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Changing the Location of the Earth's Core, the main Force operating that Changes the Magnetic Field of the Earths

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Abstract: *The core of the earth has oscillations which are flexible, and which are affected by pressure that can change its every direction, particularly to that of the two poles. In its intermittent oscillations towards north and south, the core constitutes an additional factor in the earth's equilibrium, and this phenomenon also causes alternating changes in the magnetic field towards north and south.*

Keywords*: Tectonics; Magnetic field; Change of the magnetic axis; Earth core*

I. the Global Forces That are Influencing Movement of the Earth's Core are Changing the Magnetic Fields, Causing Their Reversal

According to the accepted assumption, in the earth core's mantle a magnetic phenomenon is created that acts as a dynamo. The central part of the earth's core is solid, and its mantle is in a viscose state (Herndon, J. M., 1996-01-23).

The magnetic field was created by the flow of convection currents that are produced by iron material found in the mantle of the earth's core by a natural process called geodynamic (Buffett, A. 2009). The magnetic field of the earth changes from the north pole to the south pole in an extreme form in a changing space of time between 0.1 and 50 million years. The last change in the magnetic field occurred before 7800,000 years ago (Tauxe 1998). The northern and southern magnetic axes are not positioned exactly one opposite the other and they can also move separately. The northern magnetic field can move up to about 40 km a year. It moved northwestward from 1831 to 2001 to a distance of about 600 km, (Phillips, T. 2003).

II. Discussion

Flexibility of the earth's core and changes in the earth's axis of rotation in a continuous manner exist since the beginnings of Earth's crystallization and, relating to the law of isostatics, are the main reasons for the stability and of the earth remaining in the form of a relatively round ball (Geoid). As a result of the core's intermittent fluctuation (its center of gravity) to the northern and southern parts of the earth, the magnetic field intermittently changes from north to south.

Since the mantle of the core is built of fluid - viscose material (Jordan, T.H., 1979), this matter enables balancing the phenomena of changes and pressures in the geological layers of the earth's mantle and crust. The core can be pressured in order to balance changes in the earth. It is mainly pressured towards the northern half in the direction of the north pole or towards the southern half in the direction of the south pole in order to balance the equilibrium of the earth, in accord with the law of isostatics.

Due to the flexibility of the core, it has the capability to respond relatively rapidly to the significant changes occurring on top of the earth's crust or mantle, opposite the locations that change the general equilibrium in relation to the center of the earth. Assumedly. the core, which puts pressures alternately in the north and south directions, constitutes a factor in the equilibrium of the earth. This phenomenon also causes a change in the magnetic field of the

earth. The assumption is that this movement has been ongoing in a continuous form since the stage of the globe's creation in a relatively rounded shape (Geoid). Since the direction of the earth's rotation is perpendicular to the earth's axis, and moves from west to east, it is estimated that the change in the location of the core, or part of the core's mantle changes in its movement in order to balance the equilibrium of the earth mainly perpendicularly in the direction of the rotation of the earth, towards the north and south poles.

The movement north and south is not equal in consecutive time periods (Fig. 1) due to different phenomena existing in the earth, such as the tectonic activity in the creation of mountains and shifting of continents (Plate tectonics), where one overlaps the other, and/or a change in the location of the axis of the earth's rotation (Greitzer, Jun.; 10, Sep., 2020), etc. These phenomena balance each other in part of the earth's crust or mantle in accordance with the isostatic law, but mainly with the help of the core, due to its sensitivity and flexibility its influence is fast and efficient. The assumption is that the center of the earth to which the isostatic law relates is found in the core's center opposite the equator. When the core's center moves north of the equator the magnetic field also moves north (or to the opposite direction); or reversely, when the core's center moves south of the equator, the magnetic field also moves south (or to the opposite direction).

When speaking about the shift of the core, what is meant is the shift of the center of the gravity of the core, so that the shift could be also a penetration of the fluid - viscose material of the core in a specific direction of the earth. The shift could also be a general shift of the core thus, that in any manner it will affect the equilibrium of the earth due to changes occurring in the crust and mantle of the earth.

A change in direction in the course 5.28 million years of the magnetic field of the earth in the late Cenozoic was studied (Tauxe 1998). What was found by Y. Greitzer is that the time of the change that accumulated between the magnetic field in the direction of the present northern axis and that of the magnetic field oriented in the opposite direction was equal. Thus for 2.62 million years the magnetic field has been oriented in the direction of the present north axis, and for 2.66 million years the magnetic field was oriented in the opposite direction, in the direction of the present southern axis (Fig. 1). The relatively small difference between the two evidently stems from a section that was measured arbitrarily and does not exactly represent the beginning of the section measured that was determined 5.28 million years ago.

III. How the Current Manuscript Advances Research on Previous Work

According to the accepted theories, which are mainly based on calculations from models that foresee that the direction of the flow in the outer core is chaotic, disturbances form spontaneously that cause instability in the magnetic field. Sometimes these disturbances are large enough to change the polarity of the field.

According to the present research, the main factor causing change in the magnetic field is the movement of the continents that change the isostatic balance of the earth; the main power that compensates and returns the isostatic balance is the flexible fluid core mantle which by its movement gives the core the possibility to return to isostatic balance.

In addition, it was found that despite the extreme changing spaces in time, in the course of a long period of about 5 million, the space in time between the change in the north and south poles was equal (Fig. 1)

IV. Conclusion

As a result of the oscillations of the core (its center of gravity) directed to the northern part of the earth and alternately to the southern part of the earth, the magnetic field changes from north to south, reversing in accordance. A change in direction in the course 5.28 million years of the magnetic field of the earth in the late Cenozoic indicates that the time of the change that accumulated between the magnetic field in the direction of the present northern axis and thatof the magnetic field oriented in the opposite direction was equal

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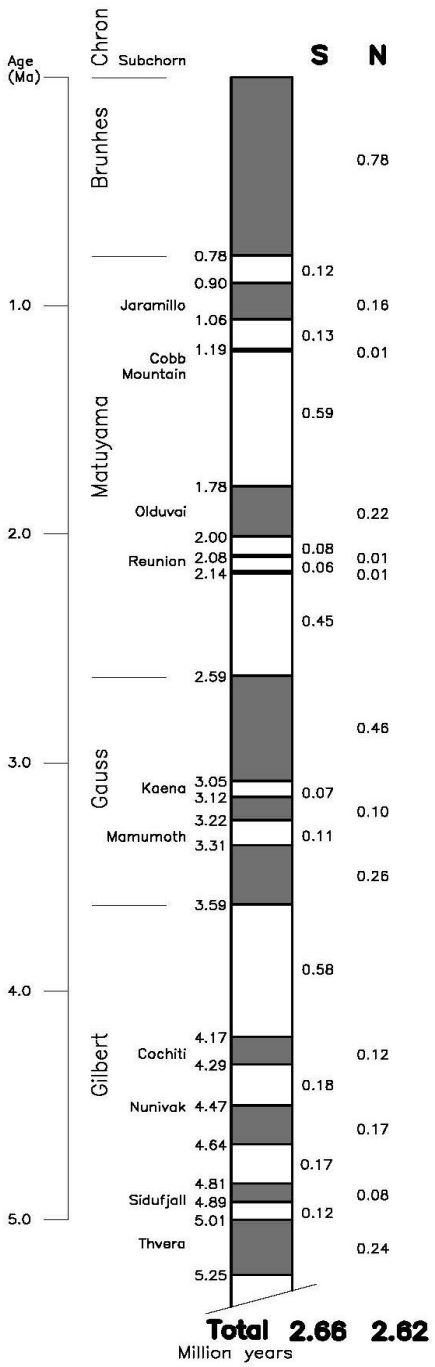

Figure 1. Geomagnetic polarity during the late Cenozoic Era in the course of 5.25 million years. Dark areas denote periods where the polarity matches today's polarity, light areas denote periods where that polarity is reversed. By Y. Greitzer according to Tauxe 1998