

light breakfast, and psychic factors were avoided by keeping the patients in ignorance of the purpose of the experiments. None of the patients complained of the slightest pain or discomfort. Two patients died with malignant disease, and autopsy revealed perfectly normal gastric mucosæ. The experiments show, Schmidt concludes, that with normal gastric mucosa no sensation of pain is elicited from the presence of high HCl values in the stomach.

The Absorption of Uric Acid by Cartilage.—Almagia showed that the addition of cartilage from the horse to solutions of uric acid led to diminution in concentration of the solutions after they were allowed to stand for some time, owing to the fact that cartilage possesses the power to absorb urates from solution, and to store it up in crystalline form. BRUGSCH and CITRON (*Ztschr. f. exp. Path. u. Therap.*, 1908, v, 401) have repeated Almagia's experiments, as they seemed of great importance in gout, since the constant presence of uric acid in the venous blood of the arm has been demonstrated, even when the patient is on a purin-free diet. They were able to confirm Almagia's results in every particular, and then performed the same experiments, using human cartilage in place of horse's cartilage. Cartilage from the ribs and knee of an adult and from the knee of a child were used, the experiments numbering five in all. The cartilage was cut into small pieces and added to solutions of sodium urate of known strengths; some toluol was then added and the whole placed in the incubator at 37° C. for fourteen to twenty days. Subsequent analyses showed that the solutions were markedly less concentrated, and the cartilage had absorbed urate in each experiment. Sections of cartilage examined microscopically, showed the typical urate crystals as in a tophus. It is, therefore, demonstrated that human cartilage possesses the same absorption power for sodium urate as cartilage from the horse. No difference in the absorptive power was found in the cartilage taken from the child and that from the adult, nor did cartilage from the rib differ from that from the knee. Consequently Brugsch and Citron conclude that human cartilage in general is capable of absorbing sodium urate. They proved also that this ability to absorb uric acid is manifested in weak urate solutions as well as in strong solutions. They were unable to find any evidence in their experiments to support the view held by some that tophi result from precipitation of urates from the blood. Kionka has recently made the statement that many acid substances, such as glycocoll, leucin, alanin, and allantoin, accelerate the precipitation of uric acid from solutions. It remains to be demonstrated to what extent these bodies are present in the blood in gout; it is, however, well known that the blood of gouty patients is by no means saturated with uric acid. Brugsch and Citron have tested Kionka's views experimentally in the following manner: Four preparations of horse's cartilage in weakly alkaline sodium urate were made. To the first alanin was added; to the second leucin; to the third tyrosin; and the fourth was kept as a control. All the preparations were put in the incubator for five days. Analyses made at the end of this time showed the usual absorption of the urate in the control; in none of the other specimens had the slightest absorption occurred. Therefore, so far as one may judge from experiments in vitro, the amino acids are negligible in tophi formation,

SURGERY.

UNDER THE CHARGE OF

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Primary Suture in Gunshot Wounds of the Lung.—KÜTTNER (*Deut. Ztschr. f. Chir.*, 1908, xclv, 1) compares the results obtained in three cases of gunshot wounds of the lungs: one operated on under negative atmospheric pressure in a Sauerbruch cabinet, and the other two treated by conservative non-operative methods. In the first case the bullet had entered in the region of the breast and the patient was soon seized with severe dyspnoea. On his arrival at the hospital the internal hemorrhage had evidently ceased, but during the night it began anew and continued until the following morning when he was operated on. Under negative atmospheric pressure the thorax was widely opened, when a stream of blood as thick as the arm escaped through an opening in the pleura. The lung immediately expanded and the general condition improved at once. After some search and widening of the opening in the chest wall, the wounds of entrance and exit in the lung were found and closed by sutures of silk. The lung filled out close to the chest wall, and the chest wound was sutured without drainage. Primary healing followed and the patient left his bed on the eleventh day. The most striking feature was the great change for the better in the condition of the patient at the end of the operation. He left the hospital cured on the twenty-sixth day. In the two other cases the wounds were much less dangerous, yet the results of the conservative treatment were far less favorable. One developed an empyema, for which not only was a resection of a rib done, but later a thoracoplasty. The other patient had a long convalescence, as is the result in so many cases, during which both the physician and the patient were in doubt and fear as to the ultimate result. This patient was kept in the hospital seventy-eight days and then was discharged with much deformity and in a much weaker condition than the patient operated on. Küttner could find in the literature only 5 other cases of gun-shot wound of the lung treated by primary suture. He believes that we should operate under differences in the atmospheric pressure upon the most severe, even hopeless cases of gun-shot wounds of the lung, for the purpose of directly attacking the bleeding points. He would not drain for persistent hemorrhage, but after the lung has been distended under negative pressure, he would close the chest cavity air-tight, because this aids the control of hemorrhage and the favorable course of healing. When the chest cavity is once opened for a severe primary hemorrhage, the lung wounds should be sought by all methods. Lung wounds should be tamponed only when the far more secure method of ligation or suture is technically impossible.