Special bags are kept packed with the sterile materials and instruments necessary for forceps and curettage, and can be sent to a case on the shortest notice.

Symphysiotomy and Cæsarean section have been performed on the outdoor service, but at present cases needing these operations are sent to the hospital in the ambulance. At all severe operations a nurse and at least two of the staff are present.

I have here a pair of Tucker-McClain solid blade forceps, used almost exclusively in the Sloane Maternity, — their advantages, you doubtless know, are: Ease of application, less liability to lacerate the child and the perineum, owing to the narrowness of the shanks, while their opponents claim a greater liability to slip.

The time will only allow a mere outline of the work inside the hospital. The service is divided into three divisions, each under a director and having a separate staff. Each division occupies a floor of the hospital, which consists of two postpartum, an antipartum and septic wards, six private rooms, a reception room, examining room, crying and operating rooms. The house staff on each floor consists of a senior and junior. The clinical and pathological laboratories, solarium, amphitheater and kitchens are on the seventh floor. The hospital has its own electrical and printing plants. A statistical department consisting of a registrar, assistant registrar and clerk classify and file all labor cases, keeping a card index of the same; so that the statistics of the hospital are kept ready for publication.

Nurses. — The nurses come from the various hospitals of New York, Brooklyn and suburban cities, from the Massachusetts General, Boston, and Lakeside Hospital, Cleveland, Ohio. The course is three months, being a portion of their hospital training. Post-graduate courses are arranged for both physicians and nurses.

House Staff. — The staff come from the various medical schools of the United States and Canada, as many as ten different schools being represented at one time.

Such, gentlemen, is the Lying-In Hospital, an institution connected with no medical school, its students coming from all parts of the country.

It fills a need, having the only large outdoor service in New York City.

Its results cannot but be far reaching, and of great benefit both to the profession and the community at large.

Clinical Department.

TWO SIMPLE FORMULÆ FOR USE IN THE ARTIFICIAL FEEDING OF INFANTS.

BY I. STANLEY KAHN, BOSTON CITY HOSPITAL.

In the artificial feeding of infants, various formulæ have been suggested for the preparation of "home modifications" or "laboratory milks," whose constituents should be present in

proportions suitable to the age and development of the child in question. I should like to offer for consideration a simple formula which will give approximately the amount of food required in twenty-four hours by the average healthy infant at various ages.

This formula reads:

The 24 hour amount in ounces=

$$11 + 5 \sqrt{\text{The age of the child in weeks}}$$

This square root need only be approximate, and if taken by mental arithmetic gives as satisfactory a final result as if time is spent for its exact mathematical solution. In tabular form below are given some of the amounts obtained by using the formula in this manner, showing how closely they correspond with those advised by various observers.

24-HOUR AMOUNT IN OUNCES.

Age of Child	Formula	Ladd	C'd	Oppenheim ¹	Starr ²	Holt ³
Up to 1 week	10*					
1 week	16	10	10	12		10-15
2 weeks	18	15	15			15-30
3 "	20		20			
4 "	21	22½				22-32
5 "	22					
6 "	23	24				24-36
8 "	25	26	25			
10 "	27					
3 months	28	28	28			28-38
4 "	31	31½	29			
5 "	33	33	31½	32		
6 "	35	34½	33		36	33-42
7 "	37	37½	39			
8 "	39	42	42			
9 "	41	42	42	40		
10 "	43	42½	42½			37-45
11 "	44	43½	44			
12 "	46	45	45			

From a glance at this table, it will be noted that the formula amounts differ but little from those obtained by practical observation. When it is considered how much these observers differ amongst themselves, which is but natural when it is remembered that their results can at the best be only approximate, and that each individual case must be judged for itself, it will be seen that any errors in the case of the formula, if really actual, amounting at the most to 2 or 3 oz., do not obviate its usefulness. This is emphasized by the fact that every error of 2 or 3 oz. is distributed over a number of feedings, rendering the amount given in the individual feeding practically identical with the amounts usually assigned as correct, and may hence be disregarded without harm.

In addition to the above formula, a second gives, with sufficient accuracy, the number of feedings in twenty-four hours according to the age of the infant to be fed. This second formula reads:

The number of feedings in twenty-four hours=

$$11 - \sqrt{\text{The age of the child in weeks.}}$$

In making this calculation, in order to avoid fractions in the final result, the exact age in weeks should be replaced by the nearest number

* Obtained from the formula, — Amount = $11 + 5 \sqrt{a}$.

¹ Oppenheim: "Medical Diseases of Childhood," 1900, p. 88.

² Starr: "American Textbook of Diseases of Children," p. 24.

³ Holt: "Infancy and Childhood," 1901, p. 178.

with an exact radical; thus, in a child of seven months, using $\sqrt{25}$ instead of $\sqrt{28}$. Below are seen the results given by this formula compared with those prescribed by the Ladd Card.

NO. OF FEEDINGS IN 24 HOURS.		
Age of Child	Formula	Ladd Card
1 week	10	10
2 weeks	10	10
4 "	9	9
6 "	9	8
2 months	8	8
3 "	8	7
4 "	7	7
5 "	7	6
6 "	6	6
7 "	6	6
8 "	5	6
9 "	5	6
10 "	5	5
11 "	4	5
12 "	4	5

From the total amount and the number of feedings, the size of the individual feeding can be easily computed. These two formulæ thus give the working practitioner the means for obtaining quickly results essentially as accurate for all practical purposes as those given in the various tables and textbooks.

New Instrument.

A NEW NEEDLE HOLDER.

BY JOHN W. KEEFE, M.D., PROVIDENCE, R. I.,

Consulting Surgeon to the St. Joseph's Hospital; Attending Surgeon to the Rhode Island Hospital, Providence, R. I.

THE number of needle holders which from time to time have been devised is an evidence that none are satisfactory to the majority of surgeons.

The holder shown in the cut I trust may meet the requirements some surgeons are seeking. The handle is one that may be firmly and easily held, thus having the instrument under complete control. The ratchet may be operated by the thumb, downward and outward pressure releasing, downward and inward pressure securing, the grasp of the needle. The last notch in the ratchet should always be used, irrespective of the size of the needle, as the elasticity of the

steel in the upper blade will accommodate it to any size needle. The jaws of the instrument being narrow and pointed permit the use of the holder in small and deep localities. A little time should be devoted to studying and practicing the methods of holding and releasing the needle, so that one may be able to use the needle holder with facility. The instrument was made for me by George L. Clafin & Co., Providence, R. I.

Medical Progress.

REPORT ON THORACIC DISEASE.

BY J. W. BARTOL, M.D., BOSTON.

INFLUENCE OF DWELLING ON SPREAD OF TUBERCULOSIS.

ROMBERG and Haedicke¹ report the results of a careful investigation, based on statistics and personal observation, of the morbidity and mortality record of tuberculosis in Marburg since 1890 with especial reference to localization amongst certain classes or districts of the city.

An epitome of their findings is: (1) Taking the one-fifth of the population in poorest circumstances, phthisis is present in 4.7%, while in the remaining four-fifths in better standing, it is found in only 0.2%. (2) Thirty-four per cent of reported deaths from tuberculosis occurred in 2.6% of the 1,503 dwelling houses. Amongst the poorest quarters, however, 59.2% of all tubercular disease was located in 33.6% of the dwellings existing in the given quarters. (3) Situation, construction and number of dwellers do not serve to explain relative frequency of cases in certain buildings. Although multiplication of cases does not occur in dwellings kept clean and neat, on the other hand, slovenly conditions alone do not account for occurrence of numerous cases in one household. (4) General considerations lead to the conclusion that most cases can be referred to the influence of infection. (5) Most cases are the result of not a single but of repeated infection with tubercle bacilli. Existence of conditions favoring repeated infection in the dwellings of the poorer classes leads to multiplication of cases in certain households, and in this aspect makes tuberculosis a disease influenced by the dwelling and therefore to be combated, especially in the poorer quarters of a town.

HEMATOGENOUS MILIARY TUBERCULOSIS OF THE LUNGS.

Several points of interest are apparently cleared up by Sawada² in a study of cases of miliary tuberculosis in rabbits' lungs resulting from the injection of bacilli into either the peritoneal cavity, the carotid or the anterior chamber of the eye. Investigations were also made as to the age at which the pulmonary lymph nodes develop in both infants and young rabbits. The conclusions reached

are: (1) Hematogenous tuberculosis of the lungs experimentally produced in rabbits follows the statement of Ribbert for similar condition in man, in always originating in the lymph nodes. (2) Tubercle bacilli circulating in the blood, unless occurring in clumps, will not be arrested in the broader capillaries of the alveoli, but will locate within the lung if they pass into the narrow

¹ *Deut. Archiv. klin. Med.*, Bd. lxxvi.

² *Ibid.*, xlvii.