

British Society of Gastroenterology

The annual meeting of the British Society of Gastroenterology was held at the Postgraduate Medical School of London on 13-14 November 1964 with Dr. Charles Newman as President and Dr. C. C. Booth as the local secretary.

At the annual general business meeting the following elections were made: President-Elect, W. M. Capper; Hon. Treasurer, G. D. Hadley; Hon. Secretary, H. A. Magnus; Council Member, R. B. Welbourn. Honorary membership was conferred on Professor Charles Code, Sir Charles Dodds, Bart., Sir Howard Florey, Dr. Lionel Handy, Professor Bengt Ihre, and Dr. Ian Wood. The following were elected to membership of the Society: A. R. Anscombe, E. L. Blair, A. G. Cox, B. Creamer, H. L. Duthie, H. Ellis, R. Franklin, A. G. Parks, P. C. Reynell, R. Smith, J. A. Williams, R. S. Williams. The following were elected as Associate Members: P. E. Aylett, G. Bohn, K. G. Buckler, A. W. Dellipiani, L. P. R. Fourman, P. A. M. Fitzgerald, R. Holmes, J. H. Jones, W. M. Keynes, L. W. Lauste, J. W. Laws, R. D. Montgomery, J. A. Parrish, A. J. Ralston, J. Rhodes, V. M. Rosenoer, T. J. Thomson, G. R. Thompson, H. J. Tracy, W. C. Watson, K. G. Wormsley, A. C. Young.

The annual dinner was held at the Apothecaries Hall. The President welcomed our new honorary members. Dr. Bengt Ihre replied and was enthusiastically acclaimed in a traditional fashion. The dinner was a splendid occasion.

The following papers were presented at the scientific meeting.

THE RELATIONSHIP BETWEEN DUODENAL ULCERATION AND NOCTURNAL DUODENAL pH

B. RICHARDS (St. Bartholomew's Hospital) SPONSORED BY IAN TODD The duodenal pH was measured for six-hour periods at night in patients with duodenal ulceration and compared with the duodenal pH of controls. Mixing and the mechanical effects of aspiration were avoided by the use of an indwelling glass electrode system.

Acid gastric fluid enters the duodenum for more than 70% of the test period in nearly all duodenal ulcer subjects, but in less than 10% of normal patients. Gastric juice enters the duodenum for less than half the test period in the majority of controls.

Sleep, or wakefulness, made no significant difference to the tracings obtained.

Antispasmodics (probanthine 15 mg. was used in a double blind technique) reduced the active tracing of duodenal ulcer patients to within normal limits in every case when given on an empty stomach. It is suggested that antispasmodics effectively reduce the duodenal acidity by altering gastric motility even if they have little effect on gastric acid secretion.

THE pH IN THE DUODENAL BULB

J. RHODES, H. T. APSIMON, and J. C. PRESTWICH (Cardiff) SPONSORED BY A. H. JAMES The pH in the duodenal bulb was recorded continuously by glass electrodes in normal subjects and patients with ulcer. After food the pH fluctuates rapidly between extremes of 2 and 7.5: at night there are long periods when the pH is neutral. Individual rises in duodenal acidity can be associated with antral contractions.

Conditions of acidity in the ulcer-bearing area of the duodenum are unlike those obtaining elsewhere in the alimentary tract, and are different as between normal and ulcer subjects. The implication for causation and symptoms of duodenal ulcer will be discussed.

GASTRIC EMPTYING TIME

K. BUCKLER (Bristol) SPONSORED BY W. M. CAPPER The majority of methods of estimating gastric emptying time so far described have been developed for research purposes, and depend either on aspiration of fluid 'meals' or on radiological studies of barium sulphate mixed with normal food. Two new methods, which are applicable for routine clinical examination, are described and compared, and the results of a series of pre- and post-operative assessments are presented.

THE COURSE OF ULCERATIVE COLITIS

J. MCK. WATTS, T. DE DOMBAL, G. WATKINSON, and J. C. GOLIGHER (The General Infirmary, Leeds) During the past 13 years, 204 patients had been treated at the Colitis Clinic, The General Infirmary, Leeds, in their first attack of ulcerative colitis. The outcome of this first attack will be described in relation to the rapidity of onset, severity, and extent of the disease and the age of the patient.

At the time of review 185 of these 204 patients were surviving, 56 having been referred for radical surgical treatment. The subsequent course and outcome of both these surgical and medical groups of patients will be described, a comparative evaluation being made of the long-term results of both forms of treatment.

A CONTROLLED CLINICAL TRIAL OF VARIOUS TYPES OF DIET IN ULCERATIVE COLITIS

R. WRIGHT and S. C. TRUELOVE (Oxford) The effect of diet on the clinical course of ulcerative colitis was studied by means of a controlled clinical trial.

Patients with ulcerative colitis seen during an attack were allocated at random to three different diets: a milk-free diet, a gluten-free plus milk-free diet, and a 'dummy' diet. They were seen at monthly intervals over the course of one year for assessment of the clinical state, for sigmoidoscopy and rectal biopsy, and to have blood taken for haemoglobin, E.S.R., total eosinophil count, and immunological tests.

The milk-free diet gave the best clinical results, which will be presented and discussed.

The immunological results will be briefly summarized.

CONTROLLED CLINICAL TRIALS OF PREDNISON
15 MG. DAILY, AND SULPHASALAZINE, 2 G. DAILY,
AS MAINTENANCE TREATMENTS FOR ULCERATIVE
COLITIS IN REMISSION

J. J. MISIEWICZ, J. E. LENNARD-JONES, A. M. CONNELL, J. H. BARON, and F. AVERY JONES (Central Middlesex Hospital) No treatment has so far been shown to influence the relapse rate in ulcerative colitis. Two trials of maintenance treatment for out-patients whose colitis was in remission have been conducted.

In the first trial 15 mg. of prednisone daily for six months was compared in double-blind fashion with a placebo. Eighteen of 32 patients on prednisone and 17 of 30 patients on a placebo relapsed.

In another similar trial, sulphasalazine, 2 g. daily for one year, was compared with a placebo. Twenty-four out of 34 patients receiving sulphasalazine remained in symptomatic remission for one year while only eight patients out of 33 remained symptom-free in the placebo group.

It is concluded that sulphasalazine is an effective maintenance treatment for ulcerative colitis in remission.

CHOLINERGIC POTENTIATION OF THE GASTRIC
RESPONSE TO HISTAMINE IN MAN

R. A. PAYNE, I. E. GILLESPIE, and A. W. KAY (Royal Infirmary, Sheffield) In dogs the maximal gastric acid response to histamine can be increased by 30% by cholinergic stimuli (Marks, Komarov, and Shay, 1960), and the greatest degree of potentiation between the two stimuli is exhibited by the combination of small doses of each (Gillespie and Grossman, 1964).

In man the addition of stable choline esters to maximal histamine dosage had previously been found to cause no further increase in acid response. Reduced doses of both histamine and choline ester (Mecholyl: acetyl-beta-choline) have been given in combination in the present study, and it has been found that the simultaneous administration of small doses of both stimuli cause acid outputs 20% greater than maximal histamine responses. The variation between the findings in dog and in man may reflect a quantitative difference in cholinergic 'tone'.

THE MECHANISM OF INHIBITION OF HISTAMINE-
STIMULATED GASTRIC SECRETION BY DUODENAL
ACIDIFICATION IN MAN

H. L. DUTHIE (The General Infirmary, Leeds) A dual vagal and humoral mechanism was suggested.

HISTAMINE INFUSION TEST

J. H. LAWRIE (Cardiff) SPONSORED BY A. P. M. FORREST The results of histamine infusion tests of gastric acid output in a series of 500 patients and normal controls were presented.

In 'true' normals, *i.e.*, patients without dyspepsia or radiological abnormality, there is little variation in acid outputs and no sex difference was noted. Patients with duodenal ulcer have a significantly increased output as do dyspeptic patients in whom coarse duodenal folds are demonstrated radiologically. In patients with gastric ulcer acid output is distributed bimodally, half having an abnormally high, and the others an abnormally low, secretion. Low levels of secretion are found in 50% of patients with iron-deficiency anaemia in whom studies relating gastric acid output to iron absorption are being made.

GASTRIC POUCH RESPONSES BEFORE AND AFTER
VAGAL DENERVATION OF THE POUCH

D. W. DALY, B. V. HEATHCOTE, and I. E. GILLESPIE (Royal Infirmary, Sheffield) It is becoming increasingly clear that the vagus nerves may be involved in several different mechanisms controlling gastric secretion. Consequently total gastric vagotomy may interfere with a number of different factors regulating gastric responses.

The present experiments were designed to study the effects of vagally denervating a pouch of the fundic glands, without at the same time interfering with the innervation of the remainder of the stomach.

Three dogs were prepared with separated but vagally innervated fundic pouches. In each studies were made before and after division of the single vagal trunk supplying the pouch.

It was found that fundic vagotomy alone almost completely abolished basal secretion and greatly reduced the response to submaximal doses of gastrin and of histamine. There appeared to be little effect on the maximal gastrin and maximal histamine responses. The response to a standard meal, which was profoundly diminished after vagotomy, could be restored to pre-vagotomy levels by giving Mechothane simultaneously with the meal.

It is suggested that most stimuli to gastric secretion require acetylcholine, perhaps in a potentiating role, to elicit full responses.

THE INFLUENCE OF THE ENDOCRINE SYSTEM ON THE
GROWTH OF THE GASTRIC MUCOSA IN THE RAT

G. P. CREAN (Western General Hospital, Edinburgh) The rat has been used as an experimental model to study the role of the endocrine system and certain other factors in regulating the growth of the gastric mucosa. For this purpose quantitative (1, 2, 3) histological techniques have been used to estimate parietal and peptic cell populations, and the amount of the gastric mucosa in rats under different experimental conditions. There is a marked regression in the growth of the gastric mucosa after hypophysectomy, and cell populations and the amount of the mucosa are greatly reduced. These effects of hypo-

physectomy are not due to inanition, are not mediated by the adrenal cortex, and are prevented by growth hormone but not by the other pituitary hormones. The adrenal cortex and the gonads do not exert any significant influence on the growth of the gastric mucosa, and under normal conditions the rate of growth of the stomach is determined by body weight rather than by sex or age.

The experimental data to be presented are consistent with the view that growth of the gastric mucosa is regulated by a feed back mechanism operating through the pituitary. This may not be the only mechanism involved, however, because some preliminary results suggest, tentatively, that growth of the gastric mucosa may also be influenced by other 'local' factors such as the vagus nerve and/or the hormone gastrin.

THE PHYSIOLOGICAL PROPERTIES OF SOME SYNTHETIC PEPTIDES RELATED TO GASTRIN

HILDA J. TRACY and R. A. GREGORY (University of Liverpool) We have described the properties of two peptides (gastrins I and II) which we isolated from hog antral mucosa. Kenner and his co-workers in the Department of Organic Chemistry of this university have elucidated the structure of gastrin II, and have almost completed the synthesis of the molecule from its constituent amino-acids. During this work they have kindly made available to us for physiological study a considerable number of synthetic peptides corresponding to different portions of the gastrin molecule. This communication will present the results of a preliminary survey of the properties of these compounds. Some of them have actions which closely resemble those of the complete gastrin molecule.

LIMITATIONS OF SOME INTESTINAL FUNCTION TESTS

H. G. SAMMONS (East Birmingham Hospital) The three most commonly used diagnostic tests for malabsorption are the measurement of faecal fat, the absorption of labelled fats, and the xylose tolerance test. In a subject with malabsorption daily output of faecal fat depends largely on (1) the intake and (2) the type of fat eaten. The normal person can tolerate up to 150 g. of fat per day but the patient with malabsorption may show steatorrhoea on a 70 g. intake though he may be able to absorb 40 to 50 g. On the other hand he may absorb unsaturated fats much better than saturated ones and since labelled fats are nearly always unsaturated this method is of debatable value. Furthermore, fats labelled with large amounts of iodine can seriously affect thyroid function tests.

The rate and extent of absorption is dependent on the area available for absorption. The whole small intestine may be defective or only a small area. If only a small area of the intestine is damaged xylose may be completely absorbed in the five-hour excretion test, especially if the dose is only 5 g.

Some suggestions to overcome the limitations outlined above will be presented.

THE MECHANISM OF AEROPHAGY AND BELCHING

D. A. W. EDWARDS (Central Middlesex Hospital) Aero-phagy, belching accompanied by reflux of fluid, and normal belching have been studied by cinefluorography and manometry in patients and talented volunteers because of the clinical importance of the disorders and the relevance of the mechanisms to the anti-reflux mechanism. Aero-phagy can be precisely defined, and the eructated gas comes from the oesophagus and not the stomach. Several patterns of belching have been found, more problems have been defined, but few of them solved.

COLONIC EXCLUSION IN THE TREATMENT OF CHRONIC HEPATIC ENCEPHALOPATHY

J. G. WALKER, V. M. ROSENOER, A. CRAIGIE, A. EMLYN WILLIAMS, and SHEILA SHERLOCK (Royal Free Hospital) Absorbed products of protein degradation by colonic bacteria may be responsible for some of the features of hepatic encephalopathy.

Colonic exclusion with ileo-rectal anastomosis has been carried out in four patients who, despite Neomycin therapy and protein restriction, were severely disabled by long-standing hepatic encephalopathy. All showed extensive portal systemic shunting of blood.

Marked improvement, sufficient for the patients to work, occurred in two patients and less striking improvement in a third. None is now receiving Neomycin. A fourth patient died two weeks postoperatively.

In a fifth patient preparative ileostomy with colonic lavage has been employed.

The effect on liver function, blood ammonia concentration, and urinary amine excretion will be discussed.

RADIOLOGY OF CROHN'S DISEASE OF THE LARGE INTESTINE

A. C. YOUNG (St. Mark's Hospital) SPONSORED BY B. C. MORSON This paper describes the radiological findings in patients already reported by Lockhart-Mummery and Morson. The appearances include polypoid and ulcerating lesions of the mucosa, stricture, and dilatation in the lumen, intraluminal masses and extraluminal indentations. The distribution of lesions is often characteristic. In addition to these well-recognized signs the rectal appearances may be typical; the haustral abnormality and the appearances of the transition zones between obviously diseased and obviously normal bowel are discussed. The differential diagnosis includes a brief summary of the main differences between Crohn's disease and ulcerative colitis.

DISACCHARIDE MALABSORPTION IN ADULTS

H. MCMICHAEL, JOAN WEBB, and A. M. DAWSON (Department of Medicine, Royal Free Hospital) Various disaccharidase activities have been estimated in histologically normal jejunal mucosa in 43 patients. Fourteen patients have low lactase activity, 13 of these have diarrhoea. Several have milk intolerance, and a positive family

history is sometimes given. Lactose tolerance tests are usually flat. pH, lactic acid, and volatile fatty acids in stool have been of no diagnostic aid. Evidence is presented that symptoms are often precipitated by other gastro-intestinal disorders. Symptoms are usually controlled by a milk-free diet.

OSTEOMALACIA AFTER GASTRECTOMY IN YORK

D. B. MORGAN, C. R. PATERSON, C. G. WOODS, P. FOURMAN, and C. N. PULVERTAFT (Leeds) Our survey of 400 unselected patients (22 June 1964) reveals 34 with low plasma calcium or high alkaline phosphatase—only two with both. Forty-two selected patients have had a bone biopsy for histology and measurement of the mineral content of the bone chemically and by physical density. These measurements provide the best and sometimes the only index of bone disorder. Radiographs of the hands may help. Some patients have had low intakes of vitamin D. The disorder responds quickly to very small doses of the vitamin.

EXPERIMENTAL STUDIES IN GASTRIC HYPOTHERMIA

L. H. BLUMGART (Royal Infirmary, Sheffield) SPONSORED BY A. W. KAY The enthusiasm for gastric 'freezing' as a treatment for peptic ulceration has recently been matched by doubts as to the basis for the treatment and anxiety with regard to its safety.

The dearth of precise information as to the temperatures achieved in the stomach and the effects produced at various temperatures prompted this study.

The degree, range and distribution of temperature fall achieved at the surface of the balloon suspended in a

tank of water were studied. Temperatures recorded at multiple points in the submucosa of the stomachs of a series of dogs subjected to a single gastric 'freeze' were correlated with the findings at laparotomy at the end of the procedure and with the macroscopic and microscopic findings in the stomach three to five days after freezing.

Modified balloon and inlet systems have been developed in an attempt to improve the technique and have been similarly tested in a tank of water and in the living animal.

Results not only demonstrate defects in the recommended technique and improvements with modified apparatus but define the temperatures at which gastric ulceration occurs.

The effects of 'freezing' on gastric secretory function with both standard and modified apparatus is in progress.

EXPERIMENTAL GASTRIC HYPOTHERMIA

R. BUCHAN and C. G. CLARK (University of Aberdeen) Studies of gastric freezing both in man and animals leave considerable doubt regarding its feasibility and its potential therapeutic role. This study of freezing in the rat, however, indicates that achlorhydria can readily be induced and that the effect persists for many months. The late consequences of freezing have been studied and although gastric function is impaired, overall metabolism is little affected.

Satisfactory methods of applying the technique to man are not yet available, but some consequences can be deduced from the experiments in the rat, and the therapeutic potentialities will be discussed in the light of these experiments.