Appendix

the direction in which electric charges should travel, because space is filled, and units can only move as a result of a process of decomposition. This force of decomposition is that of the male element and is that which is known as "surface energy." This energy forces particles to move in definite direction, and this is proven by Quincke, who says, "Under the influence of surface tension, thinflowing, oil-like lamellæ form spheres, bubbles, spherical foamwalls, and under some conditions spiral surfaces. Solid thin lamellæ curl up together into a hollow cylinder or hollow sphere. Lamelæ of very sticky oily fluid lie between them, acting like thin solid lamelæ, and curling up into a hollow cylinder, or hollow sphere, which then gradually subdivides into spherical bubbles like a fluid tube, or else forms swellings and constrictions."

This description of the formation of the gel skeleton shows the same phenomenon as is continually taking place in bacterial growths. The "swellings and constrictions are descriptive of the " Involution Forms" of bacterial growths.

The hollow spheres are such because two oppositely-moving fields of particles are engaged in building up the spheres, and the interior of every spherical cell must begin as a "hollow sphere," because inside of the sphere is contained the gases as "internal oxidation process."

The spiral surface, as described by Quincke, shows the force that caused one-fourth of the whole mass of matter comprising the Solar System to break up into individual parts, as the "stars," and we find the same process of spiral formation by bacteria, breaking down into Rods and finally into spheres. (Plate 1, fig. 5).

The bacteriologists do not agree as to the hollow condition of the spherical bacteria cell, a majority believing it to be hollow. Some are hollow and others must contain the gaseous internal values broken up into parts, which are sometimes found to resemble granules when stained. The staining matter forces the contents into centres as granules, through the force of plasmolysis.

This division of the mass into parts explains the association of different minerals in definite parts of the earth. Their accumulation makes up a magnetic "field of gaseous electricity" forced into a compact mass. Bismuth is a very good substance to illustrate this accumulation force in nature. Native bismuth crystallizes in the cubic system, but is also found massive, granular, reticulated (network), and arborescent. These five conditions prove its origin under the decomposition of the six primal st ges through the five different combinations between magnetist and electricity. Bismuth is found associated with different elements such as iron, silver, lead, zinc, cobalt, copper, arsenic, etc. It is almost as common as iron in association with centres of mineral deposits.

There are also six different compounds of bismuth, showing its origin as "parts" in the six stages of primal accumulation. Its association with sulphur and iron is very suggestive of its origin.

As a mineral arising as a centre in a great indivisible mass of