



INTESTINAL MOTILITY IN MAN,

A STUDY COMBINING THE USE OF INTRALUMINAL  
PRESSURE RECORDING AND CINE-RADIOGRAPHY WITH SPECIAL  
REFERENCE TO NORMAL SUBJECTS, PATIENTS FOLLOWING PARTIAL  
GASTRECTOMY AND PATIENTS WITH THE IRRITABLE COLON SYNDROME

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The study of the function of the alimentary tract was particularly intense during the early years of this century. The names of Bayliss, Starling, Cannon and Pavlov first became familiar in connection with their studies of gastro-intestinal physiology. Thus in the first two decades of this century major advances were made in the understanding of intestinal motor function, gastric secretion and the influence of the psyche on the functions of the digestive tract.

However, a change in research interests followed upon Einthoven's discovery of the string galvanometer and the application to medicine of the physical principles of gases and fluids by Haldane, Barcroft and Starling. Physiologists tended to relinquish the gut to the surgeons and to concentrate their efforts on the problems of cardiology, respiratory function and metabolism. This consequently left gastro-enterology one of the least developed specialties in medicine, and little new knowledge of a fundamental nature was acquired for many years.

However, as Sir Thomas Lewis has remarked, the most backward subject is the one ready for the most rapid advance. In recent years, gastro-enterology has acquired a number of valuable techniques which have stimulated renewed interest and accelerated progress in this field. A wealth of information is being provided by radio-isotopes, transistorised telemetering equipment for manometric studies, X-ray image intensification, instruments for the biopsy of the liver and gastro-intestinal mucosa, the electron microscope, histochemical methods and enzyme assays.

The prime functions of the gastro-intestinal tract are digestion and absorption. These processes are wholly dependent on the secretion of digestive juices and on the mixing, distribution, transport and storage of intestinal contents. The motor activity or motility of the alimentary tract is responsible for mixing, distribution, transport and storage and is thus a vital part of gastro-intestinal function.

The motility of the bowel deserves careful study because of the essential part it plays in the over-all function of the gut. Knowledge may be gained of the behaviour of smooth muscle, of the integration and coordination of intestinal motor activity by neural and humoral means, and of the role of substances such as acetylcholine and serotonin in the control of normal motility. Furthermore, aberrations in motility are encountered in many clinical disorders: these include cardiospasm; abdominal pain, constipation and diarrhoea without demonstrable organic cause ("irritable colon" syndrome); diarrhoea and post-prandial distress following gastric operations, jejuno-ileal insufficiency; ulcerative colitis; congenital and acquired megacolon; carcinoid tumour with hyperserotoninaemia; thyroid disorders; and diabetes mellitus.

X-ray image intensification, transistorised telemetering equipment and electronic improvements in transducer design have provided techniques which are more accurate and physiological than those used in the past. The application of these new techniques to the study of motility has already resulted in the acquisition of new knowledge, and

it is to be hoped that further progress will dispel the ignorance which still attaches to many aspects of this important part of alimentary function.