Earth's Mantle Heat

It is today believed that the earth's internal heat is left over from its formation, despite the fact that Kelvin showed this to be impossible more than a hundred years ago. And because the mantle material spewed onto the earth's surface is not radio-active, we also know that fissionable energy is not being generated internally. Also, there is insufficient heat generated from natural fission in all the earth's matter to account for the earth's internal heat; so Rutherford was incorrect.

Having established that spin in all bodies, atomic and celestial may be determined using Newton's laws of orbital motion, it has also been discovered that Earth's mantle heat is being generated by the conflict between potential energy between a force-centre and its satellites, and the kinetic energy in a satellite's sub-satellites, from internal friction. This means that the earth's internal heat is not diminishing with age, it is being generated, and will continue to do so as long as it retains its moon. Therefore, we may exploit this energy source with no risk of diminution.

Exploitation of Mantle Heat

As identified in the deep gold mines of South Africa, the temperature of the earth's crust appears to increase at the rate of about 11°C per kilometre. This means that if the surface is at zero °C, it will be at 110°C ten kilometres below its surface. A suitably designed vertical tube sunk into the earth's crust to an appropriate depth, that is cooled at its surface, will generate natural circulation in a fluid, such as oil or water, with which it has been filled, which may be used to drive an impeller or screw to generate electricity.

Whilst it is important to select an appropriate location for such a facility, one that is not subject to earthquakes or volcanic activity, careful positioning may permit a location where temperature gradient is greatest (i.e. alongside a stable volcano) to minimise the length of the unit. However, installation in an ocean floor where the earth's crust is thinnest and most stable, and where the seawater may be used for natural cooling would be the most efficient location.

It is anticipated that an empty hollow tube is buried to maximum depth in the earth's crust into which a self-contained unit may be lowered and removed for occasional maintenance and/or replacement.

Title of the Invention:

The exploitation of mantle heat.

Abstract:

The present invention relates to the exploitation of the earth's mantle heat to create electricity via a generator inserted in the earth's crust.

Description:

By way of explanation: The earth's continental crust is up to 20km thick, dependent upon the mountainous regions concerned. However, the earth's ocean-bed crust is a constant 6km deep. The temperature increases by approximately 10K in continental crust per km of depth. The temperature increase under the ocean floor is three times this rate (30K per km).

The temperature gradient in the earth's crust (described above) may be used to circulate a fluid, such as oil or water to drive an impeller or screw to generate electricity. This natural circulation is due to the fact that hot fluids rise and cold fluids sink.

All hot atoms and molecules subject to gravity will naturally move away from the source of gravity where pressure is less. This causes hot fluids (gases and liquids) to flow towards the earth's surface and it the basis of the earth's mantle plumes.

The present invention relates generally to the exploitation of the earth's mantle heat by using the natural flow of oil from a hot region to a cold region.

Whilst flowing, this oil will drive a helical screw ③ (or impeller) that will, in-turn, generate electricity.

The invention includes the following parts, that are shown in Figure 1:

① An outer casing that is manufactured from a heat-insulating material capable of sustaining the pressure exerted on it from the required burial depth, such as that used for sub-terranean drilling operations.

② An inner casing that is manufactured from a heat-insulating material that is open at both ends

③ An electrical generator that operates using the flow of oil, such as a screw, vane or turbine

④ A heat conducting window of sufficient area to allow the passage of heat to the ocean.

⑤ A heat conducting window of sufficient area to allow the passage of heat from the earth's crust.

The outer and inner casings ① & ② (or cavities) are filled with a liquid, such as oil or water, or a gas such as air or nitrogen.

Operational Sequence:

1) Heat is transferred from the earth's crust to the oil inside the bottom of the inner casing ② via conduction window ⑤. This will cause the temperature of the oil to rise. The hot oil will then flow upwards, towards the earth's surface.

2) As the oil rises, it will drive a screw, vane or turbine ③ that will generate electricity.

3) When the hot oil reaches the top of the inner casing ② it will exit through its open end and transfer its heat from the outer casing ① to the ocean via conduction window ④.

4) The oil will sink through the outer casing ① towards the bottom of the outer casing ① where the process will return to operation sequence 1) above.

This is a similar process to that generating the earth's mantle plumes.

Whilst it is currently considered sufficient to achieve the desired results with a temperature difference of 120K, using a greater penetration depth, of up to 6km, it is possible to increase this temperature difference up to 1000K.

Claims:

1. The use of the earth's mantle heat to generate electricity.

2. The burial of a generally vertical looped tube in the earth's crust at sufficient depth to create a significant temperature difference between the base of the tube and its upper end.

3. The tube shall be filled with a fluid.

4. The fluid will be caused to flow from the heated end of the tube to the cooled end of the tube.

5. The flowing fluid will drive a helical screw causing it to rotate.

6. The driven screw will be used to generate electricity that will be transmitted to a place of use.

7. The common wall between the two cavities (hot and cold) will be insulated with a material to minimise the transfer of heat between the two cavities.

Diagrams:

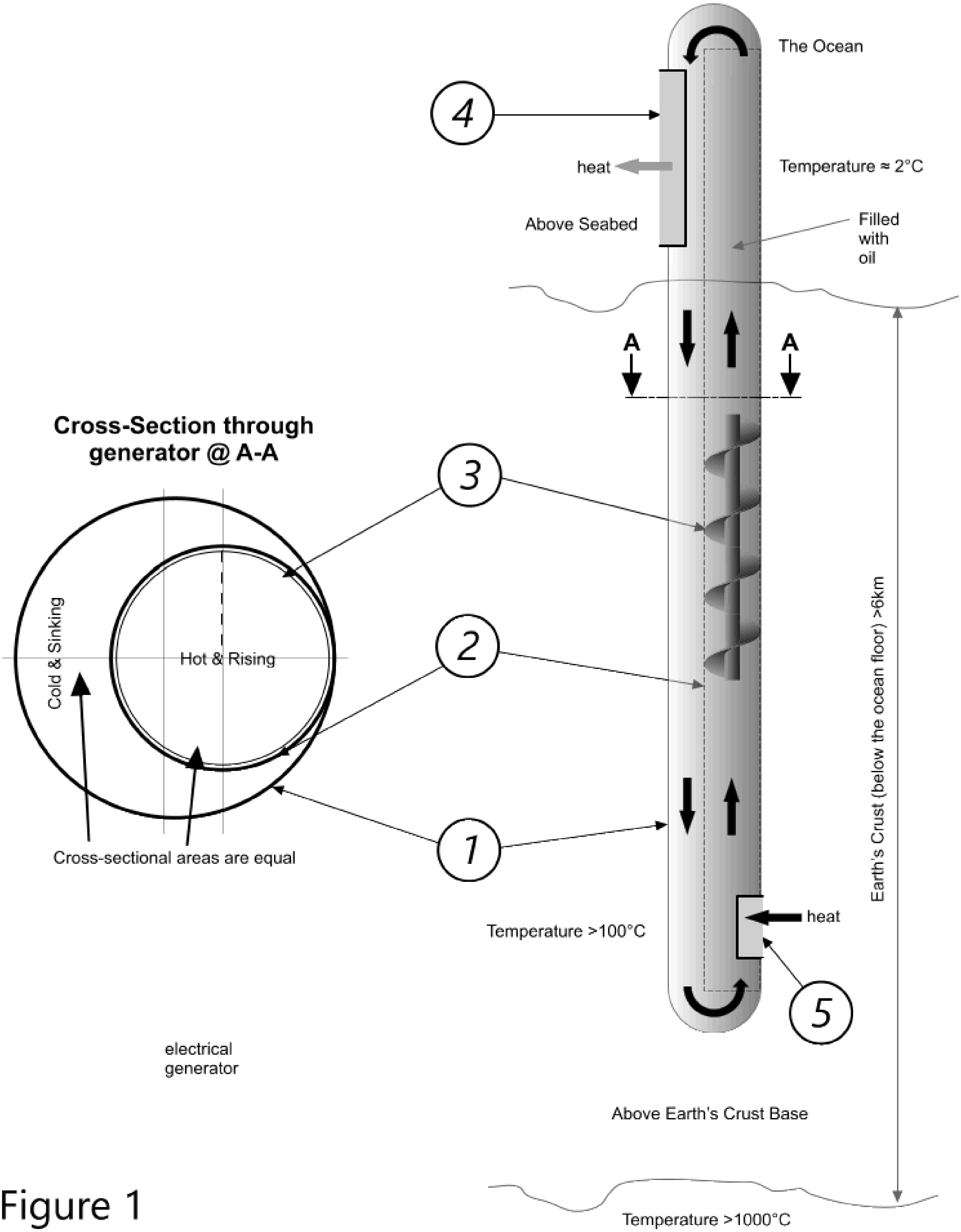

Figure 1