# FUNCTIONAL DISORDERS OF THE LARGE INTESTINE AND THEIR TREATMENT

JACOB BUCKSTEIN

Harper's Medical Monographs

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By

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PRINTED IN THE UNITED STATES OF AMERICA
FIRST EDITION
G-G

TO MY WIFE

# ILLUSTRATIONS

## ROENTGENOGRAPHS

# INTRODUCTION

In the large majority of patients coming to the physician for relief of symptoms of abdominal distress, no organic lesion can be determined. The underlying cause is to be found rather in a derangement of functional behavior in some part of the gastro-intestinal tract. This is particularly true regarding many of the disorders affecting the large intestine.

An attempt has been made in this monograph through a careful survey of the literature, to describe the more common functional disturbances of the colon, their causes and treatment.

I have drawn from every available source that might help to clarify the subject.

I am particularly indebted to my secretary, Miss Mary Fellers. She has made all the excellent drawings and reproductions of radiographs used in this monograph.

# FUNCTIONAL DISORDERS OF THE LARGE INTESTINE AND THEIR TREATMENT

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CHAPTER I

# THE NORMAL COLON

A. *The Visualization of the Colon.*—A considerable advance in our knowledge of the functional behavior of the large intestine resulted from the introduction and development of the roentgen method.

Prior methods for the determination of the position and pathology of the colon were those of air inflation[1, 2] and fluid injection[3] combined with percussion.

In 1898 Cannon[4] published the results of his classical experiments on the physiology of the stomach by roentgen observation after the administration to a cat of bismuth subnitrate mixed with food.

In a later paper[5] for a study of the intestinal

[1] Curschmann, H.: "Einige Bemerkungen zur Behandlung des durch acute Darmverschliessung bedingten Ileus," *Deutsch. med. Woch.*, 1887 Nr. 31:445.

[2] Ziemssen, V.: "Die kunstliche Gasaufblahung des Dickdarms zu diagnostischen und therapeutischen Zwechen," *Deutsch. Arch. f. klin. Med.*, 33:235, 1883.

[3] Minkowski, O.: "Zur Diagnostik der Abdominaltumoren," *Berl. klin. Woch.*, 25:617-620, July, 1888.

[4] Cannon, W. B.: "The Movements of the Stomach Studied by Means of the Roentgen Rays," *Am. Jour. Physiol.*, 1:359, 1898.

[5] Cannon, W. B.: "The Movements of the Intestine Studied by Means of the Roentgen Rays," *Am. Jour. Physiol.*, 6:251, January, 1902.

movements, he not only employed the administration of a bismuth mixture by mouth, but devised a method of studying the large bowel by the direct intra-rectal administration of a radiopaque enema. "The enema consisted of 100 c.c. of milk, one egg, ten to fifteen grams of bismuth subnitrate, and two grams of starch to hold the bismuth powder in suspension." He obtained actual roentgenograms of the colon of the cat, and was able to record his observations of motor function, antiperistalsis, and the effect of emotions.

It remained particularly for Rieder[6] to emphasize the extreme value of the method for study in the human being not only of the stomach, but of the physiological behavior of the intestinal canal as well.

Schule[7] succeeded in demonstrating the outline of the entire colon in man, from the rectum to the ileo-cecal valve, by direct rectal introduction of an enema of 300 to 400 c.c. of oil to which bismuth subnitrate was added. The method had obvious advantages for the study of the large intestine over such means as the introduction of sounds or of non-opaque fluids combined with succussion.

Rieder similarly outlined the colon by administration of an enema consisting of 75 grams of bismuth carbonate, 250 grams of bolus alba, and a thousand grams of water. The enema was first in-

[6] Rieder, H.: "Radiologische Untersuchungen des Magens und Darms beim lebenden Menschen," *Münch. med. Woch.*, 51:1548-1551, 1904.

[7] Schule: "Ueber die Sondierung und Radiographie des Dickdarms," *Archiv. fur Verdauungskrank.*, Berlin, 10:111-118, 1904.