The American Association for the Advancement of Science:
Some Biological Applications of Organometallic Compounds: PROFESSOR HENRY GILMAN .......... 47
The Motions of the Stars: PROFESSOR EVERETT I. YOWELL .................................. 50
Obituary: Henry Hurd Rusby: PROFESSOR C. W. BALLARD .... 53
Scientific Events:
A New Course in Aircraft Production at New York University; Fellowships and Scholarships in Engineering at Cornell University; The American Museum-Sinclair Dinosaur Expedition; Work of the Field Museum of Natural History during 1940; Medal of Honor of the Institute of Radio Engineers ........................................... 54
Scientific Notes and News .................................. 57
Discussion:
Societies and Meetings:
The Western Society of Naturalists: DR. D. L. FOX .................................. 62
Reports:
Report to Congress of the National Advisory Committee for Aeronautics .................................. 63
Special Articles:
Localization of Lithium in Tumor Tissue as a Basis for Slow Neutron Therapy: DR. PAUL A. ZAHL and FRANKLIN S. COOPER. Carbonic Anhydrase Inactivation as the Source of Sulfanilamide "Acidosis": DR. ARTHUR LOCKE, DR. E. R. MAIN and DR. R. R. MELLON ........................ 64
Scientific Apparatus and Laboratory Methods:
Science News .................................. 8

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SOME BIOLOGICAL APPLICATIONS OF ORGANO-METALLIC COMPOUNDS

By Professor HENRY GILMAN

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Organometallic compounds are compounds which have a metal directly attached to carbon, and are conveniently designated by the formula RM where M is a metal. They fall into three broad groups: those which are highly reactive chemically, like organopotassium compounds; those of moderate reactivity, such as organolithium and organomagnesium compounds; and those of relatively low reactivity, like the organomercury and organobismuth types.

Only those organometallic compounds of low chemical reactivity find any immediate biological application. It is out of the question, for example, to use organopotassium compounds directly, for they are not only spontaneously inflammable but react violently with water and carbon dioxide; and both violently and indiscriminately with the organic materials that go to make up cells.

However, it is probable that reactive types like those of magnesium (the Grignard reagents) and those of lithium are of greatest biological significance not because of their effects on body cells and fluids but because of the uncommon service they give to an understanding of biologically active material. There is hardly a branch of biologically active organic compounds (like vitamins, hormones, carcinogens) wherein RM compounds have not been used in one way or another to throw light on reaction mechanisms and procedures concerned with the structure and preparation of such compounds. It is doubtful if any class of organic compounds exceeds the reactive...
Editor's Summary

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