as acutely as ever before. Her general health and mental condition continued to improve as the hearing became better, and she has remained perfectly well ever since, now more than a year since recovery.

THE PRODUCTION OF DUODENAL ULCERS.

Dr. W. J. Greig, in *Canadian Practitioner*, says: "In the production of duodenal ulceration, the same causes operate as in gastric. They are peptic in origin: that is to say, they are produced by the action of the gastric juice on the mucus membrane. The proof of this lies in the fact that these ulcers are not found in the duodenum lower than the biliary papilla, where the alkaline bile flowing into the bowel neutralizes the acid secretion of the stomach."

If this is so, why is not the healthy stomach digested? The only answer that can be given to this question is, that the stomach is protected by the healthy action of the living cell. Pavy and afterwards Cohnheim asserted that the stomach was protected by the alkalinity of the blood. The inconsistency of this doctrine is shown, because an acid juice impinging on an alkaline mucus membrane would either become alkaline itself, and thus lose its digestive power, or render the mucus membrane acid, in which case the theory would not hold.

It is evident, then, that other factors are necessary in the production of gastric ulceration. The question of traumatism is then considered, and numerous instances are given which show that a healthy stomach in a healthy individual will withstand most violent assaults. Ulceration is easily produced, but heals just as easily. Daettwylu, however, has shown in his experiments on animals that, where they are rendered anæmic by repeated venesections, injuries to the mucus membrane of the stomach do not heal up so readily. In fact, the condition of chronic ulceration is produced. Briefly, the course of these gastric and duodenal ulcers occurring in anæmic individuals may be described as follows: An injury to the mucus membrane (possibly nothing more than swallowing hot food) followed by a follicular hæmorrhage into the stomach wall, which prevents proper nutrition of that spot. The gastric juice, acting on this, produces an ulcer which does not heal owing to the defective nourishment supplied by the anæmic blood.

Virchow sought to explain these ulcers by embolism. But, as Welch points out, a convincing instance of an ulcer produced by embolism has never been published. Again, a gastric or duodenal ulcer has never been found associated with a sorce of embolism, or with embolism in other organs.

Numerous cases of thrombosis, associated with more especially duodenal ulceration, have been reported, and in this fact must be found the cause of these cases occurring in elderly people, such as the case reported at the beginning of the paper. Thrombosis prevents nutrition of a limited portion of the mucus membrane, which, being acted on by the gastric juice, an ulcer is produced. The cause of the thrombosis may be found in the atheromatous condition of the blood vessels.

An interesting question is the association of duodenal ulceration with burns of the skin. Two recent writers (Drs. Perry and Shaw) have pointed out that they are probably septic in origin. They have collected eighteen cases in which a source of septic poisoning is connected with duodenal ulceration. Of these eighteen cases, in ten there was sloughing of the skin, the others were cases of otitis media, empyema, perinephritic abscess, hip-joint disease, etc.

Septic conditions are followed by congestion with petechiæ of the mucus membrane of the alimentary canal. Such petechial points as occur between the pylorus and the biliary papilla are acted on by the gastric juice, and ulcers are formed. Why the mucus surface of the stomach is exempt is not shown.