Found? The lost continents of Atlantis and Lemuria

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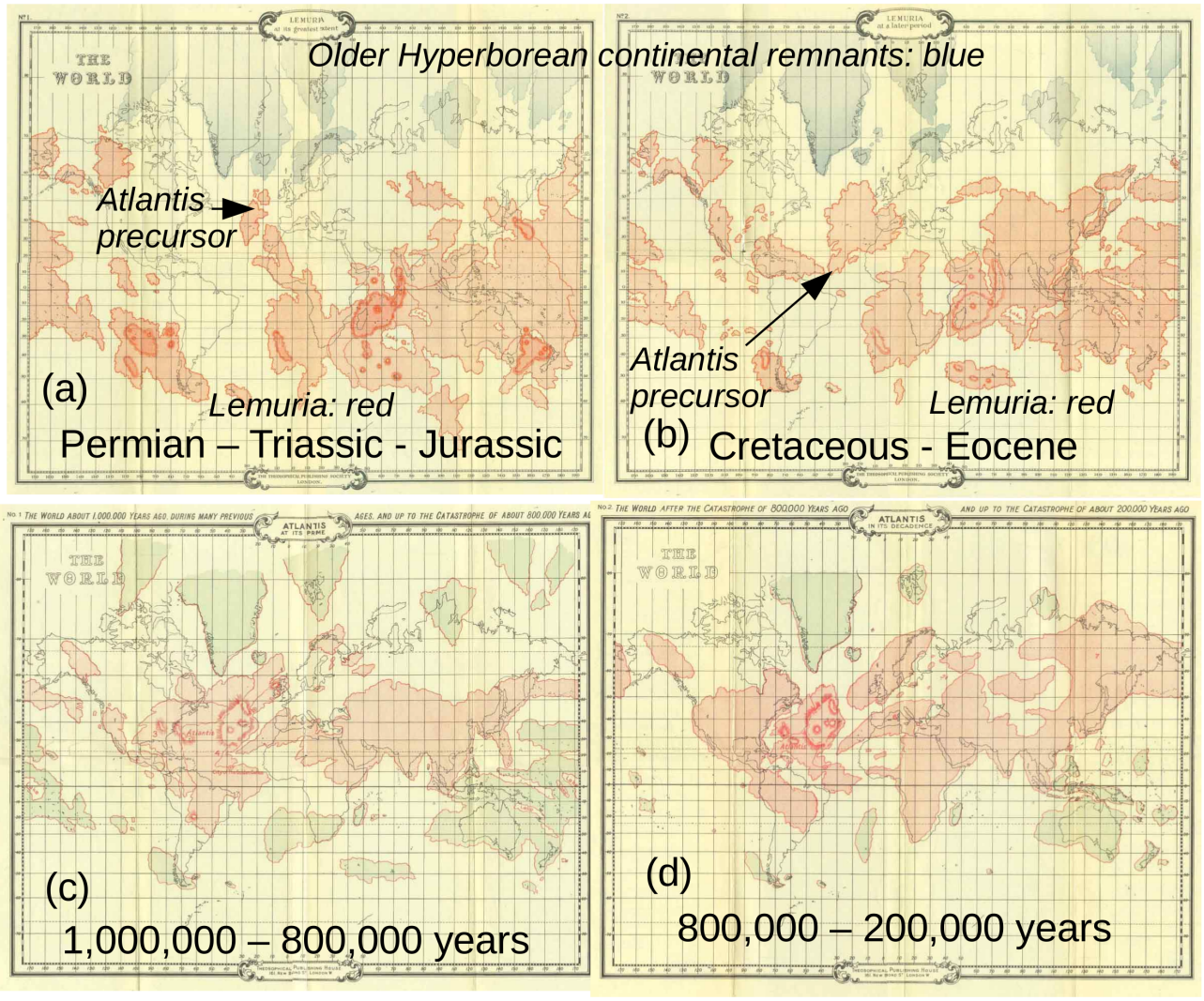
Summary
During the late 1800's and early 1900's following Plato original ideas, the lost continents of Atlantis and Lemuria were envisaged by Steiner and Scott-Elliot to have lain in the Atlantic and Indian oceans, respectively. These lost continents appear to be substantiated by modern geological research: (i) the Atlantic Ocean was formed by Mesozoic and Cenozoic motion of the plates away from a central ridge, the mid-Atlantic Ridge, which dispersed fragments of the super-continent, Pangea (≡ Atlantis): and (ii) a slab, the southeast Indian Slab (≡ Lemuria) that lies in the mantle beneath the Indian Ocean, was subducted during the Mesozoic.

Theosophical Knowledge
In 1904 and 1911, Rudolf Steiner (1904, 1911) wrote about Atlantis and Lemuria based on Theosophical spiritual knowledge stating that he could not publish any maps because they were part of the secret Âkâshic Records (Blavasky, 1888). However, Steiner (1912) was quite clear what he meant by Atlantis when he said "I*n this primeval Atlantean epoch the surface of the earth-globe, to-day covered by the Atlantic ocean, was a mighty continent; while where Europe, Asia and Africa are now situated, scarcely any continents were as yet formed. Thus the solid matter, the substance of the earth has been transformed by its inner motion. The earth-planet is in a continual state of inner motion"*. Furthermore Steiner (1904, 1911) writes, "*As to the sources of the information to be given here, I am for the present obliged to be silent. He who knows anything at all about such sources will understand why this must be so; but circumstances may arise which will make it possible to speak on this subject very shortly. How much of the knowledge lying hidden in the womb of the Theosophical movement may gradually be communicated, depends altogether on the attitude of our contemporaries"*. Steiner (1904, 1911) refers to a contemporary theosophist, Scott-Elliot, who published articles and maps of Atlantis and Lemuria (Scott-Elliot, 1896, 1904), and credits the source of the Atlantean maps as the mighty "*adepts in the days of Atlantis*", but he was uncertain who made the Lemurian maps suggesing: "*some of the divine instructors in the days when Lemuria still existed, or in still later days of the Atlantean epoch*". Scott-Elliot (1896) suggests that Atlantis was extant during the Tertiary (Fig. 1c-d) extending from the Atlantic Ocean into surrounding continents, South and North America, Africa, Europe and southern Asia (Fig. 1c), becoming isolated in the Atlantic Ocean at ca. 800,000 years (Fig. 1d). According to Scott-Elliot (1896, 1904), Atlantean remnants, called Ruta and Daitya, survived into the Pliocene (Fig. 1e), and lasted into the Quaternary as the island of Poseidonis in the Atlantic Ocean west of Iberia (Fig. 1f). A precursor of Atlantis appears on the Permian-Triassic-Jurassic map (Fig. 1a). Scott-Elliot (1896) states that mapping of the ocean floor showed an "*immense bank or ridge of great elevation is shown to exist in mid-Atlantic. The ridge rises almost sheer about 9,000 feet from the ocean depths around it, while the Azores, St. Paul, Ascension, and Tristan d'Acunha are the peaks of this land which still remain above water. A line of 3,500 fathoms, or say 21,000 feet, is required to sound the deepest parts of the Atlantic, but the higher parts of the ridge are only a hundred to a few hundred fathoms beneath the sea*". Whereas Scott-Elliot (1896, 1904) provides the physical attributes of Atlantis and Lemuria and the "*outward events of the life of these our Atlantean forefathers"*, Steiner (1904, 1911) writes about "*the soul-life, and of the inner nature of the conditions under which they lived"*. This article focuses on the physical attributes of Atlantis and Lemuria, a necessary prerequisite to examining the inhabitants,Atlanteans and Lemurians.



(c and d): Atlantis (maximum extent: c) and Lemuria remnants
(e and f): Atlantis and Lemuria remnants

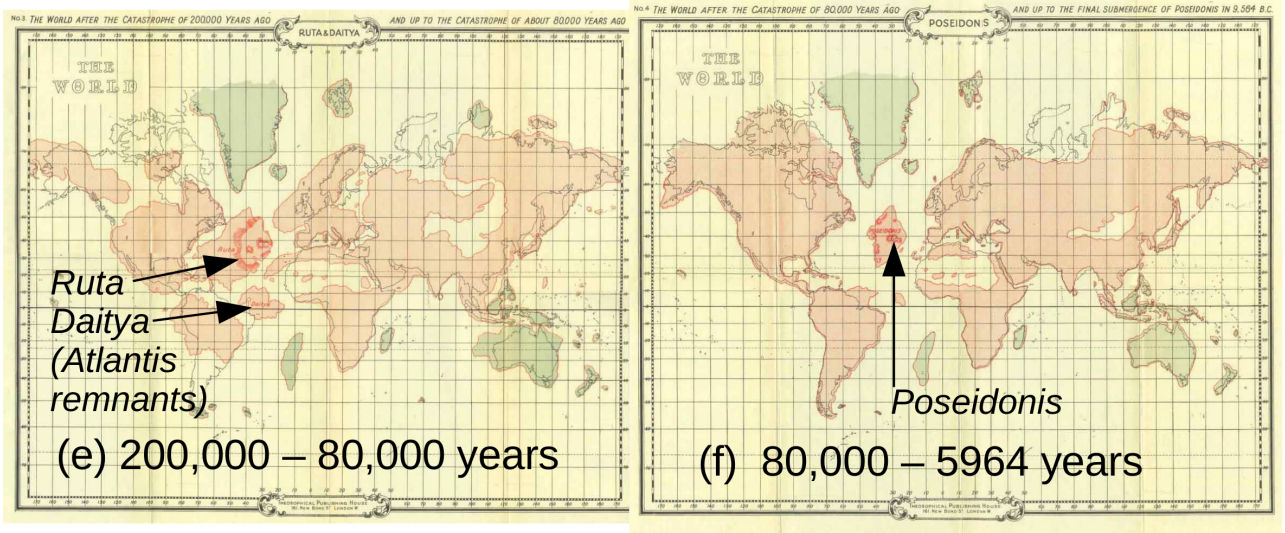


Figure 1. Maps: (a and b) Lemuria and remnants to the preceding Hyperborean continents; and (c-f) Atlantis with remnants of Lemuria based on Âkâshic Records (Scott-Elliot, 1896, 1904).

Time Scale

Initial attempts to place numbers on the various geological epochs used the thickness of strata (Scott-Elliot, 1904), whereas modern geochronology uses radioactive elements, which was in its' infancy in the first quarter of the last century (Fig. 2). Scott-Elliot (1904) preferred to use the geological periods for Lemuria rather than numerical estimates. Such uncertainties meant that Steiner (1910) in his book entitled "An Outline of Occult Science" gives no numerical ages, and later, uses the Platonic or Cosmic Year instead, i.e. the time taken for the spring equinoxes to make a complete cycle through the zodiac ≈ 25920 years. Using the Cosmic Year, Steiner (1921) estimated that Atlantis was extant from 191,440 to 10,000 years ago, and was preceded by Lemuria. Subsequently, Poppelbaum (1931) used zoology to interpret Steiner's indications and equated the Atlantean with Tertiary, Lemurian with Mesozoic, Hyperborean with Palaeozoic, and Polarian with Precambrian (Fig. 2). Poppelbaums' life (1891–1979) overlapped the latter part of Steiner's life, was an anthroposophist, and was head of the Natural Science section of the Anthroposophical Society. Bosse (2002) presents a different correlation that differs markedly for pre-Atlantean times (Fig. 2). The origin of these concepts has been extensively reviewed by Lubelsky (2013) and Steiner's involvement in Theosophy was summarized by Brandt and Hammer (2013), and so will not be reiterated here.

A similar concept has recently been proposed by Leong (2002), the Galactic Year, which is the time required for the Solar System to orbit once around the centre of the Milky Way Galaxy: estimates for one galactic year range from 225 to 250 million terrestrial years. Unfortunately it is unclear what physical evidence may be related to the Cosmic and Galactic Years. Grant (1996) reviewed radioactivity in the history of the earth from an anthroposophical viewpoint and concluded that "*radioactivity is not an indication of the Earth's old age, but is the material expression of the deeds of the Spiritual Hierarchies that were re-enacted at the beginning of the present stage of Earth development. Radioactivity did not appear late in the Earth's history but is an original property of the Earth that was more intense in the early Earth than it is today*". More recently Ekama (2017a and b) in reviewing methods of age dating concurred with Grant, and concluded that Lemuria was part of Gondwana, (itself part of the Permian supercontinent Pangea), which was thrust beneath Asia during eruption of the Deccan plateau basalts between 67 and 60 million years ago (Sharma, 2015).

Historical Accounts

The concept of Atlantis appears to originate with Plato, who placed it in the Atlantic Ocean (Hackforth, 1944), although most, more recent authors place it in the Mediterranean. Plato stated that Atlantis was a continent larger than Asia and Africa combined, sitting on the western edge of the Mediterranean Sea before the golden age of Greece, which started about 9,000 years ago extending back at least to 12,000 years ago. Steiner (1911) follows Scott-Elliot (1896) in placing Atlantis in and bordering the present Atlantic Ocean, and states that soft-bodied people, the Atlanteans, inhabited it. As such, the Atlanteans would leave no hard fossils other than trace fossils, such as footprints, and no remnants of dwellings would have been preserved because they lived in "*houses ... built of trees with artfully intertwined branches. R*emnants of Atlantean vehicles that "*floated a short distance above the ground travelled at a height lower than that of the mountain ranges of the Atlantean period, and ... had steering mechanisms ...* allowing the vehicles to *rise above these mountain ranges*", have never been found, and so may have been constructed of organic materials (Steiner, 1904, 1911). Both Scott-Elliot (1904) and Steiner (1904, 1911) place Lemuria in the Indian Ocean during the Cretaceous (Fig. 1b) where it was subjected to much volcanic activity, which eventually led to its' demise. Steiner (1911) says that the Lemurian inhabitants lived in caves (not buildings), and had bodies that were soft and plastic as were the rest of the earthly forms.

<table>
<tr><th colspan="3">HISTORICAL TIME SCALES</th><th colspan="3">MODERN TIME SCALE</th><th></th><th></th></tr>
<tr><th>Scott-Elliot, 1904</th><th>Steiner by Poppelbaum, 1931/2014</th><th>Steiner according to Bosse, 2002</th><th>Plate or Continent</th><th>Epoch</th><th>Era/Period</th><th>ICC, Cohen 2013/17</th></tr>
<tr><td>Poseidonis
Ruta/Daitya</td><td></td><td>Post-Atlantis</td><td></td><td>Holocene</td><td rowspan="8">CENOZOIC</td><td>0.0117</td></tr>
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N 1 (9)</td><td></td><td>Upper half of Atlantis</td><td></td><td>Pleistocene</td><td>2.58</td></tr>
<tr><td rowspan="5">ATLANTEAN</td><td>Middle Atlantis</td><td></td><td>Pliocene</td><td>5.3</td></tr>
<tr><td rowspan="4">Lower half of Atlantis</td><td></td><td>Miocene</td><td>23</td></tr>
<tr><td></td><td>Oligocene</td><td>34</td></tr>
<tr><td>Nor Atl</td><td>Eocene</td><td>56</td></tr>
<tr><td>Sou Atl</td><td>Paleocene</td><td>66</td></tr>
<tr><td rowspan="3">L (18)
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PRE-CUR-SORS</td><td rowspan="3">LEMURIAN</td><td rowspan="3">Upper Lemurian</td><td></td><td>Cretaceous</td><td rowspan="2">MESOZOIC</td><td>145</td></tr>
<tr><td>Ctrl Atl</td><td rowspan="3">PANGEA</td><td>Jurassic</td><td>201</td></tr>
<tr><td>Subd SEIS</td><td>Triassic</td><td>252</td></tr>
<tr><td>I
A
N</td><td rowspan="4">HYPER-BOREAN</td><td rowspan="4">Middle Lemurian</td><td rowspan="4">S L E E = M U I R I S A</td><td>Permian</td><td rowspan="5">PALEOZOIC</td><td>299</td></tr>
<tr><td>HYPER-BOREAN (149)</td><td>Carbonif-erous</td><td>360</td></tr>
<tr><td></td><td>Devonian</td><td>419</td></tr>
<tr><td rowspan="2">POLARIAN
(320)</td><td></td><td>Silurian</td><td>444</td></tr>
<tr><td rowspan="3">POLARIAN</td><td></td><td>Ordovician</td><td>485</td></tr>
<tr><td>Early Lemurian</td><td></td><td>Cambrian</td><td>541</td></tr>
<tr><td></td><td>Hyperborean</td><td></td><td>Proterozoic</td><td>PRE-CAMBRIAN</td><td>2500</td></tr>
<tr><td></td><td></td><td>Polarian</td><td></td><td>Archean</td><td></td><td>~4600</td></tr>
</table>

Figure 2. Historical and modern time scales. Historical time scales from Scott-Elliot (1896, 1904), Blavasky (1888), Poppelbaum (1931), and Bosse (2002. Modern time scale from the International Chronostratigraphic Chart (Cohen et al., 2013). Numbers give numerical ages for the immediately underlying boundary in millions of years. Column #1 numbers from Scott-Elliot (1904), numbers in parentheses from Blavasky (1888). Formation of different parts of the Atlantic Ocean: Nor Atl = North Atlantic Ocean, Sou Atl = South Atlantic Ocean, Cntrl Atl = Central Atlantic Ocean.

Pangea

The idea of the supercontinent, Pangea, was elaborated by Wegener (1915, 1920, 1924)(Fig. 3a-e) based on closing the Atlantic Ocean by fitting the continental outlines of the Americas, Africa and Europe to produce Pangea. Wegener (1924) compiled supporting evidence on either side of the Atlantic Ocean, such as, geological (e.g. matching pre-Devonian and Triassic fold belts), identical fossils (e.g. Carboniferous reptiles, mammals, and plants: *Glossopteris*)(Fig. 3f), and correlative climates (e.g. Permo-Carboniferous glacial periods). Such correlations were interpreted in terms of "land bridges" by Schuchert (1928, 1932). Similar reconstructions to those of Wegener were preceded by Snider (1858) (Fig. 4a). It is clear that Steiner would have been aware of these reconstructions, especially as he had Wegeners' book in his library. It is remarkable how closely these early reconstructions match the modern ones (c.f. Müller et al., 2008)(Fig. 4b). Atlantis during its' heyday in the present Atlantic Ocean extended from Iceland to off Brazil overlapping into the eastern Americas and the Mediterranean (Fig. 1c), and its' isolation in the Atlantic Ocean during the succeeding period (Fig. 1d) correlates remarkably closely with Pangea (cf. Fig. 3). Such a correlation is consistent with a remnant of Atlantis persisting in the Atlantic Ocean as Ruta and Daitya (Fig. 1e), and into the Quaternary as Poseidonis (Fig. 1f), which Scott-Elliot identifies as the mid-Atlantic ridge (Scott-Elliot, 1896). Modern scientific research shows that the mid-Atlantic ridge occurs where two lithospheric plates are separating from one another, and that the islands represent localities where mantle plumes have risen. The location of the Permian-Jurassic precursor to Atlantis in the central Atlantic Ocean is also consistent with Pangea in time and space (Figs. 1a and 2). However, according to Scott-Elliot (1896), Atlantis was mainly extant in the Tertiary ± Quaternary (1 Ma to 800,000 years), whereas Pangea was in existence from the Late Carboniferous (ca. 335 Ma) to the Middle Jurassic (ca. 180 Ma)(cf. Figs. 1 and 2). The contrast in ages is not surprising given the difficulties in estimating numerical ages for periods before modern geochronological methods.

Discovery of the conjugate magnetic stripes in the floor of the Atlantic Ocean (Matthews et al., 2016)(Fig. 5), and has led to an accurate picture of Atlantic opening and spreading (Fig. 6). Rifting started in the central Atlantic Ocean ca. 175 Ma, in the southern Atlantic Ocean ca. 120 Ma, and in the northernmost Atlantic Ocean at ca. 50 Ma followed by spreading at ca. 160 Ma, ca. 120 Ma, and ca. 50 Ma, respectively. Comparison of the 2016 maps in Figure 6 with Wegener's' 1924 maps in figure 3c-e shows remarkable similarities. Steiner (1912) viewed the changes in the earths' surface as the result of its inner motion.

On the other hand, Bosse (2002) locates Atlantis in the northern Atlantic Ocean and suggests that the Atlanteans migrated westwards and eastwards from Greenland and Iceland during the Tertiary-Quaternary (Fig. 7b). This contradicts modern mDNA evidence that indicates humans migrated out of Africa 200,000 years ago with no evidence for migrations out of Greenland or Iceland (Stewart and Chinnery, 2015)(Fig. 7c). Similarly, the ~2-2.5 million year-old hominids originated in Africa, as did the ~2 - 4 million year australopithecines and older, 4.5 - 7 million year *Ardipithecus, Orrorin and Sahelanthoropus* (Stewart and Chinnery, 2015)(Fig. 7d).

Torsvik et al. (2015), using the magnetic stripes of the ocean floor around Iceland, have made reconstructions that show this part of the north Atlantic Ocean started to open at ca. 54 Ma, which was concurrent with migration of a mantle plume from Greenland to its' present location beneath Iceland (Fig. 8). Modelling of the Icelandic mantle plume (Barnett-Moore et al. 2010)(Fig. 9) suggests that the area between NW Scotland and eastern Greenland may well have been above sea level until ca. 10 Ma (uppermost Miocene), which is consistent with the presence of a "land bridge" between Greenland (North America) and Scotland (Europe) in the latest Miocene (Denk et al., 2010).

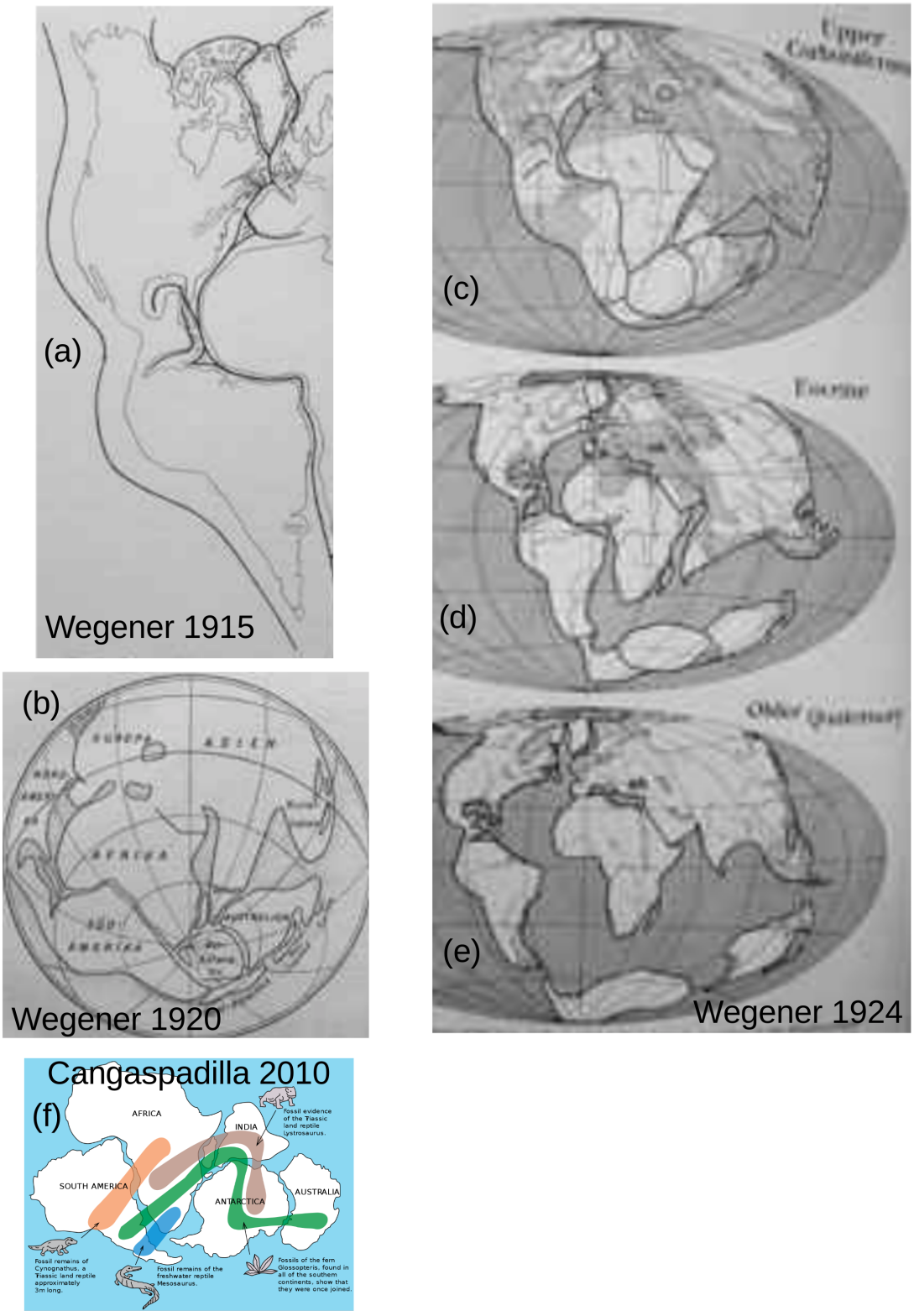

Figure 3. Reconstructions from Krill (2009): (a) Pangea fit of Wegener (1920); (b) revised Pangea fit of Wegener (1924); (c-e) Upper Carboniferous to Present reconstructions of Wegener (1924); and (f) Permian and Triassic fauna and floral distributions plotted on Pangea (Cangspadilla, 2010).

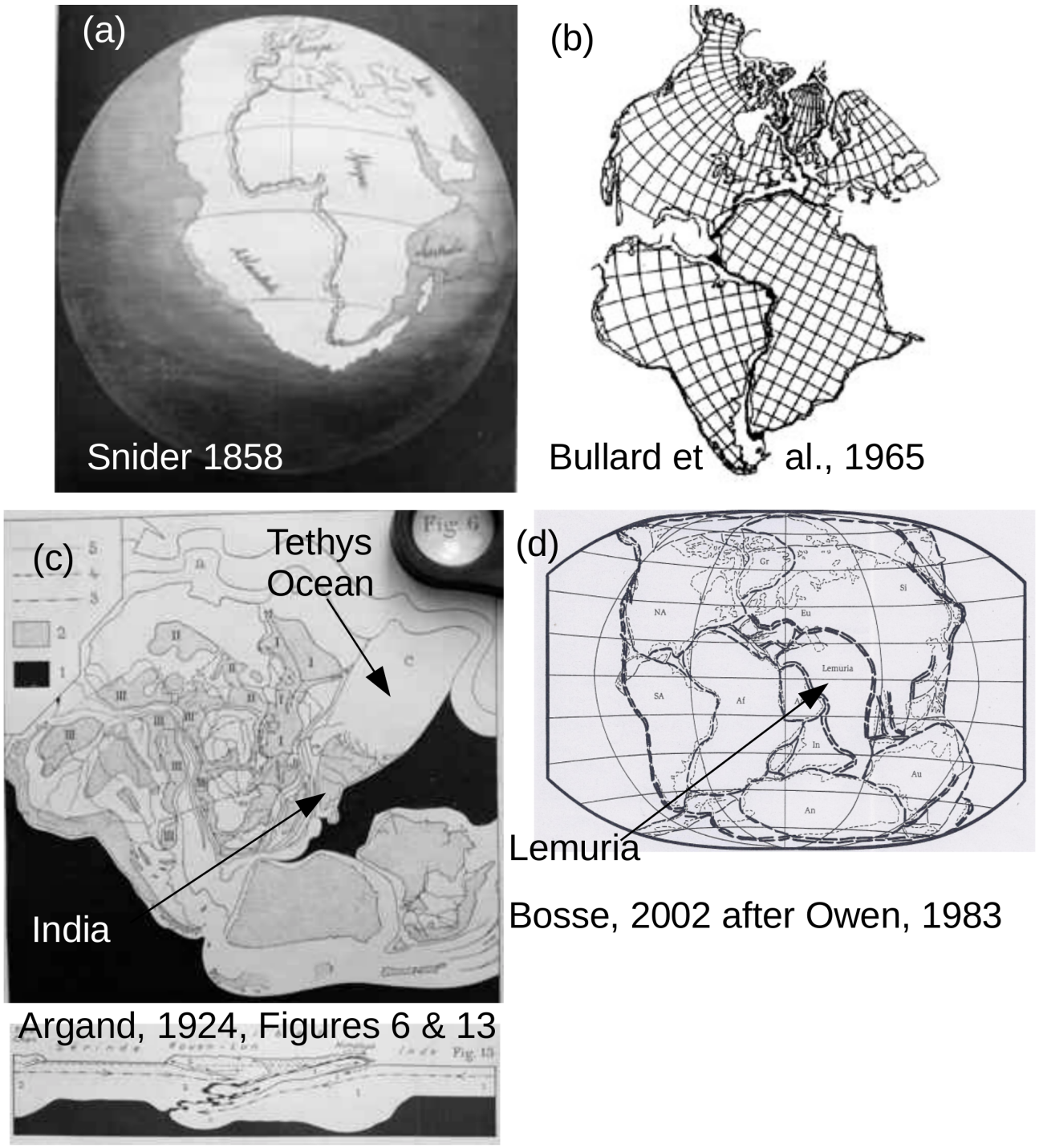

Figure 4. Reconstructions: (a) closing the Atlantic Ocean according to Snider (1858): (b) closed Atlantic Ocean of Bullard et al., 1965); (c) Pangea map and cross-section of the Himalayas as depicted by Argand (1924); and (d) Pangea as depicted by Bosse (2002) using the reconstruction of Owen (1983) that incorporates a 20% decrease in the size of the earth: Bosse labels the part of the Tethys Ocean thrust beneath the Tibetan Plateau as Lemuria.

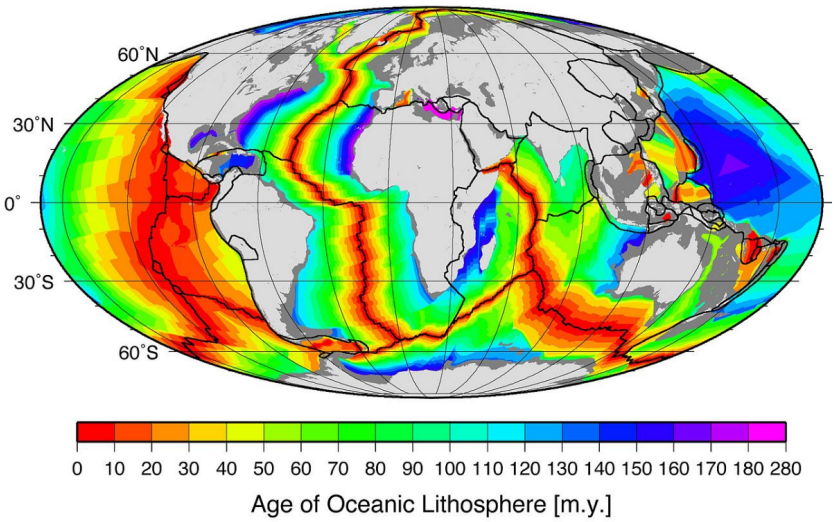

Figure 5. Magnetic stripes in the worlds' oceans documented the age of the oceanic lithosphere (Matthews et al., 2016).

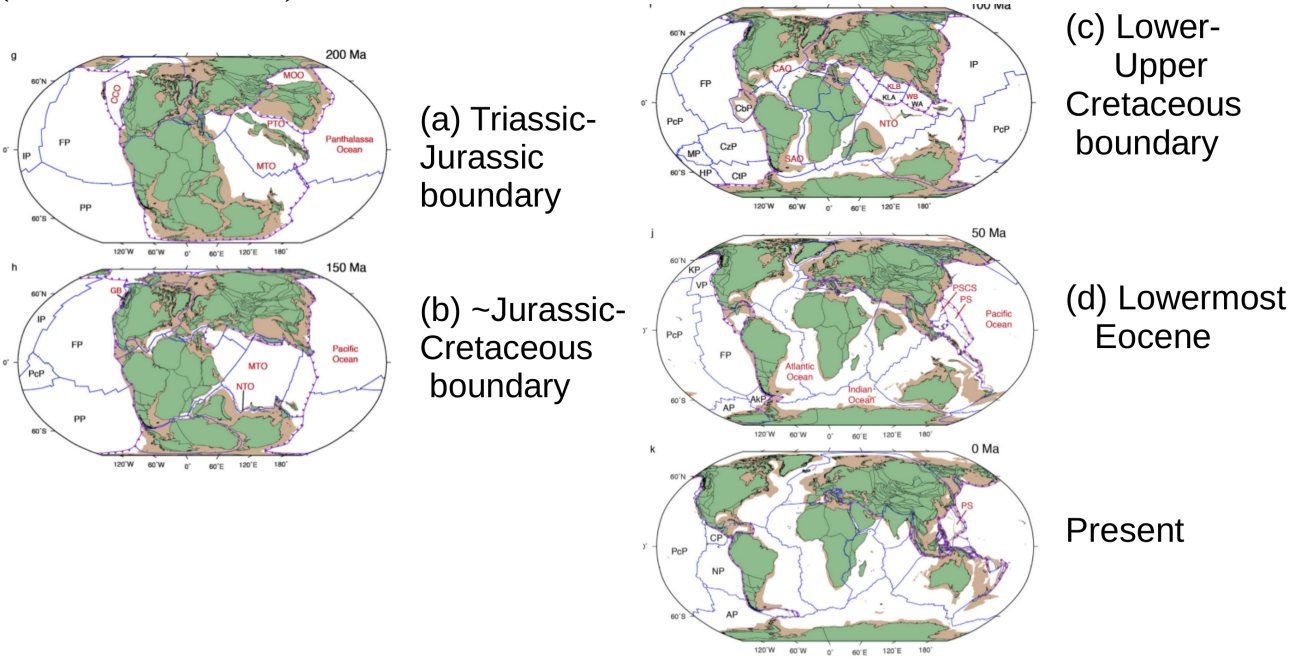

Figure 6a-e. 200 Ma – Present reconstructions of the Atlantic Ocean (Matthews et al., 2016).

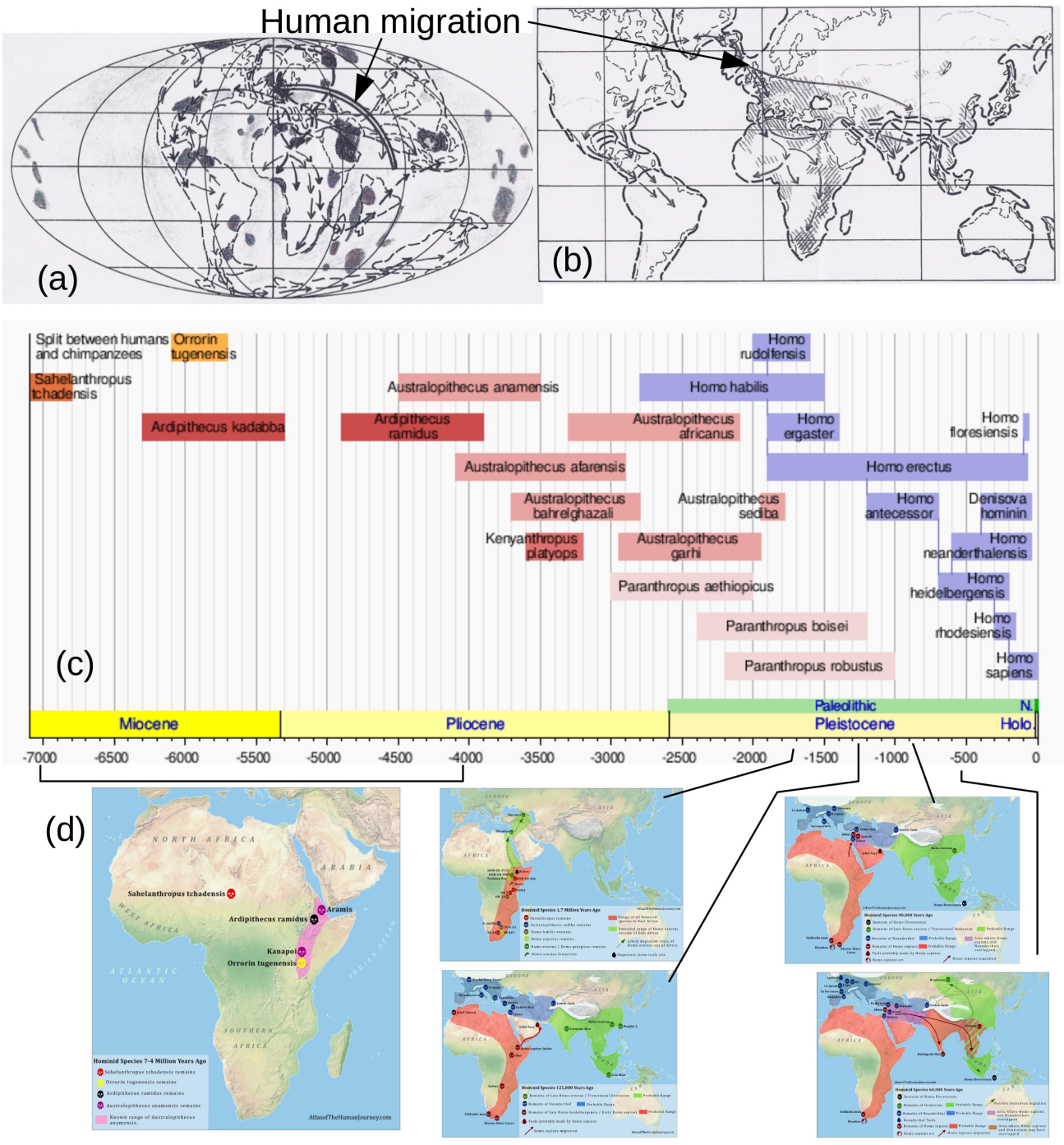

Figure 7(a) Cretaceous to Tertiary migration of human beings according to Bosse (2002) from Lemuria to Iceland (double arrow), lower apes, elephants and marsupials (single arrows); (b) migrations according to Bosse (2002) of humans and higher apes across the land bridge between North America, Greenland, Iceland and Europe during the middle Atlantean (Pliocene – Quaternary); (c) age range of hominids: https://en.wikipedia.org/wiki/Human_evolution; and (d) distributions of hominids from 7 million years ago to 60,000 years ago (from http://atlasofhumanevolution.com/Maps.asp)

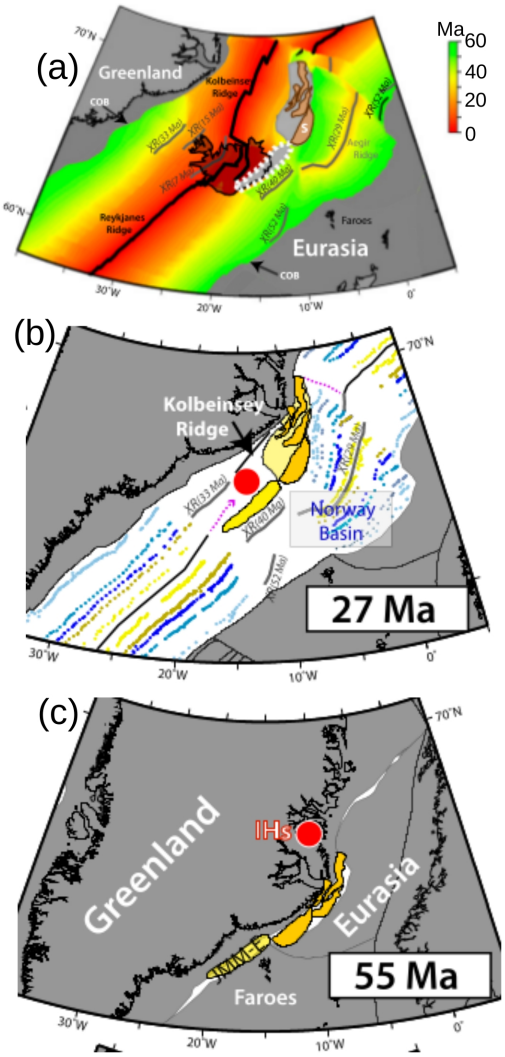

Figure 8. Maps of Iceland and adjacent areas showing (a) the ages of oceanic lithosphere and the continent-ocean boundary (COB); and (b,c) reconstructions at 27 Ma and 55 M (Torsvik et al., 2015).

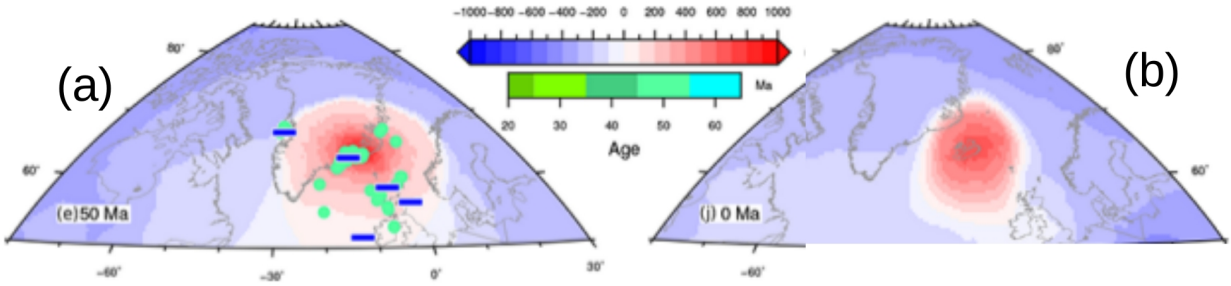

Figure 9. Predicted dynamic topography of Iceland and adjacent areas (Barnett-Moore et al., 2010) (blue = area below 100m, white = area near sea level (±100m), and red = area above 100 m).

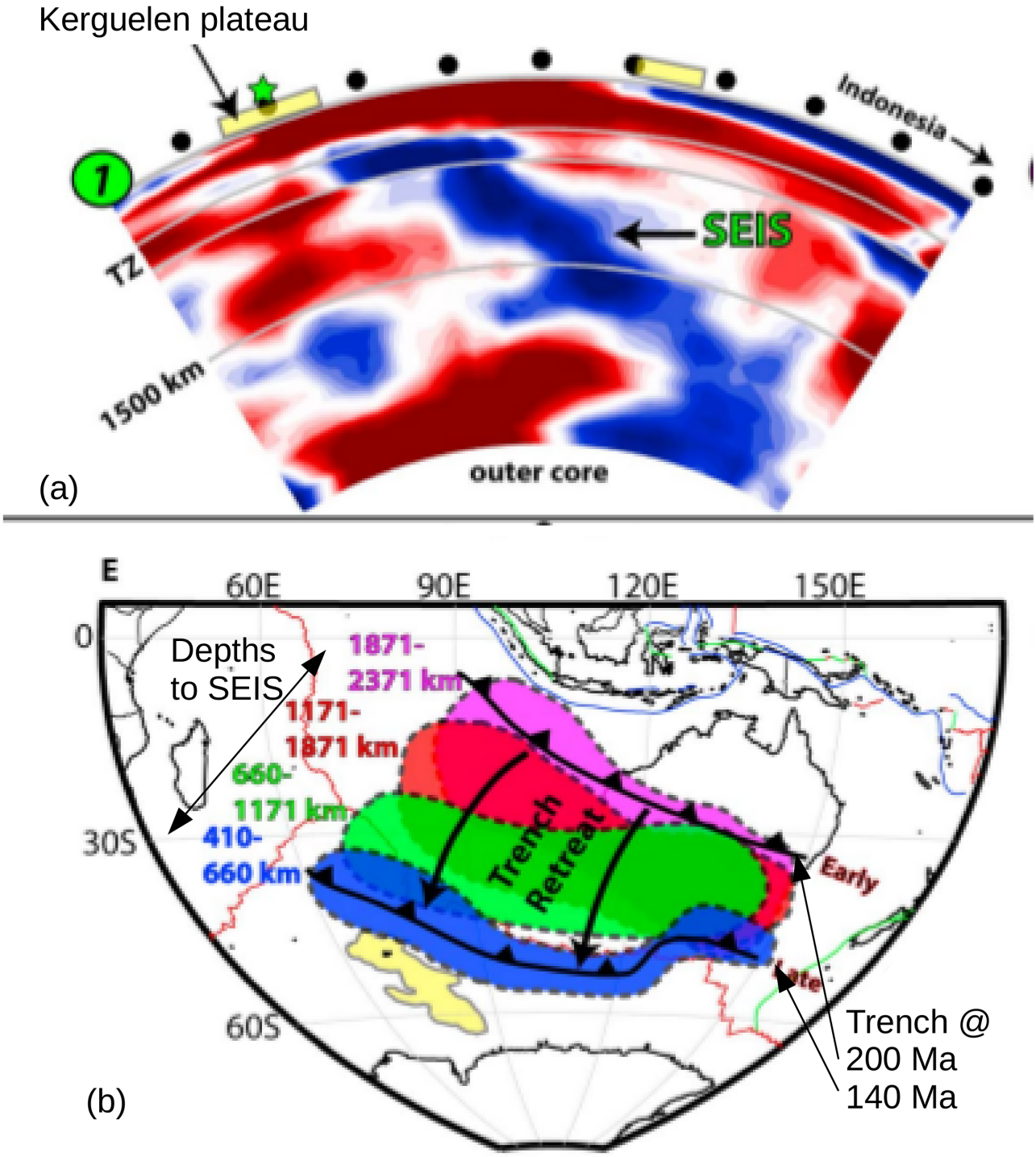

Figure 10. (a) Tomographic seismic section of the southern Indian Ocean showing the subducted slab (in blue = seismically fast anomalies) from the western part of the Kerguelen Plateau north-northeastwards to Indonesia; and (b) the depths of the subducted slab (SEIS), and showing the time of subduction of SEIS with the NNE-dipping slab migrating southwards between 200 and 140 million years ago (Simmons et al., 2015).

Lemuria

Scott-Elliot (1904) shows Lemuria extending across the southern continents and oceans (Figs. 1a and b), a region that today is largely included in Gondwana (Ekama, 2017b). In 1924, Argand made a reconstruction that placed India adjacent to Madagasgar and eastern Africa, and the area between India and the Asian coast was included in the Tethys Ocean (Owen, 1983)(Fig. 4c: Argands's figure 6), which was thrust beneath Asia (Fig. 4c: Argand's figure 15). Argands's 1924 reconstructions have proved to be prescient when compared with modern reconstructions (Matthews et al., 2016), which show India rifting at ca. 170 Ma from eastern Africa and migrating to southern Asia between ca. 140 and 45 Ma (Middle Jurassic – mid-Eocene) with contemporaneous subduction of the intervening Tethys Ocean beneath Asia. Bosse (2002) follows Owen (1983) by labelling the part of the Tethys Ocean that was thrust beneath the Tibetan Plateau as Lemuria (Fig. 4d): note that Owens' 1983 map incorporates a 20% decrease in the size of the earth. De Wit and Masters (2008) introduce the place of Lemuria in mammalian origins, however, the 140 – 45 Ma destruction of Lemuria would have occurred after the breakup of Pangea: this contradicts Steiner (1904,19111) and Scott-Elliot (1904) who assert that Lemuria largely preceded Atlantis with remnants persisting into Atlantean times (Figs. 1A and b, and 2).

This contradiction may be overcome by recent discoveries. In 2015, Simmons et al. (2015) identified a slab-like structure in the mantle (SEIS: southeast Indian slab) that was subducted at a trench, which migrated southwards across a pre-Cretaceous ocean in the Mesozoic: this occurred before the ca. 140 Ma, lowermost Cretaceous breakup and subsequent migration of India across the Tethys Ocean to collide with Asia. The southward migration of the trench would have been accompanied by an island arc (a chain of volcanoes) lying on the northern side of the trench. Simmons et al. (2015) estimate that subduction of SEIS took place from ca. 200 Ma (late Triassic – Early Jurassic) until ca. 140 Ma, i.e. before opening of the southern and northern Atlantic Ocean. SEIS appears to have originated at about 500 Ma as part of an ocean between India and South China (Torsvik and Cocks, 2013). The apparent location of SEIS beneath the eastern Indian Ocean, rather than off Madagasgar, may be partly due to the absolute westward rotation of the Africa Plate, which averaged 0.12º/Ma (Torsvik et al., 2010). An estimate for the westward drift of Africa over the past 100 my is 500 km (Torsvik et al., 2010). Thus, correlation of the SEIS with Lemuria is consistent with its' disappearance before the dispersal of Pangea: it also agrees with the correlation of Atlantis and Pangea proposed in this paper (Fig. 2). The disappearance of SEIS/Lemuria would have been accompanied by volcanic activity (cf. the internal fires and incessant volcanic activity reported by Scott-Elliot (1904) and Steiner (1904,1911).

At this juncture, Steiner's statements (1904, 1911) about the nature and soul life of the Atlanteans and Lemurians arise for further investigation. This needs to be viewed in the context of the dramatic increase in fossil discoveries over the past century, which has, so far, failed to find any fossils traces of the Atlanteans and Lemurians. Clearly this is a subject for future research.

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