

the acreage under potatoes actually increased in the post-famine years. The history of the Irish people is in no small degree that of its subjection to a potato dietary.

HORMONES OF THE DIGESTIVE TRACT

A BRIEF summary of the chief discoveries which have led up to our present knowledge of the intrinsic hormones of the digestive tract is outlined by Prof. R. J. Brocklehurst in his presidential address to Section I (Physiology). This system of local hormones, all probably related to proteins, found in the upper part of the abdominal portion of the alimentary tract, is unique in that the active substances, released from certain parts of the tract, act on digestive organs in the near neighbourhood, without apparently having effects on remote parts of the body, such as occurs with the hormones secreted by the endocrine glands. So far as is known, the alimentary tract hormones are not discharged into the blood as a result of nerve stimulation; most of them are released as a result of the contact of substances in the gastric or intestinal contents with the mucous membrane, and the prolonged effects which they produce are limited to the period of such contact. There is evidence that some, at least, of them are destroyed fairly rapidly in the blood.

The elucidation of these hormonal mechanisms has been carried out in the main with the help of ingenious operative procedures specially designed to demonstrate the responses of particular organs, freed, so far as possible, from complicating factors such as their nerve supply. These procedures have included the formation of pouches of the two main parts of the stomach, fistulae of the small intestine, the transplantation of pouches and glands to subcutaneous sites where they obtain a new blood supply, and the technique of cross-circulation.

Three humoral factors are concerned in gastric digestion. Gastrin is a substance which is released from the mucous membrane of the pyloric part of the stomach when certain food substances come into contact with it; it travels by the blood-stream to the body of the stomach and there stimulates the secretion of acid gastric juice. Much research has been carried out with the purpose of deciding whether gastrin is the same as histamine, a powerful acid-secreting stimulant known to be present in the stomach; but, as active gastrin preparations containing no appreciable quantity of histamine have been prepared, it now seems likely that they are separate substances. A second humoral stimulant of gastric secretion is a substance liberated from the mucous membrane of the small intestine when the contents of the stomach pass into the latter. Little is known about its nature.

Gastric digestion is retarded by a substance, enterogastrone, which is liberated when fats enter the small intestine and which has an inhibitory action on both gastric secretion and gastric motility. There is a definite possibility that these activities may be due to two distinct substances.

The secretion of pancreatic juice is stimulated by a double hormone mechanism. Secretin, the first alimentary hormone to be discovered and investigated, is discharged into the blood when dilute acid, bile salts or certain other substances come into contact with the mucous membrane of the duodenum and

upper small intestine. It evokes a secretion which is mainly an aqueous solution of bicarbonate and which has a low enzyme content. It is an important link in the self-regulating process whereby the hydrogen-ion concentration of the former gastric contents becomes reduced to a level suitable for the action of the pancreatic enzymes. The hormone can be extracted in greatest amounts from the duodenal mucosa, and in decreasing quantities as the small intestine is followed downwards. Secretin preparations are now in use on human patients for diagnostic purposes.

The enzyme output from the pancreas is markedly stimulated by a second hormone, pancreozymin, from the same source, which itself has no influence on the volume of the juice secreted. By these two means pancreatic juice, complete with its enzymes and bicarbonate, is produced when chyme enters the small intestine from the stomach.

Secretin also stimulates the rate of bile secretion by the liver, though not so effectively as bile salts. A closely related hormone, cholecystokin, also promotes the entry of bile into the small intestine by raising the tone of the gall-bladder muscle. It is discharged into the blood when fats reach the duodenum and is an important factor in indirectly facilitating the digestion and absorption of fats.

There is evidence that intrinsic hormone mechanisms play a part in the stimulation of the glands of the small intestine, and so are partly responsible for the secretion of the succus entericus. The evidence at present suggests that there may be two such hormones, one of which acts specifically on Brunner's glands in the duodenum. It has also been claimed that another intestinal hormone is concerned with the muscular activity of the small intestine villi.

HUMAN AFFAIRS AND THE PSYCHOLOGICAL POINT OF VIEW

THE point of view of a science, as Dr. J. C. Flugel indicates in his presidential address to Section J (Psychology), has some significance apart from the knowledge that has resulted from the practice of the science: the scientific point of view depends upon the adoption of a predominantly cognitive attitude or 'set' in which wishful or 'autistic' thinking is rigorously subordinated to the search for truth; the different sciences result from the adoption of this point of view with regard to different, more or less arbitrarily distinguished, categories of phenomena. Psychology results from its adoption towards the phenomena of 'mind' and of 'behaviour'—a field where this adoption has some special significance in virtue of the fact that here, even more than elsewhere, we are liable to be influenced by emotional and moral considerations rather than by objective cognitive judgment. The full significance of the psychological point of view can best be realized when we consider the impact of psychology on certain other disciplines and the conflicts between the contrasting points of view involved in such cases.

Psychology split off from philosophy very largely on account of the adoption of the empirical method of systematic observation and experiment which it endeavours to take over from the physical sciences. As a consequence of this, in its modern developments