

betic subcutaneous depot actually excessive to begin with? Does the juvenile diabetic exhibit a second functional lesion in the manner in which muscular exercise elicits and perhaps generalizes a hypoglycemic factor of work? Is the hepatic glucose release in exercise inadequate in the treated diabetic? The ability to regulate a condition per se with an agent like insulin does not compel the conclusion that the underlying defect must be sought exclusively in the inadequacy of insulin secretion.

REFERENCES

- ¹ Ingle, D. J., Nezamis, J. E., and Morley, E. H.: *Am. J. Physiol.* 165:469, 1951.
- ² Levine, R., and Goldstein, M. S.: *Recent Prog. Horm. Res.* 11:343, 1955.
- ³ Goldstein, M. S.: *Ann. New York Acad. Sc.* 82:378, 1959.
- ⁴ Goldstein, M. S., Mullick, V., Huddleston, B., and Levine, R.: *Am. J. Physiol.* 173:212, 1953.
- ⁵ Goldstein, M. S.: Humoral nature of hypoglycemia in muscular exercise. *Am. J. Physiol.* 200:67-70, 1961.

M. S. GOLDSTEIN, M.D.
Chicago

BOOK REVIEWS

INTERNATIONAL BIGUANIDE-SYMPOSIUM (INTERNATIONALES BIGUANID-SYMPOSIUM) PROCEEDINGS OF CONFERENCE HELD MAY 12-13, 1960, AT AACHEN, GERMANY. Edited by F. Bertram and G. Michael, \$4.00, pp. 167, Georg Thieme Verlag, Stuttgart, Germany, 1960. (In U.S.A. and Canada, Intercontinental Book Corporation, New York 16, N.Y.)

Though described as international, almost all of the participants of this "Biguanid-Symposium" were from German-speaking countries (Germany, Austria and Switzerland); only two of twenty-one papers were presented by American authors. This alone demonstrates the great interest and the wide acceptance which the hyperglycemic biguanides have found in Europe, particularly in Germany, which, thirty years ago, rejected as too toxic the first orally effective hypoglycemic agent, a guanidine derivative, introduced by the German clinician, Frank. Indeed, Professor Bertram of Hamburg who once had opposed the use of Synthalin because of disappointing clinical experiences, presided over the present symposium and stated in his concluding remarks: "that I would not like to overlook again biguanide in the therapy of diabetes mellitus." His opinion was based on the universally favorable reports from German and Austrian hospitals and clinics on the use of the biguanides as sole agents in the treatment of maturity onset diabetes and in combination with insulin in the treatment of growth onset and brittle diabetes. Besides DBI (phenformin) the German investigators employed a butyl-biguanide (W37). Reference was also made to a dimethyl biguanide (La 6032) apparently widely used in France. While these three agents seem to have about the same mode of action and the same side effects (main-

ly, gastrointestinal incompatibility), they differ in their effective dosage. DBI appears to be twice as potent as butyl-biguanide and twenty times as much as the dimethyl derivative. None of these agents seems to have shown any organic toxicity when used in clinically recommended doses, but reference was made to a few instances of ketoacidosis, apparently precipitated by the compounds. Considerably larger doses caused marked pathological changes, particularly in the liver and kidneys of experimental animals. Therefore, Creutzfeldt warned against premature optimism. Caution seems indeed to be warranted since the mechanism of action of the hypoglycemic biguanides is still poorly understood. The theoretical papers and discussions added much speculation but few new facts. The main paper in this section gave a summary of the research data of the various laboratories in America.

This well prepared volume contains transcripts of most of the discussions, in addition to the formal papers. It should be valuable to everyone interested in the modern management of diabetes.

PRACTICAL CLINICAL MANAGEMENT OF ELECTROLYTE DISORDERS. By William J. Grace, M.D. \$4.95, pp. 132, Appleton-Century-Crofts, Inc., New York.

This is a small book, written in simple terms. In the preface, the author states that many monographs on fluid balance are capably prepared but contain too much detailed physiology for most physicians. In this book the author presents, by topic, clinical case histories first, then discusses briefly the management, along with physiology. This type of outline is in contrast to the usual book published on fluid balance.

There are ten chapters. The author starts with a discussion of alkalosis due to gastric fluid loss. Case reports are given with a discussion of physiology following. A liberal use of ammonium chloride in the treatment of alkalosis is recommended. However, no mention is made of the possible toxicity of ammonia. It might be said that the liberal use of ammonium chloride in the treatment of alkalosis as yet has not come to be accepted by all. Following, there is a discussion of heart failure with hyponatremia. The material is well presented. Next, uremia, renal acidosis and acute renal failure are discussed. There is a chapter on diabetic acidosis. Some authorities in the field of diabetes might disagree with the method of treatment presented. Dr. Grace gives only 50 units of insulin per hour because "the body cannot utilize more than 50 units of insulin per hour." This statement might be challenged. Also, most authorities would consider 6 to 8 liters of saline as an excessive amount of sodium input unless there was evidence of severe extracellular dehydration. Furthermore, 60 mEq. of potassium as an average replacement dose is insufficient.

The author then follows with a section on electrocardiographic changes in electrolyte abnormalities. Chapter Seven deals with the replacement of electrolyte deficits. The author appears to favor the use of formulas and calculations to decide amounts of replacement therapy. It is this reviewer's belief that formulas can never substitute for clinical experiments in deciding upon replacement therapy. However, the author does point out the limitations of each formula. A chapter dealing with the Henderson-Hasselbalch Equation is presented. It is clear and well outlined. Finally, the author concludes with sections on magnesium and potassium deficiency.