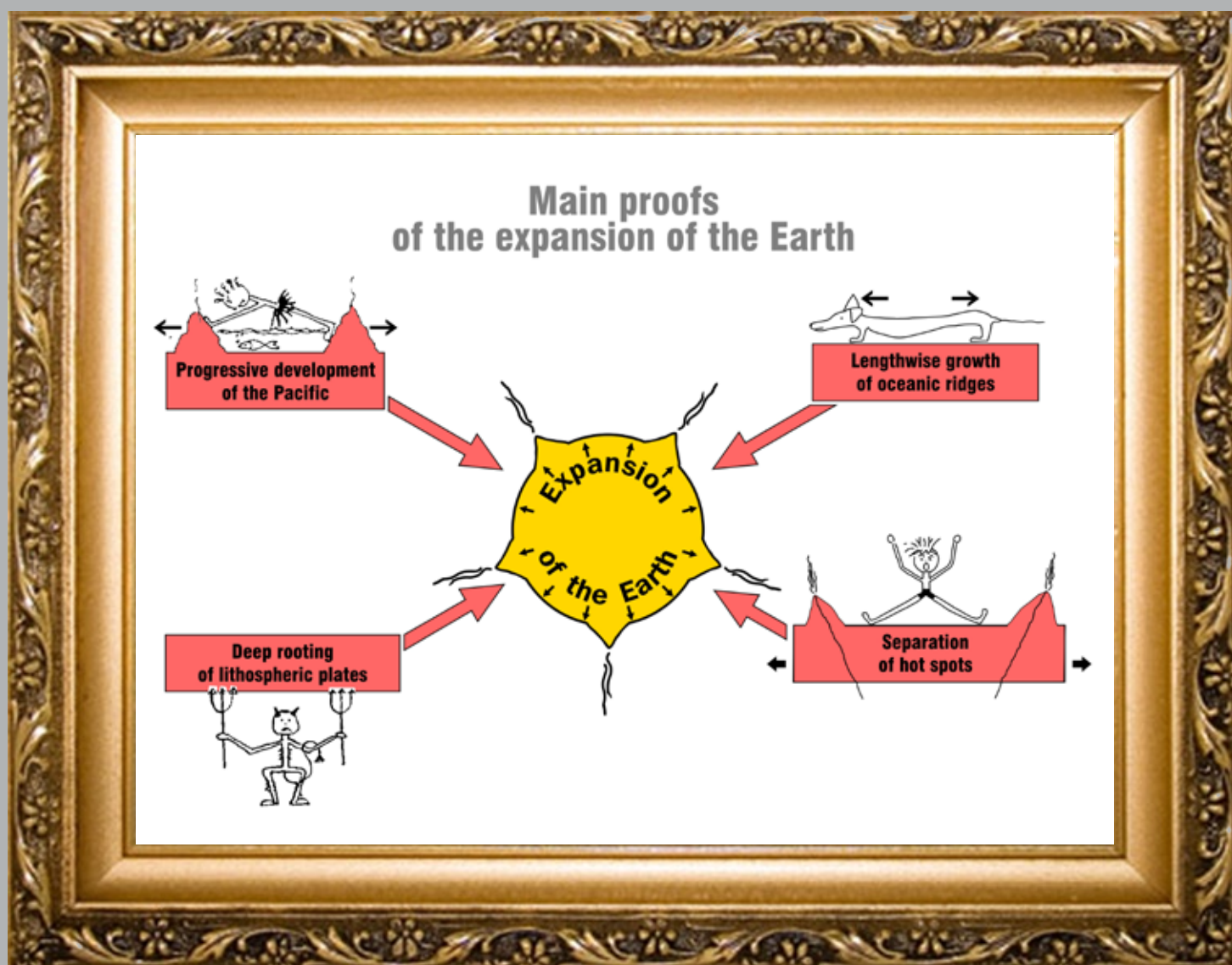


Jan Koziar

THE SHORTEST HANDBOOK OF GEOTECTONICS



POLSKIE TOWARZYSTWO GEOLOGICZNE
ODDZIAŁ POZNAŃSKI



STRESZCZEN
REFERATÓW

VI

The Polish Geological Society – Poznań Branch
Lecture summaries, vol. VI. (1997)

OCHRONA
GEORÓŻNORODNOŚCI

MATERIAŁY SESJI NAUKOWEJ Z OKAZJI
XV ZJAZDU STOWARZYSZENIA GEOLOGÓW
WYCHÓWANKÓW UNIwersYTETU WROCLAWSKIEGO

2006

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Papers of the Scientific Session
of the XVth Meeting of the Association of Geologists
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Wrocław, 18 September 2004

Supplements to the history of the Earth sciences
Edited by the Circle “History of the Earth science”
of the German Earth Sciences Society.
Krefeld and Freiberg 2006



Introduction (2013)

Expansion of the Earth is based on proofs while the plate tectonics hypothesis is built on the unproved assumption that the Earth is not expanding.

However, the problem is that the proofs of expansion of the Earth are scattered in several largely unknown papers. Most of them were given by Carey in his book (1976), but there they were mixed with other topics. Apart from that the book itself was almost ignored and now is nearly forgotten. Insufficient display of the proofs and lack of necessary added emphasis did not favour the spread of them.

I have presented proofs of expansion of the Earth many times in lectures but only about ten years ago (Koziar, 2004) published four of them together as a separate topic and with necessary graphic illustrations. The paper entitled “Wrocław geology and the theory of expansion of the Earth” was addressed to Polish geologists and was in Polish. The proofs were demonstrated in the second part of the paper, entitled “Four main proofs of expansion of the Earth”.

Earlier, I tried to present the proofs together using cartoons (Koziar, 1996). Then I prepared a two-page leaflet entitled: “The shortest handbook of geotectonics” (see the first part of this brochure). The same proofs as in the 2004 paper were presented there only by the above cartoons. The leaflet was distributed in 2003 at the international conference “Erdexpansion – eine Theorie auf dem Prüfstand“ at Theuern (Germany). After that, the second page of the leaflet (with the cartoons) was published (on the initiative of Professor Karl-Heinz Jacob) in the German geological journal “Nachrichtenblatt zur Geschichte der Geowissenschaften” (Koziar, 2006).

The lack of collected and emphasized proofs of expansion of the Earth is the fundamental shortcoming of the present state of documentation of the process of this expansion. On the request of the editors of the Polish geological journal “Geologia Sudetica” I am preparing an extensive paper presenting seven independent proofs of the expansion. They are:

- 1. Growth of the Pacific (Carey’s test)**
- 2. Elongation of plate boundaries**
- 3. Carey’s “gaping gores” (artificial openings caused by underestimated curvature of the Earth)**
- 4. Moving apart of hot spots**
- 5. Carey’s Arctic paradox**
- 6. Deep mantle roots of the plates**
- 7. Perin’s growing perimeter of the Earth**

The presentation of some proofs of expansion of the Earth is very urgent for a better understanding of the factual record of the process by readers, and the need to refer to them by supporters. Thus I decided to translate the second part of the 2004 paper and make a collage of it with the aforementioned leaflet.

The unquestionable virtue of the digital brochure obtained in this way, is its shortness.

J. Koziar
November 2013

References to the introduction

- Carey, S. W., 1976. *The Expanding Earth*, Elsevier Scientific Publishing Company, Amsterdam-Oxford-New York, 488 p.
- Koziar, J., 1997. The crucial problem of geotectonics. In: J. Skoczylas (ed.), *Lecture summaries*, vol. VI. The Polish Geological Society – Poznań Branch and the Institute of Geology of the Adam Mickiewicz University in Poznań, Poznań, p. 72–77. In Polish.
- Koziar, J., 2004. Wrocław geology and the theory of the expanding Earth. In: K. Janaszek-Szafrańska, Cz. August, A. Świdurski, J. Ćwiąkalski (eds.), *Geodiversity Conservation. Papers of the Scientific Session of the XVth Meeting of the Association of Geologists Alumni of Wrocław University (Wrocław, 18 September, 2004)*. Artes, Wrocław, p. 39–53. In Polish.
- Koziar, J., 2006. The main proofs of the expansion of the Earth. *Nachrichtenblatt zur Geschichte der Geowissenschaften*, no. 16, p. 78.

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I would like to thank Professor Cliff Ollier for English correction of the whole of this digital brochure.

Jan Koziar

The Shortest Handbook of Geotectonics

The discoverers of the lithospheric plates and sea-floor spreading are Samuel Warren Carey (1958) and Bruce Heezen (1960). These authors regarded both phenomena to have resulted from the expansion of the Earth.

The "plate tectonics" theory came into existence in the end of 1960s, when both phenomena were considered in conjunction with the assumption that the Earth is not expanding. Here are some quotations:

IN THIS PAPER WE TRY (...) TO TEST WHETHER THE MORE UNIFORMLY DISTRIBUTED DATA ON SEA-FLOOR SPREADING NOW AVAILABLE ARE COMPATIBLE WITH A NON-EXPANDING EARTH.

Xavier Le Pichon
"Sea-Floor Spreading and Continental Drift"
Journal of Geophysical Research 1968
Vol. 73/12, p. 3661

If we assume that the earth is spherical and that the length of its radius does not change with time, we can then proceed to the complete determination of the movements of the major crustal blocks relative to each other.

Xavier Le Pichon
"Sea-Floor Spreading and Continental Drift"
Journal of Geophysical Research 1968
Vol. 73/12, p. 3674

"... If the earth is not expanding, there should be other boundaries of crustal blocks along which surface crust is shortened or destroyed."

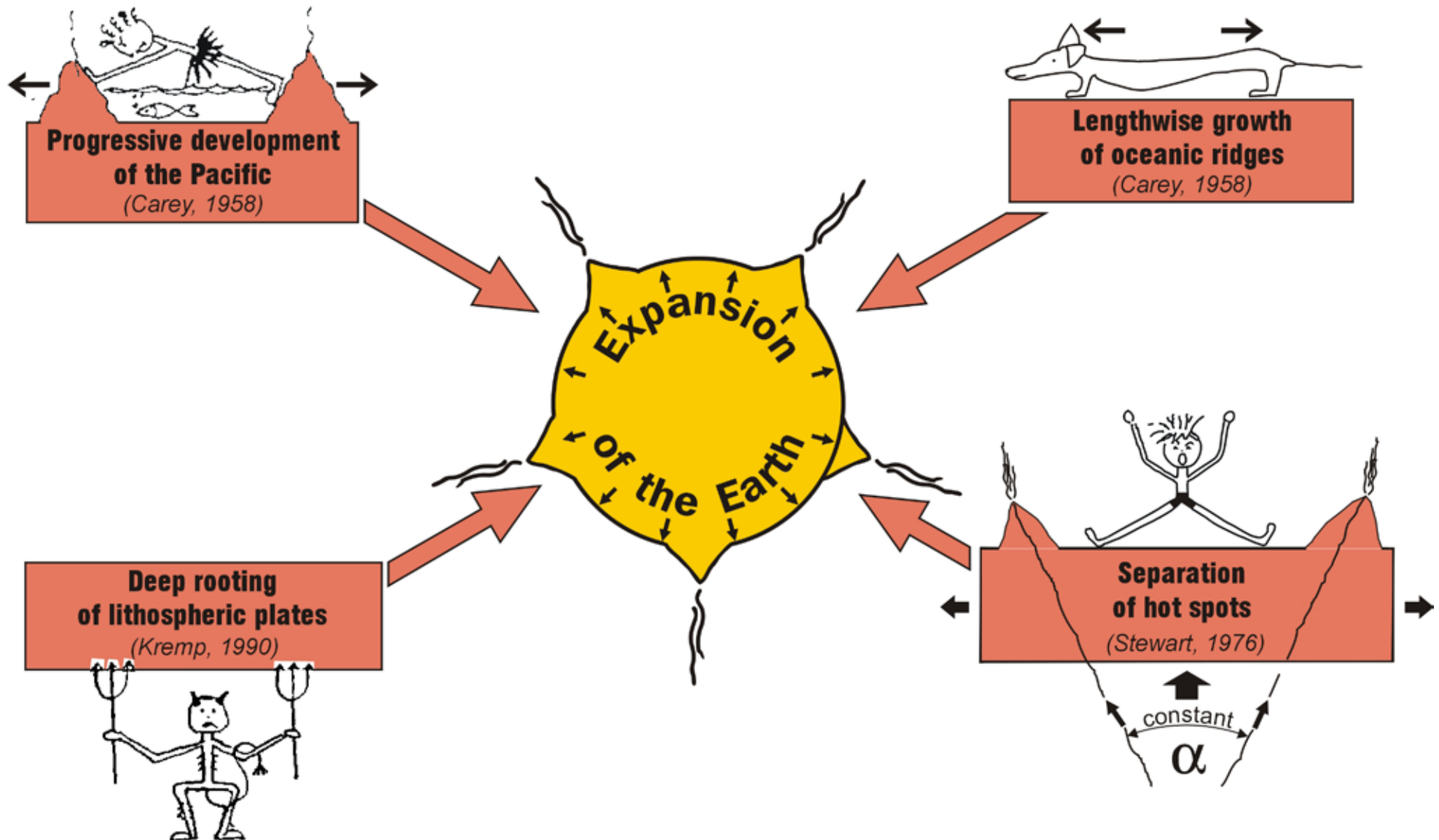
Xavier Le Pichon
"Sea-Floor Spreading and Continental Drift"
Journal of Geophysical Research 1968
Vol. 73/12, p. 3673

So the "plate tectonics" theory is in fact the "hypothesis of the non-expanding Earth"

WHAT IS MORE, THIS HYPOTHESIS HAS NEVER BEEN PROVED!

Whereas there are several proofs of the expansion of the Earth (four of them are presented on the second page), which simultaneously prove the fallacy of the basic assumption of the plate tectonics.

Main proofs of the expansion of the Earth



FOUR MAIN PROOFS OF EARTH EXPANSION

Proof 1.

Progressive development of the Pacific (Carey's test)

The perimeter of Wegener's expanding Pangaea, which is simultaneously the perimeter of Wegener's shrinking Pacific (Panthalassa) has crossed the great circle on the Earth (Fig.1a and b). Continents along the perimeter of Pangaea should move apart from each other, before reaching the great circle, after which they should move closer to each other (Fig. 1b).

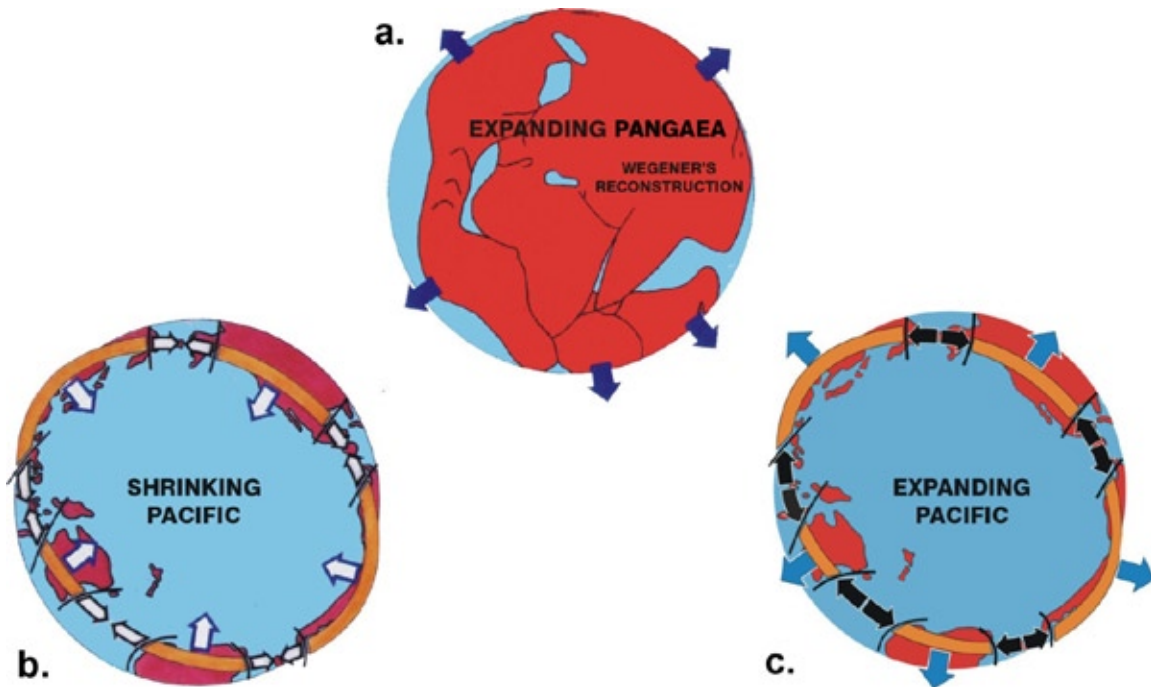


Fig. 1. Carey's test. Explanation in text

Carey (1958) decided to check this dependency analyzing development of the five gaps between continents bordering the Pacific. They are:

1. Australian-Antarctic gap
2. Antarctic-South American gap
3. Central American gap
4. Arctic gap
5. Asian-Australian gap

It appeared that all the gaps are growing (Fig. 1c) instead of shrinking. It means that the perimeter of the Pacific is growing and thus its surface area too. If the Pacific is expanding and its complementary surface area (that is Pangaea) is expanding too, it means that the whole Earth is expanding. The reasoning is independent from what is going on in the Pacific's interior. For instance, whether there is so called subduction or not.

The plate tectonics assumes shrinkage of the Asian-Australian gap in spite of the evidence of tearing away of the Sunda Islands and Philippine Islands from Asia. Similarly, plate tectonics assumes shrinkage in the Arctic gaps in spite of the evident moving apart of Alaska and North-East Asia. In order to avoid these controversies, the enlargement of the Pacific can be demonstrated by the growth of the first three gaps

(Fig. 2) which is accepted in plate tectonics. It is so called “Carey’s test strengthened” (Koziar, 1993; www.wrocegeolab.pl/Pacific).

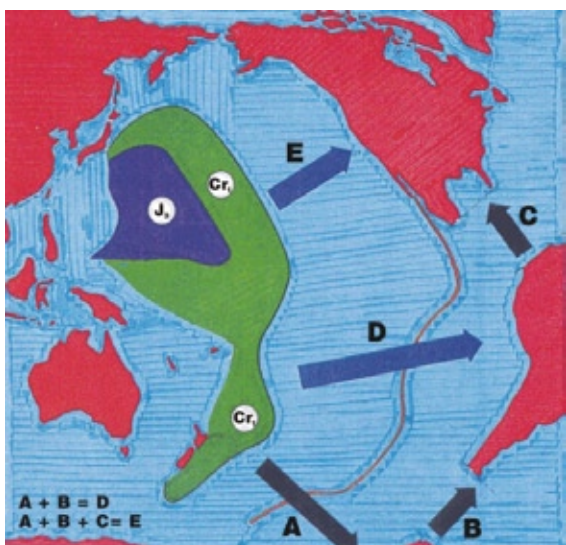


Fig. 2. Carey’s test strengthened.
Explanation in text



Fig. 3. Carey’s test simplified.
Explanation in text

The line of the Pacific perimeter from Fig. 1c can be shifted into the gaps between surrounding continents until it reaches the great circle marked by 60°W and 120°E meridians (Fig. 3). In this way the balancing of the of Pangaea’s and Pacific’s increments and their positive sum comes down directly to the growth of the Earth’s perimeter. It is so called “Carey’s test simplified” (Koziar, 1993). The above great circle can be called “Carey’s perimeter”.

Proof 2.

Lengthening of oceanic ridges (plate borders)



Carey (1958) also noted that the oceanic ridges copy in enlargement the shape of the neighboring continents. Thus they are growing longer as well as spreading (the latter was discovered by Carey and reported in the same paper). The relation is well shown along the west coast of Africa (Fig. 4).

The segment of the Mid-Atlantic Ridge, presented on the figure, once fitted exactly the west coast of Africa (and the east coast of South America) as an initial rift in the very beginnings of partition of the Pangaea. Now it is much longer.

The longitudinal growth and stretching of oceanic ridges is also obvious from the dense system of perpendicular tension fissures (Fig. 4). Many of them are not transform faults and have a pure tensional character.

Crosswise growth of lithosphere on oceanic ridges (spreading) and their lengthening, record isotropic stretching of their basement (mantle) and thus the expansion of the Earth.

Fig. 4. Longitudinal growth of the Mid-Atlantic Ridge

Proof 3. Separation of hot spots

Tuzo Wilson (1963) discovered the hot spots and mantle plumes placed beneath them. The mantle plumes appeared to be placed permanently in the Earth mantle (which – by the way – excludes hypothetical convection currents) and thus they can generate volcanic chains. It is obvious on the expanding Earth (Koziar, 1994; www.wrocgeolab.pl/plates.pdf) and Fig. 5.

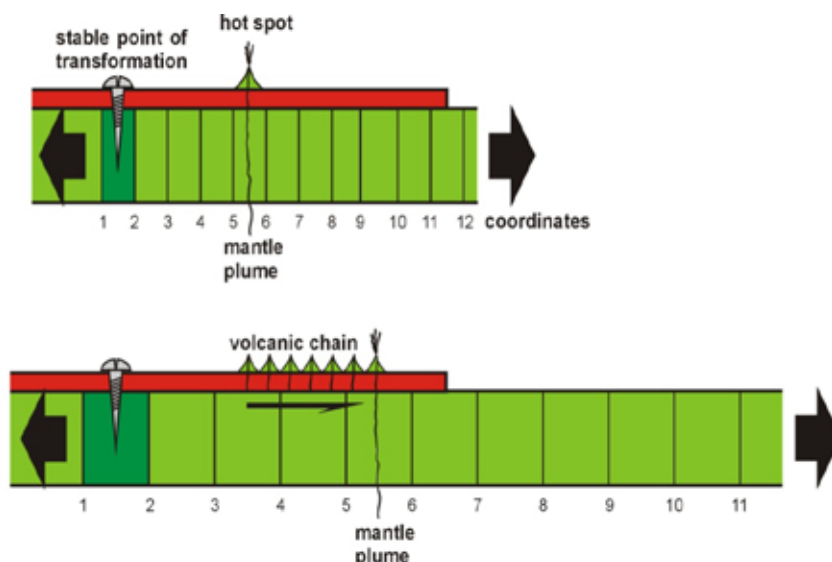


Fig. 5. Mantle plume, hot spot and volcanic chain on the expanding Earth

It had appeared also that plume's outcrops, that is hot spots, are moving apart from each other. It was noticed on the Mid-Atlantic Ridge by Burke et al. (1973). But the authors did not draw a proper conclusion from this fact. It was done by Stewart (1976) who demonstrated that all hot spots are moving apart from each other. The author even calculated the size of this movement for subsequent time intervals.

The separation of hot spots is tantamount to the expansion of the Earth. The dependence can be illustrated on an inflating balloon with marked spots (Fig. 6).

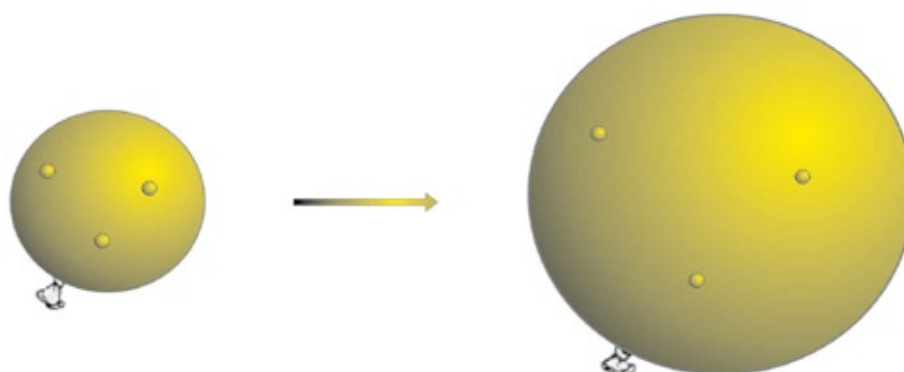


Fig . 6. Moving apart of spots while preserving their stable position relative to their basement

The spots stay in place while simultaneously are moving apart. The solution to this paradox, unsolvable on the non-expanding Earth, can be also demonstrated on a cross-section showing mantle plumes. (Fig. 7).

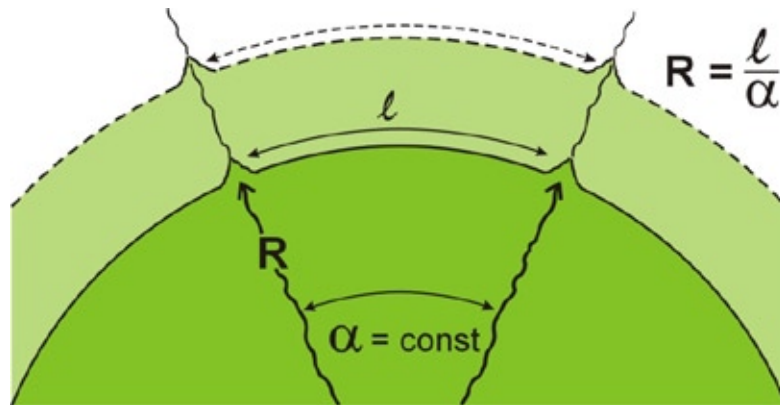


Fig. 7. Growing arc distance (l), at the constant central angle (α) between mantle plumes, indicates expansion of the Earth

The angle (α) between mantle plumes is constant, while arc distance (l) between their hot spots is growing. It means the growth of the Earth radius (R).

Proof 4.

Deep rooting of the lithospheric plates

In 1984 the first paper was published, based on seismic tomography (Woodhouse and Dziewoński, 1984), documenting the deep rooting of lithospheric plates. The roots are built from more rigid matter of the upper mantle and reach the lower part of the latter. In the following years many analogous papers were published which recorded beyond all doubt the existence of such roots. They are beneath all continents (the central, oldest part of plates with continents) as well as beneath the oldest part of the Pacific plate which is purely oceanic.

In the published papers the roots are presented on maps as well as on cross-sections.

Below the map of such roots is presented at the depth of 300 km (Fig. 8).



Fig. 8. Roots of the lithospheric plates at the depth of 300 km. Explanation in text

The green area is a region of positive decline of the velocity of seismic waves from their mean global density at this depth. In other words, the green area is the region of more rigid mantle than in the white area. The map is compiled by me from two papers (Zhang and Tanimoto, 1993; Su et al. 1994).

The deep rooting of plates proves their autochthonous position relative to the mantle and excludes horizontal, one-directional motion (drift) against their basement assumed by Wegener and plate tectonics. On the other hand the plates are moving apart which is recorded by the spreading of the ocean floor. Again

it shows expansion of the Earth. It was pointed out for the first time by Kremp (1990). The reasoning is identical as in the case of mantle plumes and hot spots but this time the considered structures are incomparably bigger.

It must be added for accuracy that only the very central part of the plate is stable relative to the mantle and the latter moves radially towards margins of the plate (see Fig. 5). So the displacement of mantle plumes relative to plates is possible and thus the generation of volcanic chains.

A good model of plates staying in place and simultaneously moving apart are fragments of bark torn on the growing trunk of a tree (Fig. 9).

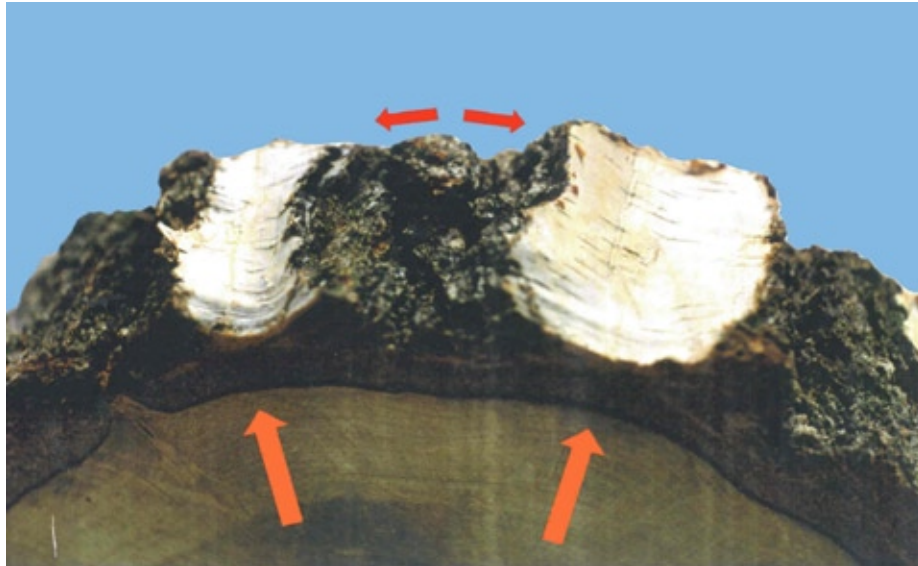


Fig. 9. The tearing of bark on the growing trunk of a tree is a good model of the tearing of lithosphere on the expanding Earth

It should be mentioned that the deep rooting of the lithospheric plates also excludes the hypothesis of convection currents in the Earth mantle.

* * *

For ancient Greeks three independent proofs of spherical shape of the Earth were enough to accept that our globe is a sphere. Above, four independent proof of the expansion of the Earth are presented¹. Below, James Maxlow's reconstruction of the expanding Earth (1995, 2005) is shown (Fig. 10).

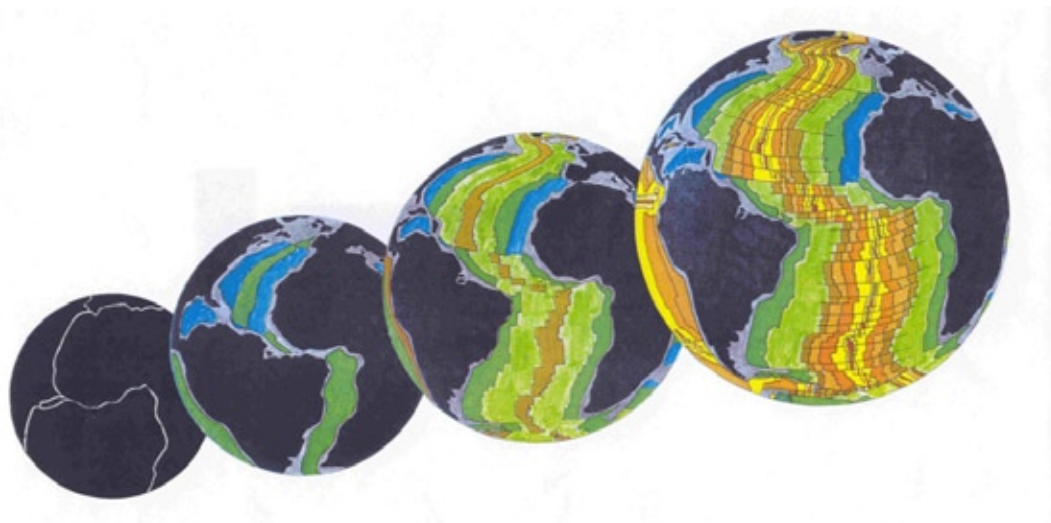


Fig. 10. James Maxlow's reconstruction of the expanding Earth elaborated graphically by the present author

¹ These two sentences are added to the present translated text.

References

- Burke, K., Kidd, W.S.W., Wilson, J.T., 1973. Relative and latitudinal motion of Atlantic hot spots. *Nature*, 245, p. 133–137.
- Carey, S.W., 1958. The tectonics approach to continental drift. A Symposium, Geology Department Univ. Tasmania, Hobart, p. 177-355.
- Heezen, B.C., 1960. The rift in the ocean floor, *Scientific American* 203, 4, p. 99-110.
- Koziar, J., 1993. Progressive development of the Pacific. In: J. Skoczylas (ed). Lecture summaries. vol. II. The Polish Geological Society - Poznań Branch and the Institute of Geology of the Adam Mickiewicz University in Poznań, Poznań, p. 45-56
(in Polish, now accessible in English www.wrocgeolab.pl/Pacific.pdf).
- Koziar, J., 1993. Rozwój Pacyfiku i jego znaczenie dla współczesnej geotektoniki. PTG Oddz. Poznański, Streszczenia referatów 1991–92, IGU AM Poznań 1993, p. 45–56; www.wrocgeolab.pl/Pacific.pdf
- Koziar, J., 1994. Principles of plate movements on the expanding earth. In: F. Salleri, L.M. Barone eds., *Proceedings of the International Conference: Frontiers of Fundamental Physics*, Olympia, Greece, September 27–30, 1993, Plenum Press, New York, p. 301–307; www.wrocgeolab.pl/plates.pdf
- Kremp, G., 1990. Paleogeography of the last two cycles of Earth expansion. *Current Perspectives in Palynological Research. Silver Jubilee Commemoration Volume of the Journal of Palynology 1990–91*, p. 231–260.
- Maxlow, J., 1995. *Global Expansion Tectonics: the geological implications on an expanding Earth*, (unpublished thesis), Curtin University of Technology, Perth, Western Australia.
- Maxlow, J., 2005. *Terra non Firma Earth. Plate tectonics is a Myth*. “Wind”, Wrocław – Poland. 155 p. (added to the present text).
- Stewart, J.C.F., 1976. Mantle plume separation and the expanding Earth. *Geophys. J.R. Astr. Soc.*, 1976(46), p. 505–511.
- Su, W., Woodward, R.L. and Dziewoński, A.M., 1994 Degree 12 model of shear velocity heterogeneity in the mantle. *J. Geophys. Res.* 99(4), p. 6945–6980.
- Wilson, T., 1963. A possible origin of the Hawaiian Islands. *Canadian J. Phys.*, 41, p. 863–870.
- Woodhouse, J.H. and Dziewoński, A.M., 1984. Mapping the Upper Mantle: Three-Dimensional Modeling of Earth Structure by Inversion of Seismic Waveforms. *J. Geophys. Res.*, 89(7), p. 5953–5986.
- Zhang, Y.S. and Tanimoto, T., 1993. High-Resolution Global Upper Mantle Structure and Plate Tectonics. *J. Geophys. Res.* 98(6), p. 9793–9823.