only

Cover:

The last group of students (2007/8) listening to my course lecture on the expanding Earth

ACKNOWLEDGEMENTS

Thanks to Professor Cliff Ollier and his wife Janetta for their kind correction of English of the presented text.

INTRODUCTION (2014)

The presented academic course lectures on the Expanding Earth were not the first ones given by me at the Institute of Geological Sciences of Wrocław University. The first ones were given in the academic years 1979/80 and 1980/81 within frame the just introduced one-semester obligatory lectures on geotectonics for the fourth classes of students. These lectures were entrusted to me because from the beginnings of 1970s I had been working on the Expanding Earth and became the only specialist on geotectonics in our Institute. I lectured classic geotectonic theories and the plate tectonics on these lectures, but showed that many geotectonic problems are solved in the frame of the Expanding Earth which can also be proved directly in several ways.

In 1981 the lectures were handed over to another person on initiative of one of the Vice Directors of our institute, having a negative attitude to the concept of the expanding Earth. The change was made without any substantive critical remarks.

In 1980 I joined the Solidarity movement and became extremely engaged in it after establishing martial law in Poland at the end of 1981. As a consequence I had to go down to a very underground in October 1982 as being wanted by the communist police. After that I was removed from the university. I was restored to my job in our institute in the spring 1989 after fall of communism in Poland. Expanding Earth was then presented in course lectures only by my former boss Professor Józef Oberc as part of his famous lectures on physical geology. The lectures were very interesting and easy to hear. The exam was very difficult to pass and according to general opinion of graduates, who ever passed the exam became a geologist before graduation.

Naturally the Expanding Earth was presented in the Professor's lectures in a very limited way because he could not devote it more than one lecture. Since 1989 I was sometimes asked me to give this lecture instead of him.

Apart from that I often lectured different aspects of the Expanding Earth on several scientific sessions in Wrocław and other places. Up to my pass on the pension at the end of 2008 I counted up 128 such lectures in sum.

In 1996 Professor Józef Oberc went definitively into retirement and finished his course lectures on physical geology. After that plate tectonics began to dominate in our institute though only on the principle of fashion. At last students asked me to give them unofficial lectures on the Expanding Earth. I did that, and after some time I suggested them to turn to the authority of our institute to introduce voluntary course lectures on EE in a frame of a bigger group of such lectures. A student, after choosing such

a course, should attend it, then receive a credit and score some points for it, necessary to get credit for the whole year of studies.

Finally, the first fifteen semester course lectures on EE, destined for the 4th class of studies, were given in 2001 with some additional lectures on request. Students often asked for the latter.

These academic course lectures on EE were the second ones worldwide (as far as I know) after the lectures given by Professor Samuel Warren Carey in Australia and the United States.

In 1946 S.W. Carey organized a department of geology at the University of Tasmania (Hobart) and became a prominent teacher of geology, especially tectonics. Up to his famous international conference on continental drift held in 1956 in Hobart, and his contribution to it[1], he worked on Wegener's and Du Toit's versions of mobilism. It was a time of total condemnation of mobilism. The conference was originally conceived as dealing with continental drift, but by the time it was held Carey had moved on. During the conference he explained that the Earth is expanding and since then he taught the new geotectonics at the University of Tasmania until his retirement in 1976.

The strongest opposition to mobilism in the world was then in the United States and especially at Yale University. So Carey invited the chairman of the Yale geology department, Professor Chester Longwell to the Hobart symposium. Then Longwell invited Carey to Yale for a year as a visiting professor, "*to stir the American pot"*[2]. Carey was able to visit America only in the years 1959 and 1960. At Yale, Carey delivered complete courses in structural geology and global tectonics, including the expanding Earth. Apart from that Carey gave very successful lectures at 17 others geological centers in the United States and Canada. One was given at Shermerhorn Theater in Columbia where he was invited by a "patriarch of American tectonicists", Walter H. Bucher. The most successful lecture was given at the panel of a special session on continental drift at the annual meeting of the American Associations of Petroleum Geologists at Atlantic City on April 25, 1960. *"The hall was packed, even the aisles and the walls. After the formal papers from the panel, the questions and discussion continued until long after midnight with few if any leaving, until the chairman had to terminate the meeting. The revolution to continental dispersion had begun!"*[3]

Some years later John Rogers wrote that after the choosing S. Warren Carey as a visiting professor "*North American geology has never been the same since"*[4].

It is necessary to remember of Carey's leading role in the restoration of mobilism in America. However Carey's mobilism was that of the expanding Earth. Unfortunately this big American intellectual stir, triggered by Carey, got bogged down in plate tectonics, which was a return to Wegener's scheme.

[1] Carey, S.W., 1958. A tectonic approach to continental drift. Symposium Continental Drift. Hobart, p. 177–355.

[2] Carey, S.W., 1988. Theories of the Earth and Universe. p. 118.

[3] As above, p. 119.

[4] As above, p. 118.

Let us examine this process. As Carey wrote "*Apart from Yale, my deepest involvement was with Princeton where I lectured several times in late 1959 and early 1960…"*. The chairman of Princeton geology was Harry Hess. His relations with Carey were very friendly and undoubtedly the latter tried to convert Hess to EE. But Hess stopped halfway. In 1962 he published a paper which became a signpost to plate tectonics. He wrote:

> *"Both Heezen and Carey require an expansion of the Earth since late Paleozoic time /.../ such that the surface area has doubled. Both postulate that this expansion is largely confined to the ocean floor rather than to the continents /.../. With this greatly expanded ocean floor one could account for the present apparent deficiency of sediments, volcanoes, and old mid-ocean ridges upon it. While this would remove three of my most serious difficulties in dealing with the evolution of ocean basins, I hesitate to accept this easy way out.* ***First of all, it is philosophically rather unsatisfying, in much the same way as were the older hypotheses of continental drift, in that there is no apparent mechanism within the Earth to cause a sudden (and exponential according to Carey) increase in the radius of the Earth."***[5]

Thus the expanding Earth fits experimentally with Hess' tangible problems (not to mention Carey's experimental arguments). But the fundamental problem for Hess was of a "philosophical" nature – the lack of physical causal explanation.

Let us consider what would have happened if ancient Greeks had not taken into account facts coming from observations and proving the spherical shape of the Earth only because they could not find an answer to the problem: what keeps the Earth together in this form? That is, if they the lack of the causal explanation treated as a counter-argument to this spherical shape. Next, what would have happened if Renaissance people had not taken into account facts coming from observation and proving the Heliocentric System only because they could not find an answer to the problem: what keeps the Earth on the orbit around the Sun? That is, the lack of a causal explanation is treated as a counter-argument to the orbiting. Certainly the theory of gravity, giving at last the explanation to both phenomena, would have never appeared.

Putting forward the lack of causal explanation of the new discovered phenomenon as a counter-argument to its existence, is the best way to block the development of science. The fate of Wegener's theory is a good and similar example.

Plate tectonics temporarily has won because it thinks it has a causal explanation in the form of the convection current hypothesis. But the hypothesis is totally bankrupt now, so plate tectonics is in fact without a causal explanation (see the lecture no. 5). Meanwhile probable causal explanations for EE have appeared (see the lectures no. 16, 18 and 19, and also the paper **www.wrocgeolab.pl/dark.pdf**). But the crucial arguments for EE are experimental proofs of the expansion (see **www.wrocgeolab.pl/proofs.pdf**).

[5] Hess, H.H., 1962. History of ocean basins. In: Petrologic Studies, A.E.J. Engel et al. (eds), Geol. Soc. Am., p. 599–620.

In 1994 Carey made a trip around Poland. It was much less effective because it was a time of almost absolute rule of plate tectonics. After an international conference "Problems of the Expanding Earth" (Wrocław – Sosnówka, November 14–17, 1994) organized by me and Stefan Cwojdziński under the scientific patronage of Professor Józef Oberc, Carey gave lectures on EE at the Wrocław Branch of the Polish Geological Society (Fig. 1), the Lower Silesian Branch of National Geological Institute in Wrocław, the Poznań University, the Silesian University in Sosnowiec (Fig. 2), and the National Geological Institute in Warsaw.

Fig. 1. Professor S.W. Carey giving his lecture "Tectonic of Tethys and Pacific" at Wrocław Branch of the Polish Geological Society on November 24, 1994

Fig. 2. Professor S.W. Carey after giving his lecture "Earth expansion" at the Silesian University in Sosnowiec on November 23, 1994. Other persons from the left: Dr. Janusz Janeczek (later two-time president of the Silesian University), Dr. Kazimiera Malik (Silesian University), Dr. Jerzy Żaba (Silesian University) and me (Wrocław University). All the people from the Silesian University are my former students, graduates of Wrocław geology

But let us return to my lectures. The late Professor Józef Oberc, then retired, attended almost the whole first course (2001/2) too. The courses were attended regularly by students from other classes. They were also visited by other research personnel of our institute and outside guests. Two of them received a credit for the whole course. These were: a student of biology and a PhD student of theoretical physics.

The lectures were generally based on my former lectures given at various scientific sessions. Some were added as new ones to obtain coherence of the whole course. They were improved during every course, especially by making new slides. Until 2008 about 2000 of slides were used. In 2004/5 I changed from physical slides to digital ones when digital projectors were mounted in lectures rooms of our Institute. The physical slides are now deposited in my archive (Fig. 3).

Fig. 3. Archived slides of my course lectures on the expanding Earth

The digital slides were not copied from the physical ones but from illustrations made on pieces of paper of A4 format and gathered in thematic binders. The binders are now in my flat (Fig. 4). They contain my main illustration basis for the Expanding Earth. However many other illustrations are only in a digital version.

The voluntary character of the lectures was very convenient because there was no necessity to give them every year. Thus I made breaks in the 2003/4 and 2006/7 academic years so only five courses were given in the years 2001–2008.

The material included in lectures was very extensive (see the following contents) so I suggested that students do not make lecture notes but rather look at slides and listen. To help them to get a credit I established the following scope of obligatory topics:

– mechanism and proofs of spreading of the ocean floor
– seismic method of recording of the directions of movement on active faults
– four basic proofs of the expansion of the Earth.

Fig. 4. Binders with illustrations to my course lectures on the expanding Earth, now located in my flat

The reason for such a choice was as follows:

The first two topics are the most important to contemporary geotectonics. They are a bridge between geotectonic ideas and geotectonic reality. They are also neutral to Plate Tectonics and Expanding Earth, though some features of spreading are decisive to the latter. However contemporary geologists know almost nothing about these topics and are extremely engaged in fictitious subduction and surreal concept of terranes. Hypothetical collisions of plates resulting from the proved spreading of the ocean floor and from the taken for granted non-expanding Earth assumption, dominates contemporary geology overcome by plate tectonics.

The third topics is the basis of Earth Expansion.

Despite of my suggestions, students often made the lectures notes. Generally they were very interested and after a lecture there was a discussion. In my experience only a minority of students has an ability to see and understand things in a broad scale

and have a good grasp of the real geological world. The majority has not, though they are able to learn some material formally and pass an exam. I am convinced that contemporary fashion of teaching of plate tectonics as the articles of faith, as well as a present postmodern cognitive relativism, contributes to that. Geology demands a wide breadth of thinking and it fulfilled this demand better in pre-plate tectonics time. But the able minority exists, is quite numerous and is the most important. One of the students after ending of the course gave thanks, that now he understood geology. Such students that comprehended the expansion of the Earth as a real process, not just a reasonable alternative to plate tectonics, were much more.

Before 2008 a Polish version of the contents of the lectures was placed on the home page of our Institute in the didactics section, together with short summaries addressed mainly to students of physics. Now I have planned to give the summaries too, but they should be made according to Kenneth K. Landes' principles, suggested to me once by Professor Cliff Ollier. The former ones were often not of this kind, being only "expanded titles" with supplements "is discussed" or "is described". But to write good Landes' summaries of the lectures (in Lande's sense) is a big task. It is better to publish subsequent papers. Thus I finished with summaries of the last two lectures.

The importance of the lectures on EE had two aspects. The main goal was to pass the new knowledge to students and teach them to think independently. The second goal was to present my output in the continuously improved coherent teaching order together with results of other expansionists and the basic geotectonics. This latter goal was fulfilled just with the last curse of 2007/8. Giving further lectures would be a waste of time. The main goal became to put the EE topic in the Internet.

At present a third aspect emerged - referring to the lectures has become urgent. They are a substitute for conventional publications. But most importantly - they combine to give the best insight in the elaborated and solved EE problems and provide a necessary reference frame at any discussion on EE.

From the beginning of my presentation of different aspects of EE I have experienced quite odd response from opponents. They thought that almost all other problems and facts (beyond just being presented) contradict the EE and implied me that I do not know these problems. Such an attitude is almost general. Thus, putting the list of lectures and their contents on my website is the first necessity. It will make any discussion on EE more reasonable and I will be able to refer to them in introductions to my subsequent e-brochures[6].

Jan Koziar
June, 2014

[6] Similar role plays a list of Wrocław publications: **www.wrocgeolab.pl/papers.pdf**, but the list of lectures and their contents is much better to the present purpose.

Contents of the course

(titles of the lectures)

1. Basics of scientific methodology applied to geotectonics
2. Putting of geotectonic concepts in order. Expanding Earth as a solution to contradictions among geotectonic theories
3. Spreading of the ocean floor and quantitative growth of the Earth
4. Tectonic analysis of seismic focuses. Principles and examples of application
5. Basis of the plate tectonics. Flaws and faults of the theory
6. Hypothesis of convection currents in the Earth's mantle and its contradiction with geological realities
7. Lithospheric plates on the expanding Earth. Simplified model of flat plates
8. Lithospheric plates on the expanding Earth. Spherical issues
9. Mantle plumes and hot spots on the expanding Earth
10. Space geodesy and the expanding Earth
11. Tension-diapiric-gravitational development of island arcs and active continental margins. Primary tectogenesis
12. Tension-diapiric-gravitational development of island arcs and active continental margins. Secondary tectogenesis

13. Tension-diapiric-gravitational development of intracontinental fold belts. Mechanism
14. Tension-diapiric-gravitational development of intracontinental fold belts. Regional examples
15. Speculative base of the hypothesis of terranes. Reinterpretation of the development of the main areas of alleged terrane structure

Additional lectures on request:

16. Expansion and development of the Earth interior
17. Origin and development of the hydrosphere on the expanding Earth
18. Ambartsumian's eruptive cosmology in comparison with other cosmological theories
19. Eruptive origin of the Earth and the Solar System

CONTENTS OF THE LECTURES

LECTURE 1

BASICS OF SCIENTIFIC METHODOLOGY APPLIED TO GEOTECTONIC

I. Introduction

II. Main methodological rules

1. Acceptance of the possibility of the existence of a true solution (non-relativistic cognitive approach)
2. Consequence of rejection of the possibility of the existence of a true solution
    a. Treating science as a business activity
    b. Treating science as an artistic activity
    c. Treating science as a fashion
3. Avoidance of scholastic approach (belief in authorities)
4. Preference for simple solutions over complicated ones
5. Understanding and observance of hierarchy of importance of issues
6. Preference for logical inference from facts over physical resulting from hypothetical processes. Principle and historical examples
    a. Circulation of planets around the Sun
    b. Solar emission
    c. Expansion of the Universe
    d. Drawing continents apart
    e. Inversions of the geomagnetic field
7. Distinguishing of logical structure of confirmation of a hypothesis from logical structure of its proof
8. Distinguishing between series structure of inference and parallel structure of independent proofs
9. Preference for induction resulting from facts over deduction from unproved assumptions
10. Avoidance of circular arguments (vicious circles)

III. Ethical principles

1. One should know and understand the criticized theory and be able to undermine proofs on which it is based
2. One is not allowed to disseminate negative opinion about a theory if one cannot undermine its proofs and present the proofs of the opposite theory

LECTURE 2

PUTTING GEOTECTONIC CONCEPTS IN ORDER. EXPANDING EARTH AS A SOLUTION TO CONTRADICTIONSAMONGGEOTECTONICTHEORIES

I. Introduction

II. Expanding Earth as a solution to contradictions among the theories of development of oceans

1. Land-bridge theory
   a. Gondwana
   b. Laurasia
   c. Pacifica
2. Theory of permanence of oceans
3. Two-level structure of theories
4. Logical structure of the contradiction between the land-bridge theory and the theory of the permanence of the oceans
5. Wegener's solution to the contradiction between the land-bridge theory and the theory of permanence of oceans
6. Historical sequence the theories of development of oceans up to and including Wegener's theory
7. Wegener's theory as a local solution to the contradiction between land-bridge theory and the theory of permanence of oceans limited to the inner oceans of his Pangaea (Atlantic and Indian Ocean)
8. Expansion of the Earth as a global solution to the contradiction between the land-bridge theory and the theory of permanence of oceans

III. Expanding Earth as a solution to contradictions among theories of development of continents

1. Classic theory of accretion (consolidation) of continents
2. Problems encountered by the classic theory of accretion of continents
3. Stille's modified theory of the accretion of continents
4. The theory of basification
5. Essence of contradiction between the classic theory of accretion and theories of Stille and basification
6. Wegener's dilatational mechanism of disintegration of continental lithosphere as a solution to contradiction between the classic theory of accretion and theories of Stille and basification
7. Dilatational development of continents
8. Examples of Wegener's disintegration of crust within continents
9. Examples of Wegener's disintegration of crust at continental margins
10. Expanding Earth as a conclusion from dilatational development of continents

IV. Expanding Earth as a solution to contradictions between mobilism and stabilism (fixism)

1. Mobilism and stabilism
2. Plate tectonics theory as the "only possible" version of mobilism
3. Expanding Earth as a solution to contradiction between plate tectonics and stabilism in relation to the development of Tethys tectonic zone
4. Expanding Earth as a solution to the contradiction between plate tectonics an stabilism in relation to the deep mantle rooting of continents (to their autochthonous position relative to the mantle)[7]

V. Summary

VI. Conclusions

[7] At present the 5th point should be added: "Expanding Earth as a solution to contradiction between plate tectonics and stabilism in relation to spreading of the ocean floor" see **www.wrocgeolab.pl/oceans.pdf** (not ready yet).

LECTURE 3

SPREADING OF THE OCEAN FLOOR AND QUANTITATIVE GROWTH OF THE EARTH

I. Introduction

1. Problem of the origin of the oceanic lithosphere
2. Return to mobilism

II. Beginnings of the spreading theory and the concept of the lithospheric plates

1. Carey's analyses – 1958
2. Heezen's analyses –1959/60

III. Carey's first proofs of the expansion of the Earth

1. Gaping gores
2. Expansion of the Pacific
3. Lengthening of the borders of the plates

IV. Beginnings of plate tectonics

1. Dietz's concept – 1961
2. Hess' concept – 1962

V. Spreading theory based on paleomagnetism

1. Magnetic stripes of the oceanic lithosphere
2. Inversions of the geomagnetic field
3. Mechanism of the origin of the magnetic stripes
4. Calculation of the spreading rate
5. Extrapolation of the magneto-chronological scale
6. Standardization of the magneto-chronological scale
7. Initial finding of chronology of the oceanic lithosphere
8. Continuation of the magneto-chronological scale

9. Elaboration of comprehensive maps of chronology of the oceanic lithosphere

VI. Next independent proofs of the spreading of the ocean floor

1. Age-spatial relation of the oceanic lithosphere to its sedimentary cover
2. Seismic proof of the transform faults
3. Seismic proof of tension in the rift fissure of the oceanic ridges

VII. Deciphered chronology of the ocean floor – importance of the result and how to interpret it

VIII. Next independent proofs of the expansion of the Earth

1. Mutual moving apart of hot spots
2. Deep mantle rooting of lithospheric plates

IX. Increment in the lithosphere as the increment in the surface area of the Earth

1. Function of growth of the Earth's radius
2. Rate of growth of the Earth's radius
3. Annual increment in the surface of area of the Earth
4. Annual increment in the volume of the Earth
5. Function of growth of the Earth's radius and the acceleration of the evolution of life in the Phanerozoic

LECTURE 4

TECTONIC ANALYSIS OF SEISMIC FOCUSES. PRINCIPLES AND EXAMPLES OF APPLICATION

I. Introduction

1. Two ways to use seismic waves
2. Tectonic mechanism of seismic focuses
3. Types of seismic waves

II. Principles of tectonic analysis of seismic focuses

1. The first impulses of longitudinal waves
2. Connection between tectonics and seismics
3. Non-tectonic types of seismic disturbance – explosion and implosion
4. Reconstruction of ellipsoid of deformation from records of the first impulses of longitudinal waves

III. Examples of applications

1. Analyses of seismic focuses of transform faults
    a. Principles of activity of transform faults
    b. Mechanism of seismic focuses of transform faults
    c. Lynn Sykes' (1967) analyses of seismic focuses of transform faults
    d. Subsequent tectonic analyses of seismic focuses of transform faults
    e. First methodological digression – difference between confirmation and proof of the hypothesis
2. Analyses of seismic focuses of oceanic ridges
    a. Mechanism of seismic focuses of oceanic ridges
    b. Examples of analyses
3. Analyses of seismic focuses of oceanic trenches
    a. Mechanism of seismic focuses of oceanic trenches
    b. Examples of analyses
4. Analyses of shallow seismic focuses of island arcs and active continental margins (tsunami earthquakes)
    a. Mechanism of shallow seismic focuses of island arcs and active continental margins
    b. Examples of analyses
5. Analyses of deep seismic focuses of island arcs
    a. Mechanism of deep seismic focuses of island arcs
    b. Examples of analyses

IV. Summary

LECTURE 5

BASIS OF PLATE TECTONICS. FLAWS AND FAULTS OF THE THEORY

I. The beginnings of plate tectonics

1. Robert Dietz (1961)
2. Harry Hess (1962)

II. Paleomagnetic tests for recording the change of the Earth's radius

1. Method of paleomagnetic meridian
2. Method of paleomagnetic triangulation
3. Neglect of dilatational development of West Siberian Depression in calculation, displaying of stability of the Earth's radius
4. Ward's method
5. Pointing out the incorrectness of Ward's method by Carey, Parkinson, Chudinov and Terticki
6. Incorrectness of paleomagnetic reconstructions based on assumption of stability of the Earth's radius

III. Founders of developed version of the plate tectonics

1. Jason Morgan (1967/68)
2. Dan McKenzie 1967
3. Xavier Le Pichon 1968

IV. Peculiar features of plate tectonics

1. Distancing from the problem of driving mechanism
2. Deduction from the assumption of stability of the Earth radius
3. Plate tectonics as a "hypothesis of non-expanding Earth"

V. Problem of proving of the hypothesis of non-expanding Earth

1. Le Pichon's proof of the stability of the Earth's radius

2. Falsification of Le Pichon's proof
3. Le Pichon's unintentional but correct calculation of annual increment of the Earth's perimeter

VI. Principles of plate tectonics

1. Set of definitions, postulates and theorems
2. Transfer of methodology of quantum mechanics to geotectonic by founders of plate tectonics

VII. Morgan's test of validity of the Eulerian motion of lithospheric plates

1. The way the test was performed
2. Falsification of the alleged positive result of the test
3. Carey's gaping gores in the Indian Ocean explain fiasco of Morgan's test
4. Notion of the problem of the Indian Ocean by plate tectonics
5. Attempts at saving the situation by Wiens and Gordon

VIII. Calculation of motion of lithospheric plates in the framework of plate tectonics

1. Geohedron
2. Calculations of relative motions of the plates
3. Calculations of so called "absolute" motions of the plates

IX. Reconstructions of the lithosphere in the framework of plate tectonics

LECTURE 6

HYPOTHESIS OF CONVECTION CURRENTS IN THE EARTH'S MANTLE AND ITS CONTRADICTION WITH GEOLOGICAL REALITIES

I. Introduction

1. Definitions
2. Beginnings of the hypothesis of convection currents in the Earth's mantle
3. Discovery of the spreading of the ocean floor and plate structure of the lithosphere
4. Hypothesis of convection as a starting point of plate tectonics

II. Theoretical issues

1. Problem of radicalism in geotectonics
2. Problem of energy in geotectonics
3. Problem of efficiency of convection cell as a thermal engine (problem of the ratio of vertical to horizontal dimensions)
4. Problem of causal resulting and logical inference

III. Escape of plate tectonics from the problem of driving mechanism

IV. Contemporary basis of hypothesis of convection currents in the Earth's mantle - a structure of circular argument

V. Contradictions of the hypothesis of convection currents with geological reality

1. Juvenility of MORBs
2. Rift genesis
3. Alleged subduction of oceanic ridges
4. Cases of close location of oceanic ridge and oceanic trench
5. Triple junctions
6. Transform faults

7. Asymmetrical spreading
8. Mantle plumes
9. Jumping spreading
10. Sudden change of the direction of plate motion
11. Mutual drawing apart of oceanic ridges
12. Repeatability of zones of ascending mantle matter
13. Motion of the zones of alleged subduction relative to the deep basement
14. Lack of coupled convection cells in the zones of alleged subduction
15. Alleged squeezing of upper mantle from beneath of the Pacific
16. Opposite motion of the upper mantle matter in the zones of alleged subduction
17. Existence of deep rooting of the lithospheric plates

VI. Pull-slab hypothesis

1. Essence of the hypothesis
2. Ratio of the sinking part of the plate to the pulled part
3. Tearing off of the sinking part of the plate
4. Motion of the bending between sinking and pulled parts of the plate
5. Existence of not sinking margins of plates on opposite sides of oceanic ridges
6. Paradox of closing Pacific without sinking edges of Pangaea

VI. Summary

1. Lack of logical resulting of plate tectonics from facts
2. Lack of causal resulting of plate tectonics from some physical processes
3. Geological realities which exclude the hypothesis of convection currents are explained by the expansion of the Earth

LECTURE 7

LITHOSPHERIC PLATES ON THE EXPANDING EARTH. SIMPLIFIED MODEL OF FLAT PLATES

I. Introduction

1. General principle of behaviour of plates on the expanding Earth
2. Earth's mantle as an absolute reference frame

II. Property of isotropic homogenous stretching

1. Esher's grate
2. Increase in the distances of the points
3. Increase in the velocities of the points given by Hubble's coefficient
4. Present Hubble's coefficient for the expanding Earth

III. The reference frame connected with stretched basement of the lithosphere

IV. Stable point of transformation of points of plate's coordinates relative to reference frame connected with the expanding basement

1. Definition of a stable point of transformation
2. Transformation of contour of a pinned plate
3. Apparent shrinking of the plate at neglected expansion of the basement
4. Stable point of transformation of a non-pinned plate
    a. Friction force exerted on the plate by expanding basement
    b. Zeroing of the friction forces at geometrical barycentre of the plate

V. Breaking plate

1. Apparent drift
2. Modeling of triple junction

VI. Lengthwise growth of the oceanic ridges

1. Principle
2. Modeling of development of the Southern Atlantic

VII. Growing plate

1. Growth of the plates caused by spreading of the ocean floor
2. Stable point of transformation of a growing plate

VIII. Asymmetrical spreading

1. Impossibility of asymmetrical spreading in the hypothesis of convection currents
2. Cases of asymmetrical spreading
3. Extreme asymmetrical spreading (one-sided)

IX. Growth of the oceanic lithosphere around continents

1. Growth of the oceanic lithosphere around Africa
2. Growth of the oceanic lithosphere around Antarctica
3. Growth of the oceanic lithosphere around South America
4. Growth of the oceanic lithosphere around North America
5. Growth of the oceanic lithosphere around Europe
6. Growth of the oceanic lithosphere around Asia
7. Growth of the oceanic lithosphere around Australia

X. Radial growth of the lithosphere in the oceans

1. Radial growth of the lithosphere in the Atlantic
2. Radial growth of the lithosphere in the Indian Ocean
3. Radial growth of the lithosphere in the Pacific

XI. Summary

LECTURE 8

LITHOSPHERIC PLATES ON THE EXPANDING EARTH. SPHERICAL ISSUES

I. Equation of the expanding Earth

II. Possible distance of drawing apart of the plates

III. Stable point of transformation of a spherical plate

IV. Transformation of the contour of a spherical plate

V. Flattening of plates

1. Quantitative effect of continuous flattening (without disruption)
2. Fissures perpendicular to oceanic ridges
3. So called “membrane tectonic”
4. Compressional lithospheric stress
5. Origin of the convexity of the Precambrian shields
6. Stretching of the marginal parts of the Wegener’s Pangaea

VI. Carey’s gaping gores

1. Gaping gores of the Afro-South American bowl
2. Gaping gore of the Tethys “Ocean”
3. Gaping gores of the Indian Ocean

VII. Pavoni’s wedges

1. Pavoni’s wedges in the Atlantic
2. Pavoni’s wedges in the Pacific

VIII. Propagation of rifts

IX. Carey’s test

1. Spherical geometry of Carey’s test
2. Documentation of Carey’s test

X. Carey's Arctic paradox (introduction)

XI. Degree of freedom of the reconstruction of the lithosphere

1. On the non-expanding Earth
2. On the expanding Earth

XII. James Maxlow's reconstructions on the expanding Earth

LECTURE 9

MANTLE PLUMES AND HOT SPOTS ON THE EXPANDING EARTH

I. Introduction

1. Discovery of mantle plumes and hot spots
2. Shape and origin of mantle plumes
3. Volcanic chains generated by mantle plumes
4. Impossibility of existence of mantle plumes in the presence of convection currents
5. Sudden changes of the direction of plate motion recorded by bends in volcanic chains generated by mantle plums

II. Principle of generation of volcanic chains by mantle plumes on the expanding Earth

1. Intra-plate hot spots
    a. Volcanic chain generated by intra-plate hot spot
    b. Mutual moving apart of intra-plate hot spot
2. Inter-plate hot spots
    a. Principles of behavior of inter-plate hot spots
    b. Modeling of development of the South Atlantic
    c. Comparison with the model of plate tectonics
    d. Mutual moving apart of inter-plate hot spot

III. Mutual moving apart of hot spot as a subsequent proof of expansion of the Earth

IV. Detailed analysis of process of elongation of oceanic ridges

V. Carey's Arctic paradox

1. Carey's Arctic paradox and division of the Earth's surface into continental and oceanic hemispheres
2. Global pattern of volcanic chains generated by mantle plumes and Carey's Arctic paradox
3. Global pattern of so called "absolute" motion of plates in the framework of plate tectonics and Carey's Arctic paradox

VI. Opposite asymmetry of expansion of the Earth in the Paleozoic

LECTURE 10

SPACE GEODESY AND EXPANDING EARTH

I. Introduction

1. Applications of space geodesy
2. Conflict between applications of two different Euler's ideas

II. Global geodetic reference frames

1. Stable reference frame (beyond geodynamics)
2. Mobile reference frame (based on geodynamics)

III. Methods of space geodesy

1. Satellite Laser Ranging (LSR)
2. Lunar Laser Ranging (LLR)
3. Doppler Orbitography and Radiopositioning Integrated by Satellite System (DORIS)
4. Global Positioning System (GPS)
5. Very Long Baseline Interferometry (VLBI)

IV. Calculation of relative plate motions

1. Intra-plate calculations – fictitious contraction
    a. Blinov principle
    b. Fictitious contraction emerging in SLR calculations
    c. Fictitious contraction emerging in VLBI calculations
2. Inter-plate calculations – fictitious slowing down of the spreading rate
3. Calculations between opposite shores of the Pacific confirming expansion of this ocean

V. Calculations of plate motions in so called "absolute" reference frame

1. So called "absolute" reference frame based on condition "No Net Rotation" (NNR)
2. Global motions relative to so called "absolute" reference frame and its concordance with Carey's Arctic Paradox

VI. Analysis of fictitious contractions on the fragments of the northern megaplate

1. Heezen principle
2. Asia-Pacific fragment – southern part
3. American fragment – southern part
4. African fragment
5. Mediterranean and Himalayas
6. Asia-Pacific fragment – far-east part
7. American fragment – northern part
8. Discordance of alleged rotations of North American and Eurasian plates with development of the North Atlantic Rift

VII. Annual growth of the Earth radius

1. Annual growth of the Earth radius obtained by SLR method
2. Annual growth of the Earth radius obtained by VLBI method
3. Comparison of geodetic and geological results

VIII. Principle of construction of the correct absolute reference frame

LECTURE 11

TENSION-DIAPIRIC-GRAVITATIONAL DEVELOPMENT OF ISLAND ARCS AND ACTIVE CONTINENTAL MARGINS. PRIMARY TECTOGENESIS

I. Notions of primary and secondary tectogenesis

1. Hutton's idea
2. Haarmann's idea
3. Van Bemmelen's contribution
4. Ramberg's contribution

II. Island arcs and active continental margins – historical introduction

III. Analysis of components of island arcs and active continental margins connected with primary tectogenesis

1. Tensional development of oceanic trenches
   a. Tension determined by seismic focuses
   b. Tensional tectonic structure of oceanic trenches
   c. Aleutian trench and sedimentary fans of the northern Pacific
2. Earthquakes of the middle depth –the Wadati –Benioff double zone
3. Relationship between concavity of island arc and dip of the Wadati – Benioff zone
4. Nature of the Wadati – Benioff zone
5. Deep earthquakes
6. Shape and migration of the Wadati – Benioff zone
7. Warming, rarefaction and diapirism of the upper mantle beneath island arcs and continental margins
8. Volcanism of island arcs and active continental margins
9. Hydraulic problems
10. Double metamorphic zones

11. Relationship between some parameters of island arcs and active continental margins
12. Tensional development of marginal seas (back-arc basins)
    a. Active back-arc spreading
    b. Dead back-arc spreading
    c. Age of back-arc basins
    d. Reconstructional closing of marginal seas

IV. Dynamical problems of plate tectonics at island arcs and active continental margins

V. Summary

LECTURE 12

TENSION-DIAPIRIC-GRAVITATIONAL DEVELOPMENT OFISLANDARCSANDACTIVECONTINENTALMARGINS. SECONDARY TECTOGENESIS

I. Primary tectogenesis of island arcs and active continental margins – recapitulation

II. Secondary tectogenesis of island arcs and active continental margins resulting by deduction from the primary tectogenesis

III. Secondary tectogenesis of island arcs and active continental margins resulting by induction directly from facts

IV. Phenomena guiding to gravitational transport of island arc

1. Distribution of gravitational anomalies in island arcs
    a. Japan Islands
    b. Hellenic arc
2. Gravitational spreading of Hawaii Island
3. Gravitational transport of Cascadia

V. Analysis of deformation of the area between oceanic trench and volcanic line

1. Shallow earthquakes beneath island arcs (tsunami earthquakes)
2. Ambiguity of interpretation of shallow earthquakes focuses
3. Shape of surface determined by focuses of shallow earthquakes
4. Horizontal displacements connected with shallow earthquakes
    a. Japan 1946
    b. Alaska 1964
    c. Chile 1960
    d. Guam 1993
5. Vertical displacements connected with shallow earthquakes
    a. Japan 1946
    b. Alaska 1964
    c. Chile 1960
6. Long-term vertical motions of primary tectogenesis
    a. Japan
    b. Alaska

VI. Gravitational, surfing-like displacement of island arc

VII. Beginnings of formation of island arcs (elevation and gravitational exhumation of marginal eugeosyncline)

VIII. Reference to deposit issues

IX. Basic tectogenesis – stretching of the upper mantle and tearing of the lithosphere

X. Expanding Earth as a conclusion from tension-diapiric-gravitational development of island arcs and active continental margins

XI. “Cabaret” subduction – examples of complicated schemes of plate tectonics

LECTURE 13

TENSION-DIAPIRIC-GRAVITATIONALDEVELOPMENT OF INTRACONTINENTAL FOLD BELTS. MECHANISM

I. Structure of intracontinental fold belts

II. Development of views on the origin of the intracontinental fold belts

1. Hutton's gravitational tectonics
2. Concept of tangential pressure deduced from the theory of contraction of the Earth
3. Beginnings of theories of geosynclines and nappes
4. Reyer's gravitational tectonics
5. Impact of Wegener's theory on further development of tangential pressure (ultranapism)
6. Haarmann's gravitational tectonics
7. Van Bemmelen's and Ramberg's schools of gravitational tectonics
    a. Gravitational sliding (gliding)
    b. Gravitational spreading
    c. Diapirs of the upper mantle, collapse of their top parts and their lateral migration
8. Plate tectonics models of development of folds belts
9. Carey's tension-dipiric-gravitational development of fold belts

III. Applied inductive method of analysis of fold belts

IV. Tensional development of a foredeep

1. Tensional foredeep of the Carpathians
2. Tensional foredeep of the Alps
3. Tensional foredeep of the Canadian Rockies
4. Tensional foredeep of the Variscan Appalachians
5. Tensional foredeep of the Caledonian Appalachians
6. Tensional foredeep of the Himalayas

V. Tensional development of the root zones of the uplifted fold belts

1. Necessity of the revision of Airy's theory
2. Lowering of Moho under oceanic ridges
3. Lowering of Moho under continental rifts
4. Intracontinental rift mountains
    a. Ruwenzori Massif
    b. Southern Rockie Mountains.
    c. Transantarctic Mountains.
5. Horst mountains
6. Basalt pillows (rift pillows) – tensionaly rarefied upper mantle in the root zone of uplifted fold belts

VI. Tensional development of the area of intermontane depressions

1. Stretching of intermontane depressions
2. Eugeosynclinal-diapir-collapsing origin of the intramontane depressions
3. Pressure and role of juvenile water in eugeosyncline and root zone of uplifted fold belt

VII. Gravitational transport of fold belt

1. General scheme
2. Sevier belt example

VIII. Ophiolite seams – clamped, inferior parts of eugeosyclinal systems

1. Scheme of development of ophiolite seam
2. Example of Zagros' ophiolite seam

IX. Classic issues connected with eugeosyncline

1. Origin of the space occupied by batholiths
2. Origin of magmatism
3. Origin of metamorphism
4. Nature of tectonics of metamorphosed series

X. General development and principles of reconstruction of fold belt

XI. Summary

XII. Expansion of the Earth as a conclusion from tension-diapiric-gravitational development of intracontinental fold belts

LECTURE 14

TENSION-DIAPIRIC-GRAVITATIONALDEVELOPMENT OF INTRACONTINENTAL FOLD BELTS. REGIONAL EXAMPLES

I. Europe

1. The Carpathians
   a. Directions of tectonic transport
   b. Pannonian diapir
   c. Gravitational transport of the Carpathian napes
   d. Reconstruction of the Carpathian area
   e. Plate tectonics interpretation of development of the Carpathians
2. Black Sea
   a. Pontian diapir
   b. Reconstruction of the Black Sea
3. Levantine Basin
   a. Levantine diapir
   b. Reconstruction of Levantine Basin
4. Stretching of the lithosphere along the line:
   Ukrainian Massif – Arabian Peninsula
5. Hellenides
6. Plan of tensional development of the eastern part of the Mediterranean Sea
7. Stretching of the lithosphere along the line: Małopolska Massif – eastern part of northern Africa
8. Reconstruction of the eastern part of the Mediterranean area
9. Alleged “escape tectonic” near the northern part of Arabian Peninsula

10. The Alps
    a. Van Bemmelen's Adriatumor
    b. Reconstruction of the Alp's area
    c. Plate tectonics interpretation of development of the Alps
11. The Apennines
    a. Gravitational folding of the Apennines
    b. Atlas-Apennines arc
    c. Sicily-Calabrian arc
12. Stretching of the lithosphere along the line:
    Bohemian Massif – middle part of northern Africa
13. Tearing of Sardinia and Corsica from Provence coast of Mediterranean Sea
14. Reconstruction of the middle part of the Mediterranean Sea
15. Pyrenees, Betic Cordillera and Er Rif
16. Stretching of the lithosphere along the line:
    Armorican Massif – western part of North Africa
17. Overall reconstruction of the western part of Mediterranean Sea
18. Overall reconstruction of the whole Mediterranean region
19. Essence of the incorrect plate tectonic reconstruction
20. Implication for Variscan development of Europe

II. North America

1. United State's Cordilleras (recapitulation from the previous lecture)
2. Canadian Cordilleras
    a. Price's gravitational model
    b. Connection of the Canadian Cordilleras tectogenesis
       with one-sided spreading at Pacific border of North America
3. Mexican Cordilleras
    a. Colorado microplate
    b. Rift (volcanic elevation) of Sierra Madre Occidental
    c. Eastward gravitational slide of Sierra Madre Oriental fold belt
4. Reference to Carey's Pacific Paradox test
5. Appalachians
    a. Structure of Appalachians
    b. Appalachian' geosyncline

c. Spreading axis of Appalachian-Mauretanides system
d. The main Appalachian eugeosyncline as an embryo of central Atlantic
e. Local migration of Regibat Massif
(exclusion of all alleged former Atlantic Oceans)

III. Asia

1. Urals
   a. Ural's fold belt and eugeosyncline
   b. Gravitational transport of Ural's fold belt
   c. Tensional development of the West Siberian Depression
2. Himalayas
   a. Tibetan diapir
   b. Mutual drawing apart Indian and Siberian shields
   c. Southward gravitational transport of Himalayan fold belt
3. Alleged "escape tectonics" in south-east Asia
4. Tectonic plan connected with Owen fracture zone
5. Tensional development of the whole Tethys tectonic zone

IV. Summary

LECTURE 15

SPECULATIVE BASE OF HYPOTHESIS OF TERRANES

REINTERPRETATION OF DEVELOPMENT OF MAIN AREAS OF ALLEGED TERRANE STRUCTURE

I. Introduction

1. Terranes as a speculative product of fictitious closing oceans
2. Scheme of dependence which generates terranes as a second fiction with relation to fictitious closing oceans
3. Terranes concept generates the next fictitious closing oceans
(third generation of fiction)
4. Types of fictitious migration of terranes

II. Transpacific terranes

1. Geological connections between Pacific borders, relating to the opening of this ocean
2. Attempts at explanation of geological connections between Pacific borders by the hypothesis of terranes
3. Simple explanation of geological connections between Pacific borders by opening of the ocean

III. Cordilleras – nursery of the terranes concept

1. Change of a simple zonal structure of Cordilleras to terrane mosaic structure
2. Contribution of wrong paleomagnetic interpretations to terrane structure of Cordilleras
3. The unreliability of paleomagnetic interpretation
4. Lengthwise stretching of the Alaskan and Canadian Cordilleras
5. Lengthwise stretching of the United States Cordilleras
6. Lengthwise stretching of the Mexican Cordilleras
7. Comparison of crosswise and lengthwise stretching of Cordilleras with analogous stretching of east and south-east Asia

IV. Atlantic

1. Origin of the fictitious Iapetus ocean
2. Avalonian terranes and their reinterpretation
3. Migration of Regibat Massif and its significance

V. Tethys tectonic zone

1. Essence of incorrect plate tectonics reconstruction of Tethys zone (origin of the fictitious Tethys “Ocean”)
2. European part
    a. Terrane models
    b. Real development
3. Central-Asiatic part
    a. Terrane models
    b. Real development

4. SE Asiatic part
    a. Terrane models
    b. Real development
5. Epicontinental and geosynclinal character of the Tethys sea zone

VI. Caledonian-Variscan Europe

1. European Paleozoic fictitious oceans
2. European Paleozoic terranes
3. Terranes in Poland
4. Reconstruction of early Paleozoic Europe

VII. Reconstruction of connection of Baltica, Laurentia and Gondwana

VIII. Summary

LECTURE 16

EXPANSION AND DEVELOPMENT OF THE EARTH'S INTERIOR

I. Growth of the Earth's mass

1. Two possibilities of behaviour of the Earth mass during Earth expansion
2. Paleontological proof of the growth of the Earth mass
3. Problems of the creation of matter
4. Problem of the transformation of matter
5. Calculation of the present annual mass increment from geological data
6. Calculation of the present annual mass increment from space geodesy data
7. Inversion of age of particular parts of the Earth relative to the classic opinions
8. The main chemical elements created in the Earth's core
9. Micro-mechanism of expansion of the Earth

II. Energy of expansion of the Earth

1. Gravitational field inside the Earth
2. Principle of calculation of the energy of the expansion of the Earth
3. Calculation of the work of uplifting of a homogenous wedge
4. Calculation of the work of uplifting an inhomogeneous wedge
   a. Calculation of the weight of the wedge of the mantle
   b. Calculation of the weight of the wedge of the core
   c. Work of the uplifting of the inhomogeneous wedge
   d. Annual energy of expansion per square centimetre of surface area of the Earth
   e. Annual global energy of expansion
   f. Present power of expansion

g. Energy of expansion per weight unit of the new-born matter
h. Energy of expansion per new-born nucleon

5. Directly calculated energy of expansion of new-born atoms
6. Energetic problem of plate tectonics

III.Structure and development of the Earth's interior

1. Inner core
   a. Organized structure of the inner core (mega-crystal)
   b. Super-rotation of the inner core
2. Outer core
3. D" layer
   a. Structure and composition of the D" layer
   b. Anti-differentiational scheme of development of D" layer postulated by plate tectonics
   c. Differentiational scheme of development of the D' layer compatible with the expansion of the Earth
4. Mantle
   a. Structure and composition of the mantle
   b. Differentiational, mantle origin of the Earth's crust
   c. Differentiational, mantle origin of the hydrosphere
5. Macro-mechanism of the expansion of the Earth
6. Three kinds of chronological profiles

IV. Summary

LECTURE 17

ORIGIN AND DEVELOPMENT OF THE HYDROSPHERE ON THE EXPANDING EARTH

I. Data about the hydrosphere

II. Endogenic origin of the hydrosphere

III. Development of the hydrosphere in the frameworks of old geotectonic theories

1. Land-bridge theory
2. Theory of the permanence of the oceans
3. Wegener's theory

IV. Quantitative evaluation of juvenile water

1. Efficiency of secretion of juvenile water in volcanic and sub-volcanic processes
2. Mantle reservoir of juvenile water
3. Estimation of quantity of juvenile water secreted at the spreading sites

V. Problem of hydrosphere in the frame of plate tectonics

1. Wilson's global cycles
2. Convection currents "pump" of juvenile water
3. How plate tectonics copes with excess of juvenile water produced by this theory?
4. Problem of heavy water

VI. Meso-Cenozoic hydrosphere on the expanding Earth

1. Rate of growth of the hydrosphere
2. Problem of temporal conformity of the mean land level and ocean level
3. Evolutionary youth of deep ocean fauna
4. Problem of salinity of the ocean water
5. Hess's argument against the expanding Earth

VII. Paleozoic hydrosphere on the expanding Earth

1. Paleozoic hypsographic curve
2. Problem of Paleozoic extinctions
3. Epicontinental Tethys Sea as a main water tank of the late Paleozoic
4. Waves and tides in Paleozoic epicontinental seas as an important exogenic geological factor
5. Northern hemisphere as a sea hemisphere in the Paleozoic

6. Corrected Paleozoic hypsographic curve
7. Gondwana's glaciations as high plateau glaciations

VIII. Paleozoic hydrosphere on the expanding Earth explains nature of the Martian hydrosphere

1. Traces of the Martian hydrosphere
2. Mechanism of circulation of the ancient Martian hydrosphere
3. Origin and disappearance of the Martian hydrosphere

IX. Precambrian "snow ball" glaciations on the expanding Earth

X. Juvenile water as a factor of high overpressures in the lithosphere

XI. Summary

LECTURE 18

AMBARTSUMIAN'S ERUPTIVE COSMOLOGY IN COMPARISON WITH OTHER COSMOLOGICAL THEORIES

I. List of cosmological theories (in chronological order)

II. Theory of condensation from dispersed cosmic matter (nebula theory)

III. Beginnings of the Big Bang theory

1. Georges Lamaitre's primordial atom (1927)
2. Carl Weizsäcker's fire ball (1938)
3. George Gamov's Big Bang theory (1948)
4. Problem of the origin of chemical elements
5. Primordial atom or Gamov's ylem

IV. Origin of chemical elements from compact neutron matter (polineutron) by fission (Maria Goepert-Meyer and Edward Teller, 1949)

V. Steady State Cosmology (SSC)

VI. On the way to the Standard Model Cosmology of the early Universe (SMC)

1. Problem of background relic radiation
2. Problem of matter and antimatter
3. Standard Model Cosmology

VII. Victor Ambartsumian's eruptive (explosive) cosmology (AEC)

1. Comparison of the expanding Universe with hypothetical condensation of matter in its interior
2. Empirical documentation of AEC by Ambartsumian's team
3. General scheme of development of hierarchical structure of the Universe according to AEC

VIII. Quasi Steady State Cosmology (QSSC)

1. Partial reference of QSSC to Ambartsumian's Eruptive Cosmology
2. Hamilton Arp's observations
3. Acceptance of creation of matter based on the existing matter
4. Influence of the concept of creation of matter in the Steady State Cosmology on the inflationary stage in the Big Bang theory

IX. Creation of matter in the Null Universe theory

1. Christian Møller – beginnings
2. Edward Tryon – application to the very first moment of Big Bang
3. Samuel Warren Carey – application to the whole course of expansion of the Universe, including expansion of the Earth
4. Allan Guth – application only to the inflationary stage of the expanding Universe
5. Possible connection of Null Universe with Quasi Steady State Cosmology
6. Possible connection of Null Universe with Ambartsumian's Eruptive Cosmology

X. Eruptive cosmology in the light of new observations

1. Quasars
2. Galaxies (Arp's records)
3. Stars

XI. Ambartsumian's Eruptive Cosmology as a simplifying alternative to the Standard Model Cosmology

XII. Five main cosmological problems solved by Ambartsumian's Eruptive Cosmology

1. Problem of the development of super-dense matter
2. Problem of the hierarchical structure of the Universe
3. Problem of the source of cosmic energy
4. Problem of the asymmetry: matter-antimatter
5. Problem of the thermodynamic of the Universe

Ambartsumian's eruptive cosmology in comparison with other cosmological theories[8]

An Armenian astrophysist Victor Ambartsumian and his co-workers found that matter in the expanding Universe develops from super-dense states into less dense forms. Clusters of celestial bodies develop from one, more dense, parent body (black hole or neutron star) by partition (eruption or explosion). Nebulas originate from stars or other compact bodies by explosions or emissions of dispersed matter but the reverse process never occurs. That is, the condensation theory, coming from Newton, Kant and Laplace, is false.

In Amabartsumian's theory the interior of the expanding Universe is developing in harmony with general expansion, not in the opposite direction as is assumed by mainstream cosmology which combines the discovery of expansion of the Universe with the old speculative hypothesis of condensation of dispersed primordial matter into the present celestial bodies.

Ambartsumian was inspired by the concept of primordial atom given by Lemaître but his theory is well documented by data from observations which were recently well confirmed by Hamilton Arp's experimental results, gained by the use of a much better telescope. Unlike Lemaître, Ambartsumian consequently rejected the condensation hypothesis.

[8] With reference to the last two lectures see section III of my introduction to the brochure „Possible relation between Earth Expansion and Dark Matter" **www.wrocgeolab.pl/dark.pdf**

A parent, dense body of multiple systems of stars or planetary systems is a neutron star. Chemical elements originate from compact neutron matter by fission during the explosion of the neutron star or shortly after that. The remnants of neutron matter can be preserved in the centres of descending stars and planets. The fusion of hydrogen atoms into helium and some heavier elements into descending stars is only a long-term, slow, backward process.

The idea of the origin of chemical elements by fission was given in 1949 by Maria Goeppert-Mayer and Edward Teller who positively tested, in a theoretical way, origin of 17 heavy elements from compact neutron matter (polineutron) which corresponds to the later discovered neutron stars.

Ambartsumian's theory solves several basic cosmological problems:

– Development of super-dense matter which evolved in an opposite way to what is now accepted and is compatible with development of the whole Universe
– The hierarchical structure of the Universe
– The main source of cosmic energy which is the energy which fragments super-dense matter against its gravitational cohesion
– The theory avoids the problem of breaking the symmetry of matter – antimatter because matter emerges from black holes exclusively as a normal matter
– The Big Bang decay of the primordial centre of matter into primordial black holes results in extremely low entropy. In the now accepted model of Big Bang such low entropy should occur at transformation of evenly dispersed atomic matter (mostly hydrogen and helium) into galaxies. It is not understandable both from thermodynamic nor mechanical point of view.

Ambartsumian's theory was partly incorporated into the Quasi Steady State Cosmology (QSSC) model of Hoyle, Burbidge and Narlikar. However the QSSC model did not free itself wholly from the hypothesis of condensation. On the other hand the eruptive cosmology can easily incorporate Hoyle's mechanism of creation of matter together with negative repulsion energy. Ambartsumian's theory can also easily incorporate the creation of matter from the Null Universe theory in which the whole positive mass energy of the Universe is canceled by its negative potential energy. The latter concept was developed by Møller, Tryon and Carey, and was incorporated into the Big Bang theory by Allen Guth. It is also accepted by Stephen Hawking.

LECTURE 19

ERUPTIVE ORIGIN OF THE EARTH AND THE WHOLE SOLAR SYSTEM

I. Introduction

II. Eruptive origin of multiple systems of stars and planetary systems from the super-dense proto-stars

1. One stage eruptive origin
2. Two stage eruptive origin
3. Explanation of strange distribution of angular momentum in the Solar System
4. Neutron stars as super-dense proto-stars
5. Assumed origin of neutron stars
6. Neutron stars in complex systems
7. Possibility of eruption of neutron matter from neutron stars and possibility of explosive fragmentation of neutron stars

III. Fissional origin of chemical elements

1. Hierarchy of concentration of nuclear matter
2. Chemical elements which can origin from disintegration of various heavier nuclei
3. Age of the matter of the Solar System equals to the age of the system itself
4. Isotopic cosmochronology

IV. Eruptive origin of the Sun

1. Temperature of "overcooking" of a neutron star
2. Origin of hydrogen and helium from neutron matter is compatible with a large amount of iron in the early Universe
3. Fusion of hydrogen into helium in stars as a slow retrogressive process in evolution of matter
4. Eruptive explanation of Sun's flares
5. Origin of the high temperature of Sun's corona

Eruptive origin of the Earth and the whole Solar System

According to Ambartsumian's theory the whole Solar System originated from one[9] super-dense celestial body by its disintegration. Most probably the body was a neutron star. The proof of such an origin is that the age of the Solar System's matter is the same as the age of the Solar System itself. The former is recorded by two independent isotope clocks: $^{129}I \rightarrow {}^{129}Xe$ and $^{26}Al \rightarrow {}^{26}Mg$. There is no time for the hypothetical synthesis of Solar System's (Earth's) chemical elements in the whole sequence of previous hydrogen stars as the current condensation theory assumes.

The asteroids originated from explosion of the former planet Phaeton orbiting once in the place of the present asteroids ring. The sudden decrease in gravitational pressure on remnants of Phaeton' (now asteroids) released internal high pressure volatiles. These transformed the previous normal rocky structure of the chunks into a chondrite structure by the process of fluidisation. The same process and resulting structure occur in Earth's kimberlites.

Moons originated from eruption of parent planets. Comets originate from eruption of giant planets and their big moons.

All planets originated from big drops of neutron matter (gremlins according to Zwicky's nomenclature) of only tens or hundreds of meters in diameter. The first stage of their expansion was the transformation of the primordial neutron matter into chemical elements. The process is fission. Micro-mechanism of expansion consists of creation of electron shells by nuclei of chemical elements which were formerly in the degree of density of the neutron matter. This process was common for all planets. Then some of them (Earth for sure) were able to create new matter which caused a subsequent expansion. The best candidate for the new mater in the Earth core are Planck particles of mass about 10^{-5} g. They are predicted by Hoyle's theory of the origin of matter. The Earth's new chemical (atomic) matter should be created from Planck particles by fission[10].

Because of the big gaseous shells of giant planets their expansion is now not recorded. Among Earth-like (near-Sun) planets the signs of expansion are visible on the Earth, Venus and Mars. They are also visible on two moons of the Jupiter: Europe and Ganymede.

The extreme process of expansion among Earth-like planets belongs to Earth and Phaeton.

It must be noted that Ambartsumian's school were not aware of the theory of the expansion of the Earth and did not take into account such big expansion of our planet. And in turn – Ambartsumian's theory is rather unknown among

[9] Or two.

[10] See **www.wrocgeolab.pl/dark.pdf**

expansionists, despite the fact it provides a natural cosmological framework for the expanding Earth.

It must be also noted that fundamental problems of contemporary cosmology and geotectonics have a common origin in the false condensation hypothesis founded by Isaac Newton. In cosmology the problem of origin of galaxies by condensation from nebulas takes first place. In geology the theory of contraction of the Earth was established as a consequence of the theory of condensation. The condensation from nebula was to lead to a hot liquid Earth which during slow cooling contracted. The theory of contraction appeared to be false. But the "compressive" way of thinking survived, and was even developed further in Wegener's theory and plate tectonics. It is a paradox that while the more divergent processes in the lithosphere (divergent break-out of Pangaea, see floor spreading even in the Pacific) are documented the larger opposite (convergent) processes are assumed (ultra-nappism and subduction respectively). This is a consequence of the false assumption of permanence of the Earth's size which demands hypothetical compensation for real divergent processes.