

In view of the fact that cadmium sulphide is soluble in dilute boiling sulphuric acid, the common method of separating cadmium and copper being based upon this fact, it was deemed rather surprising that complete precipitation had taken place at such a high temperature and in the presence of such a quantity of free acid. The following experiment makes clear this seeming anomaly: A portion of the solution, in the last experiment with cadmium sulphate, which contained only a trace of cadmium immediately after the stream of hydrogen sulphide was stopped, was left in contact with the precipitated cadmium sulphide at 85° for half an hour. At the end of that time the solution, now almost free from the odor of hydrogen sulphide, had dissolved 1.8 per cent. of its weight of cadmium sulphide. This result in connection with what has preceded seems to show that the complete precipitation of cadmium as sulphide depends chiefly upon the saturation of the solution with hydrogen sulphide, the temperature and strength of the acid being of only secondary importance. Direct experiment showed that when pure washed cadmium sulphide is allowed to remain in contact with cold dilute sulphuric acid (20 per cent. H_2SO_4) for several hours, it is to a very marked degree dissolved.

I wish to take this opportunity to express my sincere thanks to Dr. W. S. Hendrixson, at whose suggestion this work was undertaken and to whose kind advice and aid any success which this little study may have attained is largely due.

IOWA COLLEGE, GRINNELL,
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NEW BOOKS.

ATOMS AND ENERGIES. BY D. A. MURRAY. New York: A. S. Barnes & Co. 1901. 202 pp. Illus. 12mo.

The author of this book was some time instructor in the Government Shogyo Gakko, Kyoto, Japan, and he is at present pastor of a Church in a Western city. He claims that the "changed conceptions of the nature of fundamental atomic phenomena" presented in this book, must create a "complete revolution in our thinking along many lines of physical research," and for those who accept his visionary lucubrations this claim will certainly be justified.

According to the author, atoms are all identical in substance

and differ only in size and shape; he defines an atom as "an Impenetrable Expanse of the ability to Modify and be Moved by Energy." He dwells at length upon the shapes of atoms, for "the one element of Shape in the atom is capable of determining all the varieties of result found in combinations." Thus iron and gold are identical in essence, but their diverse qualities are determined by diversity in shape and size of their atoms. The book contains several illustrations showing the shape of atoms, and they resemble the building blocks used by children and the diagrams of dressmakers. Notwithstanding much space is given to the shape of atoms (pages 43 to 58), the fact that they are endowed with weights is generally ignored!

These atoms are influenced by two energies only, one attracting and one repelling, but "Energy" is not a mode of motion, it is a "distinct Entity." "Adhesion, Cohesion and Chemical Affinity in all its myriad forms," are simply different "operations of Gravitation," and the "key to the solution is to be found in the infinite factor which comes into operation when the atoms are in actual contact with each other." The different kinds of contact are thus explained: "When not in contact we have the Gaseous state; when but a single point of contact, the Liquid state; when so many points of contact that there is rigidity, the Solid state; when face to face contact, Chemical Combinations."

The author demonstrates to his satisfaction that the interstellar Ether is identical with Energy; he concludes that "the Ether is simply Energy as an Entity."

It is difficult in reviewing a book of this character to avoid doing the author injustice, but we have endeavored to prevent this by citing almost exclusively his own words. The work is endorsed (in an Introduction) by a gentleman who has been successful as an archæologist and anthropologist, especially in exploring Mexico, but his pursuits have not especially qualified him for judging a treatise on physical science. He says, however, that the work "will stimulate thought."

HENRY CARRINGTON BOLTON.

QUANTITATIVE CHEMICAL ANALYSIS, ADAPTED FOR USE IN THE LABORATORIES OF COLLEGES AND SCHOOLS. By FRANK CLOWES, D.Sc. (LOND.) AND J. BERNARD COLEMAN, A.R.C.Sc. (DUBLIN). Fifth edition. Philadelphia: P. Blakiston's Son & Co. 1900. xxiv + 592 pp. Price, \$3.50.

This is a standard laboratory guide in many of the English