The Actual Number of Tubercle Bacilli which may be Present in Tuberculous Sputum.

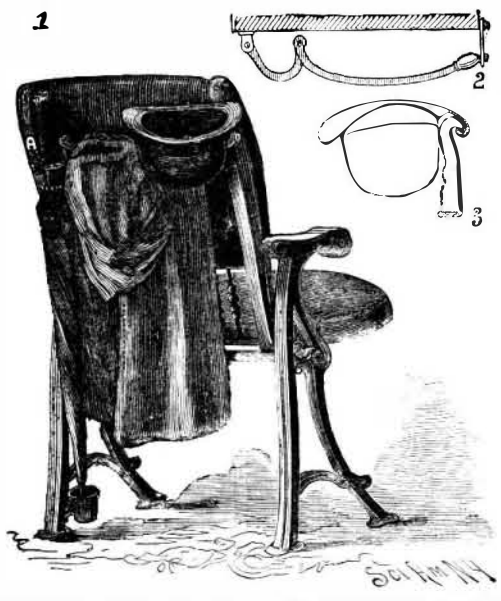
Dr. George H. F. Nuttall describes in the last number of the *Johns Hopkins Hospital Bulletin* a method by which he has been able to make accurate estimates of the actual numbers of tubercle bacilli present in tuberculous sputum. His communication is accompanied by cuts of the apparatus used. The methods heretofore employed for estimating simply the relative number of tubercle bacilli in sputum are condemned as unscientific. Nuttall's observations for the first time give us an idea of the enormous number of tubercle bacilli which a patient may expectorate in the course of twenty-four hours. In three cases undergoing the Koch treatment observations on the numbers of bacilli in the sputum were made every few days. In the first case the patient expectorated 2,000,000,000 bacilli during the twenty-four hours. After the patient was inoculated with tuberculin the number rose to between 3,000,000,000 and 4,000,000,000. After the inoculations ceased the number fell to what it had been originally. In the second case the number of bacilli varied between 20,000,000 and 165,000,000 on the days preceding the Koch inoculations, rose irregularly to 283,000,000 after the first inoculation, and fell to only 265,000 by the time the sixteenth inoculation had been reached. The third case showed a decrease from 70,000,000 before the inoculations to 12,000,000 and 19,000,000 after the treatment had been begun. A great rise in the number of tubercle bacilli in sputum was observed in the case of one patient (not undergoing the Koch treatment) to occur simultaneously with the appearance of elastic tissue. The number of bacilli in this case rose from between 300,000,000 and 400,000,000 to over 4,000,000,000. The accuracy of the method is shown by a number of test and culture experiments. Nuttall believes his method will prove valuable in any experiments where it is desirable to introduce a definite number of organisms into culture media, disinfectants, etc. In point of accuracy, it far surpasses the loop method generally employed. With such organisms as the tubercle bacillus this method will enable the experimenter to determine the number he is inoculating into an animal in a way that has not been possible hitherto. Inoculations made under such conditions will clearly show the difference in degree of virulence possessed by various organisms, as also the relation between the number of bacteria introduced and the progress of the disease. This method, finally, brings us a step nearer to solving the problem of the significance of involution and degeneration forms of bacteria.—*N. Y. Med. Jour.*

RACK ATTACHMENT FOR THEATER CHAIRS.

A novel rack for attachment to the backs of chairs or seats in theaters, public halls, and places is shown in the annexed engraving, Fig. 1 being a perspective view of a chair with the attachment applied, Fig. 2 a plan view of the attachment, and Fig. 3 a side elevation of the hat support.

This device affords a convenient support for a coat or other outer garment, a place for an umbrella or cane, and a standard for retaining a hat.

The principal part of the rack consists of a bar hinged at one end to one of the chair posts, curved outwardly for receiving the umbrella handle, and connected by a standard with the longer curved portion designed to receive a coat. The rack is pivoted to swing in an inclined plane, so that it will close automatically, and thus be prevented from offering any obstruction to a free passage through the row of seats.



HERMANN'S ATTACHMENT FOR THEATER CHAIRS.

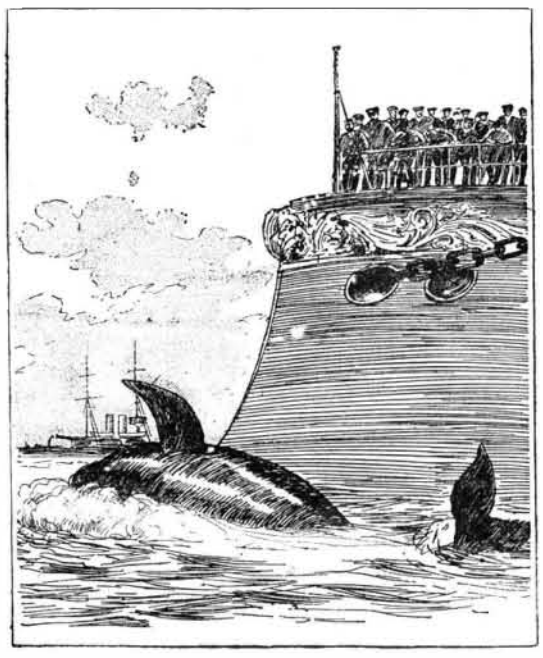
Although the rack is designed to close automatically, a hook is pivoted to the side of the chair for engaging the end of the rack arm and preventing it from swinging out accidentally.

To the free end of the rack arm is attached a standard, as shown in Fig. 3, having its upper end curved over to form a hook for receiving the turned-over portion of the hat brim, as shown in Fig. 3. To the leg of the chair below the curved portion of the rack designed for receiving the umbrella handle is secured a drip cup, in which the tip of the umbrella is placed.

This invention has been patented by Mr. George Hermann, 34 E. 10th St., New York.

A WARSHIP RAMS A WHALE.

While cruising with the Channel squadron, writes an officer of H. M. S. Immortalité, at nine o'clock on the morning of the 26th of May, in lat. 38 deg. 7 min. N, long. 9 deg. 19 min. W, steering S¼W (about



midway between Sardinia and the African coast), and going at a speed of thirteen knots, we struck a whale, about forty-five or fifty feet long, with our ram. It was unable to clear itself, which necessitated our going full speed astern, when the whale sank. It must have been asleep. At the same time we noticed another quite close on our starboard bow.

Fracture of the Clavicle from the "Kick" of a Rifle.

In the *Edinburgh Medical Journal*, Mr. James B. Simpson records the case of a member of a rifle club, a strongly built slate quarrier, thirty years old, who, after having fired several shots at 200 yards, feeling a "kick" not severe enough to cause actual pain, fired several more at 500 yards, lying down and resting on his elbows, and finally a shot at 600 yards, likewise in the prone posture. This shot broke the clavicle near its middle. The fracture was treated according to Sayre's method, and healed well. "When he recovered," says Mr. Simpson, "I asked the man to show me how he held his rifle while firing at 500 and 600 yards. On his raising the 'sight' and lying down and taking aim, the explanation of the fracture was clear. Instead of holding the butt of the rifle well on to his shoulder, he rested the upper end of the butt directly on the most prominent part of the clavicle. One could easily pass one's hand between the lower two-thirds of the butt and the man's chest, and it was therefore clear that when he fired all the force of the recoil came upon the clavicle. The farther he retired from the target, the more he necessarily elevated the muzzle of the rifle, and consequently the more did the upper end of the butt rest upon the clavicle, until at 600 yards so entirely was this the case that the bone gave way under the concentrated force."

Integrity of Quality.

Probably it is of as much importance to know how to retain a market as to know how to get it. Integrity of quality in goods is indispensable.

Not many years ago English manufacturers of cotton goods came near ruining valuable markets for such goods in the East, by sending to these markets miserable, sleazy, light weight goods loaded with size to give them artificial weight and the appearance of better cloth. These markets have never been the same to them since. Lost confidence is not easily restored. If, as a celebrated English statesman once remarked, "confidence is a plant of slow growth," it is certainly also a hard plant to nurse back into vigorous life when its roots have been cut by commercial deceit. A case in point occurs to us.

The late B. T. Babbitt, the famous and wealthy manufacturer of soap, established his business on the basis of strict commercial integrity, and his name was always honored among New York merchants. Some twenty years before his death, he made the European tour, leaving at the head of his business a young man of great energy and executive ability, but, as the sequel will show, of rather elastic principles. It was arranged with this deputy that in addition to his regular salary he might have during Mr. Babbitt's absence a certain share of all the profits of the business, whereupon immediately, as soon as his chief was out of sight, he put into practice a scheme of adulteration of the soap without a corresponding reduction of price. The soap selling freely upon the strength of its former reputation, the immediate returns were large, and the profits (?) divided unto the enterprising schemer from this selling out of his chief's business were, before Mr. Babbitt's return, enough to enable the trusted agent to retire with sufficient capital to start and conduct a large manufacturing business of his own. In narrating to the writer this disagreeable episode not many years after its occurrence, Mr. Babbitt said it cost him nearly a quarter of a million of dollars to remedy the injury to his business thus effected by a few months of sharp practice. He sent to his customers, all over the United States, letters requesting a return of the inferior goods, which he replaced with those of standard quality, and by a judicious but enormous expenditure in advertising gradually recovered the lost trade.

Cotton Oil in Lard.

The authors use Bechi-Hehner's silver nitrate test and Labiche's lead acetate reaction. For the former test 10 grms. of the filtered anhydrous lard are heated with 5 c. c. of silver nitrate solution (1 part silver nitrate, 200 alcohol, 40 ether, and 0·1 part nitric acid) in the water bath for fifteen minutes, shaking continually. The mixture, according to its proportion of cotton seed oil, turns more or less deeply reddish brown to black. Pure lard, poppy, olive, and sesame oils are not affected. For the Labiche test, 25 grms. of the clear melted sample are mixed with 25 c. c. of a solution of lead acetate, heated to 35°, and well mixed after the addition of 5 c. c. ammonia. The emulsion thus obtained, if cotton oil is present, soon shows a yellowish red color, which becomes more intense after standing for a day. Poppy-rape, sesame oils, and pure lard are not affected.—*A. Bujard and J. Waldbauer, Zeit. Ange. Chemie.*

GUNNER'S ARM REST.

An arm rest for the use of sportsmen and others in shooting offhand is shown in the annexed engraving. The rest is made portable, and when desired for use it is attached to an ordinary cartridge belt and supported by a strap extending over the shoulders.

The rest consists of three principal parts, a sleeve having a clip for engaging a loop on the belt, a ratchet bar sliding in the sleeve, and a U-shaped bar attached to the ratchet bar for receiving the arm of the gunner. The sleeve is provided with a spring bolt which strikes the clip and holds it on the loop of the belt, and it is also provided with a spring key which engages the ratchet bar so as to hold the arm loop at any desired height. In addition to the key, the sleeve is provided with a thumb screw which enters a groove in the back of the ratchet bar and prevents the ratchet bar from turning. It may also be used for clamping the bar, thus affording additional security.

The device may be extended by simply pulling the arm loop upward, but to reduce its length the spring key which engages the ratchet bar must be pressed before the bar can be moved downward. At the upper and lower ends of the ratchet bar there are square notches for receiving the spring key. When

SPROUL'S ARM REST FOR GUNNERS.

the key is in engagement with these notches, the bar is prevented from moving in either direction.

By the use of this device the arm is held steadily in an extended position, so that shooting may be done offhand as accurately as when firing over a stationary gun rest. For further particulars about this useful invention, address the patentee, Mr. Robert B. Sproul, or Mr. David S. Dickson, of Quartz, Montana.

ERRATUM.—In Mr. Wyatt's interesting article on phosphates in last issue, the analysis of South Carolina phosphates contained an error. "Phosphates of iron and alumina" should read oxides of iron and alumina.