

exerted by water and air, mirror forth the subtler forces of the ethers, that fashion the pliant, tender substance of the growing plant, and imperceptibly carry it around in their spiral currents.

Rather than assign to turgescence the rôle of cause for the bending of the tender plant substance, we should view it as the effect of the bending by the ethers, the cells accumulating on the outer side by a constant law in the economy of nature to fix the curve so drawn.

The tendency of the ethers themselves is to a perfect spiral, but this is necessarily modified by the fixed fulcra of the plant-organs, and by many particular circumstances, described in Darwin's book.

The beautiful spirals are a familiar sight in the case of climbing plants. Darwin says: "Climbing plants, whilst young, circumnutate in the ordinary manner, but as soon as the stem has grown to a certain height, which is different for different species, it elongates rapidly, and now the amplitude of the circumnutating movement is immensely increased, evidently to favour the stem catching hold of a support. The stem also circumnutates rather

more equally to all sides than in the case of non-climbing plants. This is conspicuously the case with those tendrils which consist of modified leaves, as these sweep wide circles, whilst ordinary leaves usually circumnutate nearly in the same vertical plane. Flower-peduncles, when converted into tendrils, have their circumnutating movement in like manner greatly increased."—(Page 559.)

Here are instances that can easily be watched by old and young. Those who desire to make observations on other plants, where the movement is so minute as to be unnoticed, will find in Darwin's book a complete description of his very simple but effective devices for noting such movements. The book consists, for the most part, of a wealth of detailed information of his experiments in the case of a great variety of plants, and the diagrams alone are worth studying, as completely confirmatory of the doctrine of the New Church concerning the motion of the forces of nature, as ultimations of the spiritual forces above nature.

EUGENE J. E. SCHRECK.

*Detroit, Mich.*

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## The Publication of Swedenborg's Scientific Works.

### THE NEW EDITION OF THE PRINCIPIA.

The Convention's Committee on the New Edition of the Principia will have substantial progress to report at the coming meeting of the Convention. The work attempted this year has been wholly preparatory in sounding the current feeling and knowledge in scientific and educational circles generally regarding the work, to learn how far the work is at present known to leading scientists and institutions of learning, and how ready a welcome they would give to a new edition—the object of the movement being not merely to print the work, but to get it actually into the hands of scholars and scientific workers everywhere. This preliminary correspondence with a view to rousing an interest in Swedenborg's scientific hypothesis as having a direct bearing on present day problems, has seemed an important step, aside from the matter of obtaining subscriptions in advance. The replies from learned institutions and individuals in this country have thus far been quite satisfactory, and those from England and Scotland are just beginning to come in. An important question for the committee to consider at its next meeting will be that of the avenue of publication and the new editorship; how far the work had better undergo modifications in translation, and be furnished with illustrative notes relating to modern science. In so important

a work it is better to go slowly, and to have in mind accomplishing the widest and most important use.

*Washington, D. C.*

FRANK SEWALL,

*Chairman Com.*

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### THE REPUBLICATION OF SWEDENBORG'S PRINCIPIA.

The following circular has been issued by the Committee of the Convention. This circular contains the contents of the Principia, and some opinions of scientific men given below:

That portion of Swedenborg's Opera Philosophica et Mineralia entitled Principia Rerum Naturalium, published originally in Leipzig, in 1734, and in English translation in London, 1845, "being new attempts toward a philosophical explanation of the elementary world," a work which, besides anticipating the Nebular theory generally attributed to Kant and Laplace (see article, by M. Nyrén, in Vierteljahrschrift der Astron. Gesellschaft, 1879, p. 81), contains the treatises on magnetism and on the evolution of motions and forms, which have elicited the admiration of many eminent scholars and philosophers, being now out of print, a committee of gentlemen, having in view the republication of the work, respectfully ask for the following items of information:

I. Does your own library or that of the insti-

tution with which you are connected contain a copy of the Principia of Swedenborg in either Latin or English?

II. Would a copy of the new edition be desired?

III. Are you already familiar to any extent with the contents of the work?

IV. If so, what importance do you attach to it, historically, or as bearing upon the sciences of today?

For the committee,

JOHN R. SWANTON, Cor. Sec.

1 Regent Street, Roxbury, Mass.

#### CONTENTS OF THE PRINCIPIA.

Part I.—Chapters I. On the means which conduce to true philosophy, and on the true philosopher;—II. A philosophical argument concerning the first simple from which the world, with its natural things, originated; that is, concerning the first natural point, and its existence from the Infinite;—III. A philosophical argument on the First or Simple Finite, and its origin from points;—IV. A philosophical enquiry concerning the Second Finite, and the manner in which it derives its origin successively from the Simple Finite. Also, general observations on its coexistent which we have denominated the Active of the First Finite; and on the manner in which it is geometrically derived from the First and Simple Finite;—V. Observations specifically on the Active of the First Finite; on its origin from the First Simple Finite; on its motion, figure, state, and other attributes and modifications; showing that this Active is one, and constitutes the sun of our system; that, in like manner it forms the first elementary particles;—VI. On the first and most universal element of the mundane system, or the first elementary particle compounded of Finites and Actives; of its motion, figure, attributes, and modes; of its origin and composition from the Second Finite and the Active of the First Finite; of its constituting the solar and stellar vortices;—VII. On the Actives of the Second and Third Finites; VIII. On the Third Finite or substantial;—IX. On the second or magnetic element of the world; that is, of the next elementary particle composed of Third Finites and of the Actives of the Second and First Finites. Of its motion, figure, attributes, and modes. That this element, together with the former, constitutes the solar vortex and is the one which principally contributes to the phenomena of the magnet;—X. On the existence of the sun and the formation of the solar vortex.

Part II.—Chapters I. On the causes and mechanism of the magnetic forces; II. On the attrac-

tive forces of two or more magnets, and the ratio of the forces to the distances;—III. On the attractive forces of two magnets when their poles are alternated;—IV. On the attractive forces of two magnets when their axes are parallel, or when the equinoctial of the one lies upon the equinoctial of the other;—V. On the disjunctive and repulsive forces of two or more magnets when the cognominal or inimical poles are applied to each other;—VI. On the attractive forces of the magnet and of iron;—VII. On the influence of the magnet upon ignited iron;—VIII. On the quantity of exhalations from the magnet, and their penetration through hard bodies, etc.;—IX. On the various modes of destroying the power of the magnet; and on the chemical experiments made with it;—X. On the friction of the magnet against iron, and on the force communicated from the former to the latter;—XI. On the conjunctive force of the magnet, as exercised upon several pieces of iron;—XII. On the operation of iron and of the magnet, upon the mariner's needle; and on the reciprocal operation of one needle upon another;—XIII. On other methods of making iron magnetical;—XIV. The declination of the magnet, calculated upon the foregoing principles;—XV. On the causes of the magnetic declination;—XVI. Calculation of the declination of the magnet for the year 1722, at London.

Part III.—Chapters I. Comparison of the sidereal heaven with the magnetic sphere;—II. On the diversities of worlds;—III. The philosophical argument resumed concerning the Fourth Finite, and its origin from the second elementary particle;—IV. Of the universal solar and planetary chaos, and its separation into planets and satellites;—V. On the ether or third element of the world;—VI. On the Fifth Finite;—VII. On the air or fourth element of our system;—VIII. On fire, or the Actives of the Fourth, Fifth, and following Finites;—IX. On water or the purely material Finite;—X. On aqueous vapor or the fifth element of the world;—XI. On the vortex surrounding the earth, and the earth's progression from the sun to the circle of its orbit;—XII. On the paradise formed upon our earth, and on the first man; Appendix;—Preface to the Treatise on Iron, in Swedenborg's "Mineral Kingdom;" Preface to the Treatise on Copper, in Swedenborg's "Mineral Kingdom."

#### SOME OPINIONS OF SCIENTIFIC MEN AND SCHOLARS.

"The work of Swedenborg [the Principia] which you were so kind as to put into my hands, is an extraordinary production of one of the most extraordinary men certainly that has ever lived. . . . This much I can truly say, that the air of