the results of stomach analysis. Functional hyperacidity may give symptoms difficult to differentiate from ulcer. Low acidity may be present late in the disease when anæmia and emaciation has reduced the vitality below the producing point. With lowering of acidity the pain lessens. In pernicious anæmia the conditions may simulate ulcer. A blood count is necessary to distinguish.

Trauma is also a factor in the production of ulcer; produced by the grinding of food. Eighty per cent. of gastric ulcers are associated with the pylorus. Duodenal ulcers are frequently in that part where the spurt of the acid chyme from the stomach strikes against the bowel wall.

Other factors in the causation of ulcer are anæmia, loss of local resistance and toxæmia. Thrombosis, embolism, perverted nerve influence are not given much consideration in the production of ulcer. Dr. Mayo has never seen an ulcer in the jejunum after gastro-enterostomy.

Periodicity is usually a prominent factor in the history of ulcer. The attack may be sudden. The pain, sour eructations and vomiting are worst from two to five hours after meals, and continuing for days or weeks. Then a period of intermission, lasting possibly for months. These intermissions gradually become shorter until the patient is rarely free from pain. Dr. Mayo says that many of these cases have been "cured" twelve to fifteen times before they come to him.

Vomiting of food in ulcer does not take place except in obstruction or in the presence of some complication, "but gulping up of mouthfuls of bitter, burning acid liquid from the fasting stomach is the most important symptom of ulcer, and when associated with food relief and hunger-pain, goes far to establish the diagnosis of ulcer." (Graham). The patients frequently state that after they have slept a while they gulp up a few mouthfuls of bitter fluid as if they had sucked a lemon. Frequently a glass of milk or a biscuit will give relief. To make these cases surgical, all that is required is the determination of obstruction. —The retention of food in the stomach for more than seven hours. The test meal usually given is raisin cake, or underdone rice is given at night. If, in the morning, any remnants of the food remain in the stomach, it indicates obstruction, and the case ceases its medical career and becomes surgical. In alcoholic stomachs where the muscle is sluggish, more than one test is necessary to prove obstruction. The time of vomiting in ulcer is usually when the stomach is empty. When the ulcer is situated near the cardia it may be within a few hours after meals, when in the duodenum, not until four or five hours after meals. The vomitus is usually the residue of the meal mixed with acids and mucus. Hydrochloric acid, if vomiting is early, buteryc acid if the vomiting is late.