<u>PLATE TECTONICS – REVISED</u>

The reader should not misconstrue the nature of this paper. There will be no attempt to *eliminate* the theory of continental drift from the theoretical framework of geology. The precise nature of continental drift will be revised. Regrettably, since the revision will be of an unorthodox nature, it is inevitable that there will be extreme opposition to what will be postulated.

As the reader is presumably aware, continental drift was initially proposed by Alfred Wegener in 1912. With time, a myriad of objections were raised in opposition to the theory. However, with the elapse of time, a significant amount of diverse evidence was accumulated to compel the belief that the theory was accurate. This paper will strive to achieve a mid-point between these two diverging views. On the one hand, the initial objections may have been valid. Conversely, given the evidence that has been subsequently procured, the broad concept of continental drift should not be dismissed. It's a question of developing a more refined theory which will accommodate the two opposing views.

Firstly, what would entail potential opposition to the theory of continental drift? The lithosphere is solid in nature. For a significant level of movement to be in effect, there must be a sufficient amount of free space to facilitate said movement. What this (seemingly) nebulous statement means is the following. If a designated area is comprised of *nothing* but solids, how will there be any movement *unless* there is some free space in this area to enable free movement? An analogy will serve to illustrate. Let's assume that we have a closed box which is ten cubic metres in volume. We then fill this box with various solids in which the combined volume equals ten cubic metres. If we shake this box, will there be any movement of the objects within the box? Of course not. This is for the simple reason that there is no internal freedom/space in which the objects can move. Furthermore, current theory dictates that the lithosphere is entirely contiguous. Although it is entirely possible for a contiguous body to break apart, theory dictates that the lithosphere *remained* completely contiguous via the entire process of continental drift. How could the continents have drifted to such a substantial extent while simultaneously maintaining complete cohesiveness?

What was just outlined, raises another point. Regardless of whether one supports the concept of Pangaea or Laurasia/Gondwanaland, our current continents were once part of a unified whole (or two entities in the case of Laurasia/Gondwanaland). When continental drift was initiated, what pre-requisites would be necessary in order to ensure continental drift? It is unlikely that the initial land mass(es) separated in increments. The primary rationale for this statement is as follows. During the development of the early lithosphere, a much higher percentage of it would still have been molten (in relation to the situation today) prior to solidifying into a solid mass. If there was separation at an incremental rate, there is a reasonable probability that the molten material would have filled any vacant spaces and negated further separation. However, if the masses separated at a significant rate, then they would indeed separate without molten material filling in the vacant spaces and negating continental drift.

In science, when anomalies are presented to a theory, we can either view them as anomalies which will (hopefully) be explained with time, or we can claim that the theory has been invalidated. The latter option has not been chosen as a result of a diverse range of evidence which functions in the capacity of confirmatory evidence of continental drift. As previously stated, this paper will not attempt to overthrow the concept of continental drift. What this paper will strive to achieve is the reconciliation between the theory of continental drift and the anomalies of a lack of free space to enable movement, a (seemingly) contiguous lithosphere, and molten material filling the vacant spaces via a minimal rate of separation.

In order to address these anomalies, we will return to the formation of the earth. However, since the previous paper addressed this, what will be addressed here is the evolution of the earth's formation. Once the (atmospheric) gaseous oxygen and hydrogen had cooled to form the earth's hydrosphere, how did the lithosphere develop (that is in a manner which explains the previously outlined anomalies)?

One empirical fact to guide us in the development of this theory pertains to the water table. Whatever theory is formulated to explain the development of the lithosphere must explain the existence of the water table deep within the lithosphere. This paper will postulate that the land masses which eventually became the continents were formed subsequent to the establishment of the hydrosphere. (For the sole purpose of consistency, I will adopt the convention of a singular initial land mass. However, this is *exclusively* for the purpose of consistency as I do not deny the possibility of Laurasia/Gondwanaland.) This initial land mass was at the bottom of the ocean. However, since we are contending with the earth's early history, formation would not have been complete. Although it would have been sufficiently solid to maintain cohesiveness, a certain proportion of it would still have been molten. "Something" caused this mass to be "dislodged" from (what was then) the ocean floor and ascend to the surface. For the cohesiveness of this theory, it is not absolutely necessary to state the exact nature of this "something". Although it is not absolutely necessary, there's no harm in postulating what it could have been.

One logical possibility is that there was an inordinate "upswelling" of the ocean. For example, a meteor may have crashed into the ocean and induced this violence. Or, there may have been an energetic upheaval from within the core of the earth Regardless of the source, if the ocean was in a tumultuous state of turbulence, then a substantial mass of solid material may have been dislodged from the ocean floor. Since a certain proportion of it would still have been molten, its specific density would have been lighter than water, thereby enabling it to rise. As it rose through the oceans, water would have been absorbed within the internal structure of this mass. The reader would immediately oppose this hypothesis. The water table is comprised of fresh water, not salt water. There are two possibilities to this anomaly. Firstly, whatever it is that induced the ocean's salinity did not take effect until a subsequent time in the earth's evolution. A second possibility pertains to the flow of the Arctic glaciers and various epochs in the earth's history during which ice ages prevailed. When these glaciers retreated, a certain portion of them may have forged into the earth and melted there. If this percentage of fresh water was significantly higher than the saline content of the initial water that was ensconced during the ascendancy of this land mass, this would explain why the water table is comprised of fresh water.

Once this land mass had reached the ocean's surface, there would have been a cooling phase over a period of years (or decades, possibly, centuries) until this mass had become predominantly solid in nature. However, in order to explain various subsequent geological processes, it simply could not have solidified in its entirety. Within the interior, there would not have been solidification, but the maintenance of molten material and internal energy. It is at this stage in the paper that the formation of the current continental land masses, and the revision to the theory of plate tectonics can be implemented.

One of the primary differentiating factors between what has been delineated here and current theories of continental drift is the contiguous nature of this land mass. Current theories dictate that today's continents *remain* connected at the continental slope. This theory will contend that the continents are completely separate. To briefly recapitulate, how could the continents have reached their present positions if they were completely contiguous (namely at the continental slope), and, there would have to be rapid separation in order to negate the filling up of vacant space by molten material.

At some stage in the past, the internal energy within this mass induced said rapid separation of the continental plates. It was sufficiently rapid that the plates completely broke apart from each other and proceeded to drift upon the hydrosphere. This drift would have continued until the continents reached their contemporary positions.

Although I have no doubt that opposition to this theory will be extreme (new and radical concepts are always opposed in *any* field of human endeavour), I can only contend with opposition that I can anticipate. I am presuming that one area of opposition would be that the specific density of the continental plates would be greater than the specific density of water. Naturally, this would induce them to sink once they cooled from a molten state to a sufficiently solidified state. In the presentation of this paper, I have provided two possible answers to questions which may potentially arise. This will now be implemented yet again.

The first response against this critique is elucidated via the following. The reader is fully cognizant of the fact that various islands have "arisen"/formed from the oceans as a result of volcanic activity. However, over a period of centuries, they have not sunk back into the ocean. The reader's counter claim to this concept is that the mass of islands cannot be compared to the masses of the continental plates. Although the veracity of this is not being questioned, there is more to be stated about the continental plates.

To what extent did the continental plates solidify when making the transition from a molten state to a solidified state? Within the internal portions of the continental plates, is it predominantly solid, or is there a sufficient amount of free space/energy/molten material to prevent the continental plates from sinking? If this is the case, then this would prevent the continental plates from sinking.

The reader's natural claim to this would be, what if there *isn't* a sufficient amount of free space within the interiors of the plates? In science, we must opt for the theory which provides the strongest level of explanatory power and possesses the fewest flaws and inconsistencies. Quantitatively, there may not be an inordinate number of anomalies in relation to the *current* theories of continental drift. However, qualitatively, the previously presented anomalies should not be taken lightly. Again, it is these anomalies which caused the original theory to be brought into a state of disrepute. However, with the presentation of this new theory, these anomalies are (hopefully) ameliorated.

There is as second response to the previously stated critique. There may have been previous continental plates which *did* sink back into the ocean, yet we would have no contemporary evidence to support this. A more appropriate statement as it pertains to the latter is that the evidence to support this contention is minimal, yet existent. What this nebulous statement means is the following.

In biology/anthropology nobody questions the basic premise that Africa was the cradle of mankind. Mankind first evolved there and subsequently migrated to other parts of the world. However, how did the aborigines of Australia reach this continental island? The belief is that they travelled there by boat. This is virtually impossible for a myriad of reasons. Firstly, how could they have carried a sufficient amount of water to sustain them for this lengthy journey? They couldn't have utilized sea water as water with a high salt content is lethal via a condition called hypernatremia. Even if in this distant past the sea did not possess a high salt content (thereby rendering it drinkable) what about the supply of food? In their day, why would these people even consider that there would be land elsewhere? They would have believed that any type of extensive travel would have culminated in their "falling off the edge of the earth". The idea of aborigines travelling to Australia from any other area via boat is preposterous. Yet somehow they ended up there. The question is how?

At this stage, I am going to shamelessly plagiarize from Sir Arthur Conan Doyle. Generally speaking, I have been fundamentally opposed to one precept that he expressed via Sherlock Holmes. However, in this particular context, it seems entirely appropriate. Rule out that which is impossible, and whatever is left, however improbable, must be the correct conclusion.

The above leaves only one possibility. Australia, South East Asia, and the other "intermediary" islands of the Pacific ocean must have been connected by some type of land mass in the distant past. It may have been an "intermediate" continent, or it may have been nothing more than a series of isthmuses. A series of isthmuses seems more likely as it seems only a small handful of Aborigines had the courage to make the journey. If the amount of land they could see was minimal (at least in relation to a continent) this may have been a deterrent to many making the journey. If we accept the hypothesis that isthmuses once connected these designated areas, then that means that they sunk at some point in the distant past. If this was the case, then continental masses *did* sink if they solidified to a sufficient extent. This would be another possibility in regards to the reader's criticism of this theory.

Although this paper has not eliminated the theory of continental drift, it has striven to reconcile the confirmatory evidence of continental drift, and the initial objections to the theory such as a lack of free space to enable movement, a (seemingly) contiguous lithosphere, and molten material filling the vacant spaces via a minimal rate of separation.