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THE
MEDICAL
SCIENCES

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BIBLIOTECA

A REFERENCE HANDBOOK
OF
THE MEDICAL SCIENCES

EMBRACING THE ENTIRE RANGE OF
SCIENTIFIC AND PRACTICAL MEDICINE
AND
ALLIED SCIENCE

BY VARIOUS WRITERS

A NEW EDITION, COMPLETELY REVISED AND REWRITTEN

EDITED BY ALBERT H. BUCK, M.D.
NEW YORK CITY

VOLUME VII

ILLUSTRATED BY CHROMOLITHOGRAPHS AND SIX HUNDRED AND EIGHTY-
EIGHT HALF-TONE AND WOOD ENGRAVINGS

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A REFERENCE HANDBOOK

OF

THE MEDICAL SCIENCES.

Saccharin.
Saccharomycosis.

SACCHARIN or **GLUSIDE** — (*Benzoyl-sulphonamide*). A coal-tar product, a derivative of toluene, with the formula $C_6H_4(CO)(SO_2)NH$. It occurs as a light, white powder, odorless but with an intensely sweet taste. It is very slightly soluble in cold water, more so in boiling water, alcohol, and glycerin. Its solution gives an acid reaction, and it forms sweet salts with alkaloids and metals. Its property of combining with alkaloids is taken advantage of to supply quinine and other bitter substances in a more palatable form. The insolubility of gluside is overcome by combining it with soda to form a soda salt which is very soluble. It may be prepared by dissolving one hundred parts in water and neutralizing the solution with bicarbonate of soda and evaporating to dryness; this forms one hundred and thirteen parts of soluble gluside or saccharin. It has been placed in the British Pharmacopœia under the title of Glucidum. Excepting in its sweetening power, gluside is not allied to sugar in any way. It does not affect polarized light, it lacks the essential character of sugar to produce alcohol by fermentation, and when administered does not increase the production of sugar in the system. It is this latter quality that renders it of value in the treatment of diabetes, where it is desired to avoid the use of sugar as far as possible. Gluside is two hundred and eighty times as sweet as sugar, and if it is remembered that an ordinary lump of sugar ranges from 150 to 300 grains, it is very evident that one-half to one grain will be an equivalent. Its disadvantages are the distaste that the patients are liable to have for it after using it for a time, and the dry, acrid sensation which it produces in the pharynx. In medicines, it may also be used to replace sugar and syrup for the purpose of rendering them palatable, one grain with a six-ounce mixture furnishing sweetness equal to one ounce of ordinary syrup. To facilitate dispensing, the following solutions are prepared:

Liquor Glusidi.—From the "National Formulary" of the American Pharmaceutical Association. Gluside, 512 grains; bicarbonate of sodium, 240 grains; alcohol, 4 fluidounces; water, sufficient to produce 16 fluidounces. Each drachm represents four grains of gluside.

Elixir Glusidi.—From the "Unofficial Formulary" of the British Pharmaceutical Conference. Gluside, 480 grains; bicarbonate of sodium, 240 grains; rectified spirit, $2\frac{1}{2}$ fluidounces; distilled water, a sufficiency. Rub the gluside and the bicarbonate of sodium in a mortar, with half a pint of distilled water gradually added. When dissolved, add the spirit, filter and wash the filter with sufficient distilled water to make one pint. Each drachm represents three grains. Saccharin may be given freely, as it is devoid of toxic action. In some cases reported its prolonged use has produced symptoms of gastric disturbance with indigestion, but this rarely occurs. As much as seventy-five grains have been given at one dose without producing any ill effect. It is, however, advisable that not more than twenty-five grains daily be administered.

Gluside possesses antiseptic properties in common with other coal-tar derivatives, and for this reason it has been suggested as a remedy in many diseases. It has been

used in pulmonary phthisis, acute articular rheumatism, scarlatina, intestinal catarrh, cystitis, and a number of other disorders in which its antiseptic action might prove of service. Of these, cystitis is the only one in which any satisfactory results have been obtained. In this condition it is administered internally and renders the urine antiseptic during its excretion. When there are pus and an alkaline reaction, this is rapidly overcome, and the urine becomes clear and normal in character; the change in the urine being accompanied by a corresponding improvement in the mucous membrane of the bladder. Three grains, in divided doses, daily, is the quantity recommended, and this is to be continued for a prolonged period. The bladder may also be irrigated at the same time. *Beaumont Small.*

SACCHAROMYCOSIS.—Our knowledge of pathogenic yeasts and of the pathological conditions produced by them is at present but slight; and the unsatisfactory state of the classification and terminology of the blastomycetes has led to much confusion. Inasmuch as the blastomycetes are usually divided into various genera, *Saccharomyces*, *Oidium*, *Monilla*, etc., the term *saccharomycosis* should be limited to the pathological conditions produced by the yeasts which are included under the *Saccharomyces*, viz., those characterized by their power to ferment sugar and form alcohol, of which *Saccharomyces cerevisiæ* may be taken as the type. But few observations of such pathogenic yeasts have been made. The most important contributions to this subject are those of Busse and Curtis.

In 1895 Busse obtained pathogenic yeasts from a woman suffering with a peculiar cystic tumor of the tibia, which on microscopical examination presented the appearance of a sarcomatous-like granulation tissue containing giant cells. From the viscid fluid obtained from the tumor yeast-like fungi were cultivated. Pure cultures of the yeast were pathogenic for mice and rabbits, giving rise, when injected into the animal, to nodules of chronic granulation tissue, and leading to the formation of metastatic miliary nodules in the brain, kidneys, and lungs. The organism grew well on ordinary media, at ordinary and incubator temperatures, forming white, non-characteristic growths, which did not liquefy gelatin. On special media to which malt extract was added the growth was more abundant, and on potato and other media, grayish or black cultures were obtained. Acid media seemed especially to favor its growth. Glucose media were fermented with the production of alcohol and carbonic dioxide. Reproduction took place by budding exclusively. The patient died thirteen months after the appearance of the tibial tumor, and at autopsy numerous foci of disease, containing the yeast in great abundance, were found in the lungs, kidney, and spleen, some reaching the size of an apple. The yeasts were also found in a small corneal vesicle. Microscopically these lesions resembled those of a chronic inflammatory process with caseous and fatty degeneration; in these lesions the yeasts were found in great numbers, lying singly or in colonies.

In the next year a similar case was reported by Curtis,