

*the earth* have been failures, as well as a cause of ridicule to geologists. It belongs to other sciences than geology to investigate the most remote condition and the causes of the earth.

An hypothesis is advanced by the advocates of original igneous fluidity, which supposes that previous to that time, the matter of the globe had been in a state so intensely heated, as to be entirely dissipated, or converted into vapor and gas. As the heat was gradually radiated into space, condensation would take place; and this process would evolve a vast amount of heat, by which the materials would be kept in a molten state, until at length a solid crust would be formed as already explained.

*Analogies in favor of this hypothesis.*—1. The nature of comets shows that worlds may be in a gaseous state. They have less solidity of coherence than a cloud of dust or a wreath of smoke, as stars are visible through them, with no perceptible diminution of their brightness. Some of them have more density toward their nucleus, and others appear to become denser throughout, at each successive return. They are self luminous. In these facts there is a striking resemblance between comets and the early condition of our planet, according to this hypothesis.

2. The nebulae appear to be similar in composition to comets, though not yet actually converted into comets. They prove that a vast amount of the matter of the universe actually exists in the state of vapor.

3. The sun, and probably the fixed stars, appear to be examples of immense globes so far condensed as to be in a fluid state of intense heat.

#### GEOLOGY OF OTHER WORLDS.

If we assume the history of the earth to be according to this hypothesis, we have a standard by which to judge of the advance of other worlds in the process of refrigeration. The comets and some of the nebulae appear to be in the earliest stage of the process. They are gaseous, probably from excess of heat, yet are gradually condensing. The sun is apparently in a state of igneous fusion; such a condition as the earth was in during the second stage of refrigeration. In the third stage of the process, worlds become opaque, like the planets; but we may suppose them to be in different degrees of advancement. The planets beyond Mars, (excluding the asteroids), appear to be in a liquid condition, but not from heat, and therefore may be composed of water, or some fluid lighter than water; or at least be covered by such fluid.

Mars, Venus, and Mercury, most nearly resemble our world. Astronomers have fancied that upon Venus the outlines of continents can be traced, and that her poles are annually covered with snow, which in its season is melted and disappears. And it seems to be enveloped by an atmosphere like our earth.

But the state of the moon, as the nearest heavenly body, has been most accurately ascertained; and it exhibits the most astonishing examples of volcanic action, though it is not certain that