

tension. If a resting period follows, the tension will gradually rise again. This rise will be rapid in the well nourished, whereas after prolonged abstention from food, and in conditions with acidosis, the rise will be slower or may not take place at all until food is partaken of again.

I have observed the behavior of four young men who entered a marathon race of 15 miles. The tabulated results show the following interesting facts:

1. The runners who showed the highest alveolar carbon dioxid tension before the race finished first.

2. Of the two who had the lowest tension, one finished last, while the other did not finish at all. This runner, furthermore, had the low tension of 36 mm. before breakfast on the day of the run. His tension rose after eating, however, and was 38 mm. just before the start.

All four were served at frequent intervals from two accompanying automobiles, water and small pieces of ice, and pieces of lemon. In addition, Nos. 1 and 3 only were frequently given maltose caramels.

I give these results as an illustration of similar ones obtained with various individuals, including some diabetics, after exercise of various degrees or after muscular work induced by the application of the sinusoidal current. A fall in the carbon dioxid tension, accompanied sometimes with the appearance, even in normal subjects, of acetone in the expired air, has always been noted.

#### SUMMARY

1. Acidosis is of frequent occurrence in a relatively large number of diseases.
2. Acidosis is detrimental in all degrees of intensity; therefore should be looked for, its degree estimated, and efforts to control or combat it should begin early.
3. The estimation of the carbon dioxid tension in alveolar air is as yet the simplest, quickest and most reliable practical method to determine the degree of acidosis.
4. Simpler methods and apparatus are needed. My simple method of collecting samples of alveolar air during unconsciousness as well as in all other conditions is described.
5. Clinical observations.

**Cooks as Typhoid Carriers.**—The *American Journal of Public Health*, discussing typhoid carriers employed as cooks suggests that steps be taken "to provide for the establishment of some system of registration, bacteriological examinations and certification of persons engaged as cooks and kitchen help in public institutions, hotels, restaurants, etc."

## EMPYEMA OF FRONTAL AND ETHMOIDAL SINUSES

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*Suppurating (empyema) frontal (and ethmoidal) sinusitis with fistula; radical frontal sinus (Killian) operation. Identical though independent condition six months later on opposite side.*

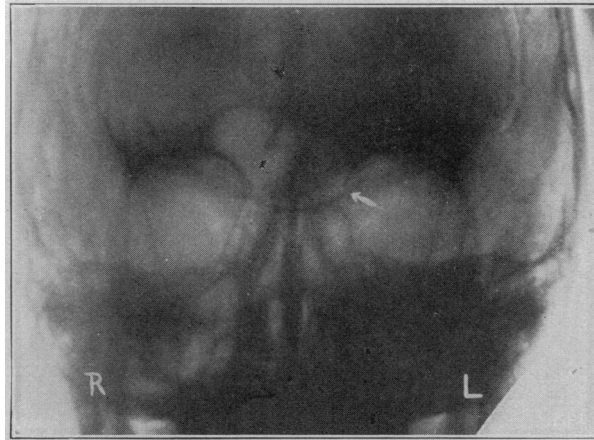


Fig. 1.—Roentgenogram taken Dec. 3, 1914, before the first operation, showing a small left frontal sinus filled with pus, and the dehiscence of bone (indicated by arrow) leading into orbit; left ethmoidal and maxillary sinuses also positive. On the right is shown a large frontal sinus partially divided by a septum, clearly free from pus; ethmoids and antrum negative. Six months later these were all full of pus, with a fistula leading into orbit; an exact counterpart of the condition on the left.

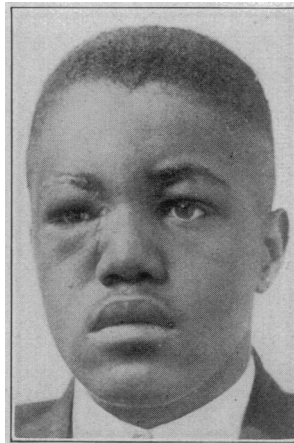


Fig. 2.—Photograph taken June 23, 1915, just three weeks after second operation. Only slight scar seen on left; on right side still some edema, which is gradually disappearing.

The patient, a youth aged 16 years, referred by Dr. T. J. Moran, first consulted me, Dec. 3, 1914. There was nothing pertinent in either his family or previous medical history with the exception of his reference to his present condition. He stated that three years ago his left eye became swollen shut by a great swelling of both lids, due to what he thought was a "boil," which seemed to point above and internal to the inner canthus. At this point it was lanced by his physician and had persisted uninterruptedly ever since as a discharging fistula.

A rather remarkable fact in this connection is that during the past three years he had anxiously sought relief from numerous physicians and hospital clinics without result.

Examination revealed the fistula located as already described. It was of extremely small caliber and would not admit the smallest probe. But on practicing the Valsalva method of inflation (puffing the cheeks with lips and nostrils tightly closed), pus was readily forced out of the fistula. Anterior rhinoscopy revealed a greatly hypertrophied middle turbinal, the anterior half of which was balloon-like and boggy; the middle meatus was full of inspissated pus and crusts.

A roentgenogram by Dr. George C. Johnston revealed a dehiscence of bone at the inner edge of the left orbit (apparently on a level with the point of the fistulous opening through the skin) leading into the frontal and ethmoidal cells, both of which showed dense shadows (pus). The left maxillary sinus also was full of pus (probably acting as a reservoir), that is, it, too, gave a dense shadow.

Dec. 7, 1914, under ether anesthesia, a typical radical frontal sinus (Killian) operation was performed. The incision reached from the temporal end of the unshaven eye-

brow to the nasal end, and then curved downward through the fistulous opening, reaching almost to the left ala of the nose. After the orbital soft tissues (including the periosteum) had been well retracted, pus welled out of the wound, and 2 cm. behind the nasal end of the orbital ridge a fistulous opening the size of the end of a lead pencil was found leading into the ethmoidal cells, and a bent probe could be passed up into the frontal sinus. A bridge of bone 1 cm. in width, covered with periosteum, was left to support the brow, the anterior wall of the frontal sinus was removed above the bridge and the floor below, and a large opening made into the ethmoids. Through the nose the middle turbinal and some of the ethmoidal cells were removed *en masse*. An

opening the size of the end of a pencil was made through the external lateral wall of the nose (in the inferior meatus) into the maxillary antrum. A gauze drain was inserted, reaching from the frontal sinus above, down through the ethmoidal cells and the left side of the nose. The external wound was closed tightly without an external drainage (contrary to most textbook teaching). The gauze intranasal drain was removed at the end of forty-eight hours. The external stitches (metal clips) were removed on the fifth day. Union occurred by first intention. The bandage was removed entirely on the tenth day and the patient was discharged, free of his discharging fistula for the first time in over three years. As can be seen by inspection of the patient five months later, there is no depression and no deformity, and all that can be seen is a small linear scar reaching down the side of the nose from the nasal end of the eyebrow.

May 30, 1915, the patient presented himself again at my office with the opposite (right) eye swollen tightly shut by marked edema of both the upper and lower lids, and swelling especially marked internal to the inner canthus. The only symptoms were swelling of the eye and tenderness on pressure internal to the inner canthus.

Intranasal examination revealed absolutely nothing. Except for a slight tendency to atrophy, the right naris was normal, and there was nothing to cause one to suspect the existence of any abnormal condition of the sinuses. The middle turbinal was normal in all respects. There were no pus or crusts present in the middle meatus or elsewhere.

June 1, 1915, the patient was sent to the hospital, and June 2 a radical external operation (Killian) was performed. At first I suspected that the suppuration might have been an extension from the left side, through the septum separating the two frontal sinuses, but this proved not to be the case. The side of the original operation was healthy, quiescent and uninvolved. However,

when the contents of the orbit were retracted, a dehiscence of bone was found (from which pus exuded) similar in size, location and all other respects to that on the other side. The disease evidently originated as an entirely independent process (empyema of ethmoidal and frontal sinuses) on the right side with no connection whatever with the left. Exactly the same operative procedure was employed, with the same gratifying results as regards both cure and cosmesis.

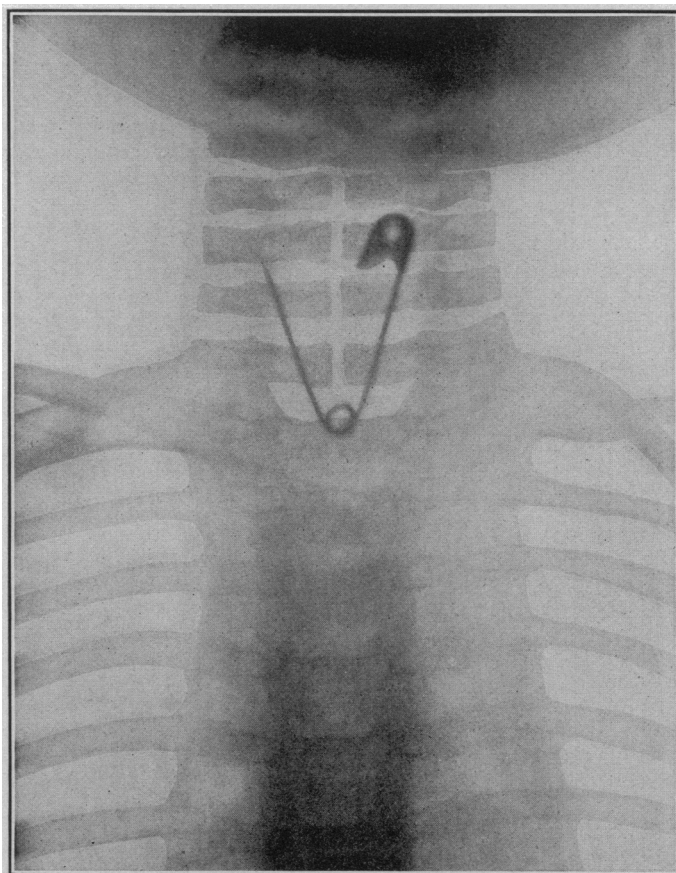
**State Quinin Supply in Venezuela.**—An Italian exchange reports that the president of Venezuela signed a decree last December which aims to render quinin available to all for treatment of malaria. The national board of health is given power over the sale of the drug. All public and private hospitals and dispensaries, the army, and wholesale and retail dealers in drugs are to be supplied at cost. The interior department of state has charge of the inspection of the quality and the distribution of the quinin.

## SAFETY PIN IN ESOPHAGUS OF YOUNG CHILD

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E. Z., male child, 7 months old, of Hungarian parentage, was brought to my office by the mother, who had been referred to me by Dr. E. P. Rabb, both suspecting that the child had swallowed a safety pin. She had found the child, which she had left lying on its back, on its abdomen, red and choking. These symptoms soon subsided. On examination no bruises, ulcers or hemorrhage could be found. The throat appeared perfectly normal. When given water, the child swallowed with apparent ease. Careful palpation along the larynx and pharynx could neither elicit pain nor outline any foreign body. The child vomited soon after nursing. The mother was sent home with the request to make a thorough search for the pin. She returned at 3 p. m. and reported that no pin had been found. The child had slept one and a half hours, but invariably vomited after nursing. A roentgenogram was taken by Dr. C. P. Renner, which showed the relative position of the pin and the conditions we had to deal with in its extraction.

As it was impossible to use the esophagoscope, the Roentgen-ray tube was arranged beneath an ordinary table so as to throw the light upward, and the child placed so that the light from the target would be in a direct line and the fluoroscope was adjusted directly over the child. I then introduced a small snare, and by using my finger as a director, passed this into the esophagus. Then by intermittent flashing of the light, we could see the relative position of the snare-closing device and the pin. I passed the snare slightly beyond the pin and then gently withdrew it till the pin seemed to be engaged, then closed the snare and was very fortunate in being able to get it by this method on



Safety pin in esophagus.

the first attempt. There was no trauma or hemorrhage following the operation. The child made an uneventful recovery.

**Vascular Surgery.**—In vascular surgery the men of the Middle Ages and of the Renaissance, Henri de Mondeville, Guy de Chauliac, and even Ambroise Paré, were blind followers, who never even approached the position of their masters. Not much more than a century has passed since men of the John Hunter type took up vascular surgery where Rufus and Antyllus had left it, and only to this generation of experimental surgeons, such as Eck, Ballance, Matas, J. B. Murphy, Halsted, Carrel and Guthrie, could the best of the Greeks go to school. You may think perhaps, that I am scarcely just to the great medieval surgeons, particularly to such a master as Ambroise Paré, who reintroduced the ligature, but in vascular surgery, the touchstone of the position of the art, they never wholly regained what the profession had lost.—Osler, *Lancet*, May, 1915.