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A Monthly Journal of Medical and Surgical Science, Criticism and News.

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No. 10. }

TORONTO, JUNE, 1898.

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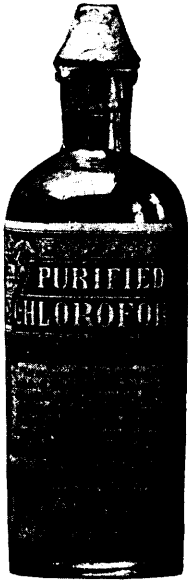
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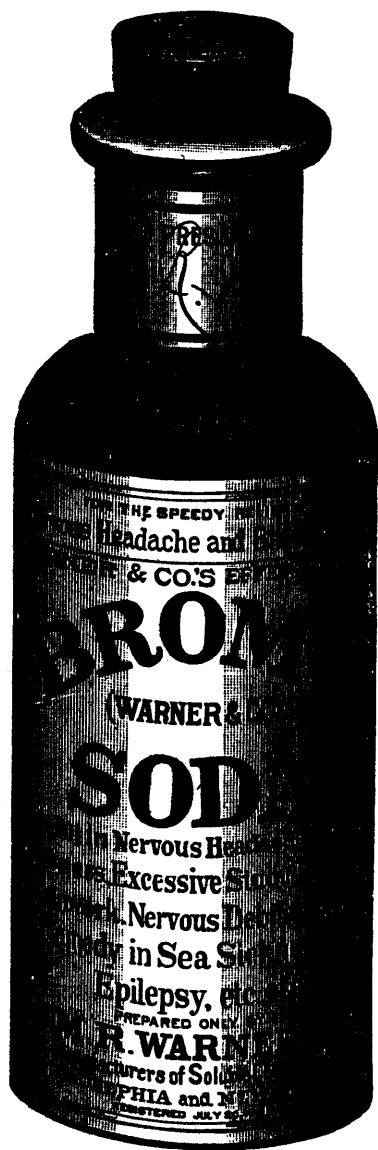
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Each Pill contains Sulphite Soda, - 1 gr.
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R—Pulv. Aloes. 2 gr. Pulv. Rose los. ½ gr.
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We desire to emphasize the statement, that in undertaking the manufacture of these delicate agents, we have devoted much time and labor in bringing them to a state of perfection; in this we have been assisted by the co-operation of our medical friends.

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APOMORPHINE MURIATE. 1-20 gr.	60	16	DUBOISINE SULPHATE. 1-60 gr.	80	20
APOMORPHINE MURIATE. 1-8 gr.	1 10	26	ERGOTIN. 1-6 gr.	60	18
APOMORPHINE MURIATE. 1-12 gr.	85	19	ESERINE SULPHATE. 1-60 gr.	80	20
ATROPINE SULPHATE. 1-60 gr.	40	12	ESERINE SULPHATE. 1-100 gr.	45	13
ATROPINE SULPHATE. 1-200 gr.	30	10	HYOSCINE		
ATROPINE SULPHATE. 1-150 gr.	30	10	HYDROBROMATE. 1-100 gr.	75	19
ATROPINE SULPHATE. 1-20 gr.	35	11	HYOSCYAMINE SULPHATE. 1-50 gr.	50	14
ATROPINE SULPHATE. 1-100 gr.	35	11	HYOSCYAMINE SULPHATE. 1-100 gr.	40	12
COCAINE HYDROCHLORATE. 1-8 gr.	50	14	MERCURY CORROSIVE		
COCAINE HYDROCHLORATE. 1-4 gr.	90	22	CHLORIDE. 1-40 gr.	30	10
COCAINE HYDROCHLORATE. 1-10 gr.	45	13	MERCURY CORROS		
COCAINE HYDROCHLORATE. 1-2 gr.	1 60	36	CHLORIDE. 1-40 gr.	30	
CODEINE SULPHATE. 1-8 gr.	70	18	MERCURY CORROS		
CODEINE SULPHATE. 1-4 gr.	1 00	24	CHLORIDE. 1-50 gr.	30	
CONIINE HYDROBROMATE. 1-100 gr.	30	10	MORPHINE BIMECONATE. 1-5 gr.	85	
CONIINE HYDROBROMATE. 1-50 gr.	60	18	MORPHINE BIMECONATE. 1-4 gr.	70	
CONIINE HYDROBROMATE. 1-60 gr.	50	14	MORPHINE BIMECONATE. 1-6 gr.	45	
DIGITALINE, Pure. 1-100 gr.	30	10	MORPHINE BIMECONATE. 1-8 gr.	35	
DIGITALINE, Pure. 1-60 gr.	50	14	MORPHINE MURIATE. 1-8 gr.	35	

SOLUBLE HYPODERMIC TABLETS.			SOLUBLE HYPODERMIC TABLETS.				
	Per Bottle 100 Tablets	Per Tube 20 Tablets		Per Bottle 100 Tablets	Per Tube 20 Tablets		
MORPHINE MURIATE	1.6 gr.	\$ 45	\$ 13	MORPHINE and ATROPINE No. 13, (Morphine Sulph. 1.2 gr.)	\$ 75	\$ 19	
MORPHINE MURIATE	1.4 gr.	50	14	(Atropine Sulph. 1.150 gr.)			
MORPHINE NITRATE	1.4 gr.	90	22	MORPHINE and ATROPINE No. 14, (Morphine Sulph. 1.2 gr.)	75	19	
MORPHINE NITRATE	1.6 gr.	70	18	(Atropine Sulph. 1.120 gr.)			
MORPHINE NITRATE	1.8 gr.	55	15	MORPHINE and ATROPINE No. 15, (Morphine Sulph. 1.2 gr.)	75	19	
MORPHINE NITRATE	1.12 gr.	50	14	(Atropine Sulph. 1.100 gr.)			
MORPHINE SULPHATE	1.8 gr.	30	10	MORPHINE and ATROPINE No. 16, (Morphine Sulph. 1.2 gr.)	75	19	
MORPHINE SULPHATE	1.6 gr.	35	11	(Atropine Sulph. 1.240 gr.)			
MORPHINE SULPHATE	1.4 gr.	40	12	NITROGLYCERIN	1.50 gr.	40	12
MORPHINE SULPHATE	1.3 gr.	50	14	NITROGLYCERIN	1.150 gr.	40	12
MORPHINE SULPHATE	1.2 gr.	65	17	NITROGLYCERIN	1.100 gr.	40	12
MORPHINE and ATROPINE No. 1, (Morphine Sulph. 1.8 gr.)		45	13	NITROGLYCERIN	1.200 gr.	40	12
(Atropine Sulph. 1.200 gr.)				NITROGLYCERIN, 1.100 gr. & STRYCHNINE, 1.50 gr.		40	12
MORPHINE and ATROPINE No. 2, (Morphine Sulph. 1.6 gr.)		45	13	PHYSOSTIGMINE SULPH. 1.60 gr. (See Eserine Sulph.)		80	20
(Atropine Sulph. 1.180 gr.)				*PILOCARPINE MURIATE	1.5 gr.		
MORPHINE and ATROPINE No. 3, (Morphine Sulph. 1.4 gr.)		50	14	*PILOCARPINE MURIATE	1.8 gr.		
(Atropine Sulph. 1.150 gr.)				*PILOCARPINE MURIATE	1.20 gr.		
MORPHINE and ATROPINE No. 4, (Morphine Sulph. 1.4 gr.)		60	16	*PILOCARPINE NITRATE	1.20 gr.		
(Atropine Sulph. 1.100 gr.)				*PILOCARPINE NITRATE	1.8 gr.		
MORPHINE and ATROPINE No. 5, (Morphine Sulph. 1.8 gr.)		45	13	*PILOCARPINE NITRATE	1.4 gr.		
(Atropine Sulph. 1.150 gr.)				SODIUM ARSENIATE	1.30 gr.	30	10
MORPHINE and ATROPINE No. 6, (Morphine Sulph. 1.8 gr.)		50	14	STRYCHNINE NITRATE	1.150 gr.	50	14
(Atropine Sulph. 1.100 gr.)				STRYCHNINE NITRATE	1.100 gr.	35	11
MORPHINE and ATROPINE No. 7, (Morphine Sulph. 1.6 gr.)		50	14	STRYCHNINE NITRATE	1.60 gr.	40	12
(Atropine Sulph. 1.150 gr.)				STRYCHNINE NITRATE	1.150 gr.	30	10
MORPHINE and ATROPINE No. 8, (Morphine Sulph. 1.6 gr.)		55	15	STRYCHNINE NITRATE	1.120 gr.	30	10
(Atropine Sulph. 1.120 gr.)				STRYCHNINE NITRATE	1.100 gr.	30	10
MORPHINE and ATROPINE No. 9, (Morphine Sulph. 1.4 gr.)		50	14	STRYCHNINE NITRATE	1.60 gr.	30	10
(Atropine Sulph. 1.200 gr.)				STRYCHNINE NITRATE	1.20 gr.	40	12
MORPHINE and ATROPINE No. 10, (Morphine Sulph. 1.4 gr.)		55	15	STRYCHNINE NITRATE	1.30 gr.	30	10
(Atropine Sulph. 1.120 gr.)				STRYCHNINE NITRATE	1.50 gr.	30	10
MORPHINE and ATROPINE No. 11, (Morphine Sulph. 1.4 gr.)		60	16	STRYCHNINE and ATROPINE No. 1, (Strychnine Sulph. 1.50 gr.)		50	14
(Atropine Sulph. 1.60 gr.)				(Atropine Sulph. 1.150 gr.)			
MORPHINE and ATROPINE No. 12, (Morphine Sulph. 1.3 gr.)		75	19	STRYCHNINE and ATROPINE No. 2, (Strychnine Sulph. 1.30 gr.)		50	14
(Atropine Sulph. 1.120 gr.)				(Atropine Sulph. 1.120 gr.)			
				STRYCHNINE and ATROPINE No. 3, (Strychnine Sulph. 1.60 gr.)		50	14
				(Atropine Sulph. 1.150 gr.)			

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A Powder.—Prescribed in the same manner, doses and combinations as Pepsin.

A most Potent and Reliable Remedy for the cure of

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It is superior to the Pepsin preparations, since it acts with more certainty, and effects cures where they fail.

A SPECIFIC FOR VOMITING IN PREGNANCY

IN DOSES OF 10 TO 20 GRAINS.

Prescribed by the most eminent Physicians in Europe and America.

TO PHYSICIANS.

It is with pleasure that we report to you the experience of eminent physicians as to the valuable medicinal qualities of INGLUVIN, and to its superiority in all cases over Pepsin.

VOMITING IN GESTATION AND DYSPEPSIA

I have used Messrs. Warner Co.'s Ingluvin with great success in several cases of Dyspepsia and Vomiting in Pregnancy. In one case of the latter which I was attending a few weeks back, Ingluvin speedily put a stop to the vomiting, which was of a very distressing nature, when other remedies had failed.

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Dr. F. W. Campbell, of Montreal, Canada, says that with INGLUVIN he cleared three out of four cases of VOMITING in PREGNANCY.

Dr. C. F. Clark, Brooklyn, N.Y., has used INGLUVIN very extensively in his daily practice for more than a year, and has fully tested it in many cases of VOMITING in PREGNANCY, DYSPEPSIA and SICK STOMACH, and with the best results.

Dr. Edward P. Abbe, New Bedford, Mass., mentions a case of vomiting caused by too free use of intoxicating liquors; INGLUVIN was administered in the usual way—the effect was wonderful, the patient had immediate relief.

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In fact, were we to note all remarks of the profession and our experience in relation to this remedy, and report to you the cases in detail, we could fill a volume with expressions as to its great efficacy in the troubles for which it is recommended.

Yours respectfully,

Dispensed by all Druggists.

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TREATED WITH INGLUVIN.

The prevalence of Cholera Infantum, Cholera Morbus, and Diarrhœa, to a greater extent in the summer period, induces us to call the attention of the medical fraternity to the lately introduced remedy "INGLUVIN." It has been used in practice with very happy results for a considerable time. We find indigestion generally at the bottom of the bowel complaints, which INGLUVIN has almost instantly corrected alone or in combinations. It is given in the following formulas with great advantage:

INFANT FORMULA.

R. Ingluvin - - - gr. xii.
Sacch. Lac. - - - gr. x.
Misce et ft. cht. No. x.

R. Aqua Calcis - - - f ʒ ij.
Spts. Lavand. Comp. f ʒ
Syr. Rhei. Arom. - aa f ʒ
Tr. Opii. . - - - gtt. x.

Sig.—One every 4 hours.

Misce—Sig.—A teaspoonful every 2 to 4 hrs.

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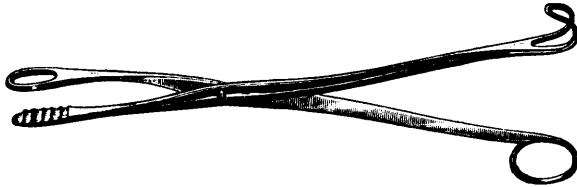
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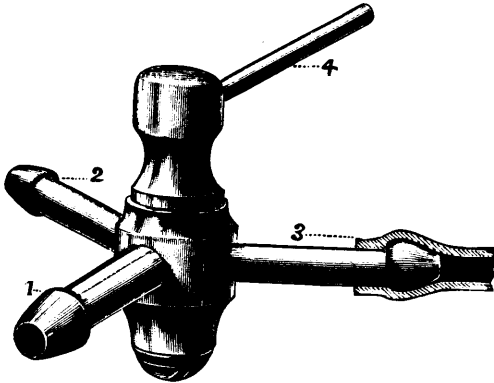
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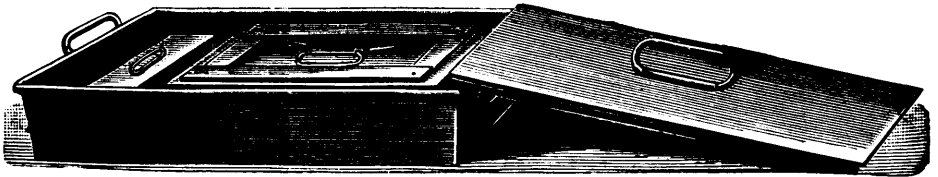


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[No. 10.]

ORIGINAL ARTICLES AND COMMUNICATIONS.

ON THE CARE AND MODIFICATION OF MILK FOR INFANTS' USE.

BY LEROY MILTON YALE, M.D., NEW YORK.

(A paper read before the Trinity Medical Alumni Association at Toronto, April, 1898.)

In choosing a subject for a paper which was to concern children's diseases, I have thought it better to put aside things which might be more novel and take one which, while exceedingly familiar—even hackneyed—presents this of interest: that its consideration is a part of the daily work of every one of you who is a general practitioner. And if I speak of over-trite matters, I beg you will excuse it, because I suppose your problem to be the same as those which beset us in other large cities; and these things are among our most active concerns.

The advances in pædiatrics are so urgently the concern of all general practitioners, that I assume that most of you already are aware of all or most that I have to offer. But it has seemed, nevertheless, worth while to go over the subject again with you, hoping that by so doing I may help you systematize what is known to you, and to make more evident the gaps which remain, the filling of which is the work, before all of us who are interested in the subject.

A distinguishing characteristic of the work of our time in this direction is its scientific character. As has just been said, the problem is of the oldest. Our latest methods are but the development of old ones; but it is the scientific precision of treatment which has made the success of the present time. If we take up recent work in regard to infant feeding, we may divide it into the finding of a standard of the composition of breast milk, similar determinations of cows' milk as the only practical basis for modification, endeavors to procure such milk in adequate quantities and at marketable rates, and finally the devising of accurate methods of modification of milk sufficiently flexible to admit of the preparation of a food to meet the needs of varying cases, and at the same time sufficiently simple to be employed by untrained persons.

I shall confine myself to the consideration only of the methods of procuring suitable milk for infant feeding, and the methods of its modification.

I will not weary you by any description of the manifold untidiness of ordinary dairies, nor with a consideration of the ways in which the milk

produced in them is unfit for infants' use. The legal standards of purity in milk have been made apparently rather to prevent intentional fraud, than to prevent disease. For the purposes of milk which we are considering, absolute richness of milk is of less importance than are some other qualities.

The many and various requirements given for good milk may, we think, be all grouped under the three headings given by Dr. Coit in a recent article on "Certified Milk":—

"First—An absence of large numbers of micro-organisms, and the entire freedom of the milk from the pathogenic varieties.

"Second—Unvarying resistance to early fermentative change in the milk, so that it may be kept under ordinary conditions without extraordinary care.

"Third—Having a constant nutritive value, of known chemical composition, and a uniform relation between the percentage of the fats, proteids and carbohydrates."

The first requirement covers many. Its fulfilment demands that the milk shall be clean in every way. That it shall be free from the dirt from the cow which is so constant—the hairs, the fragments of bedding, of dung, and what not; free from dust and other impurities from the stables and its surroundings, as well as the various kinds of dirt due to careless handling of the milk. Freedom from pathogenic germs demands that the cow herself shall be equally free. That she shall have no ordinary disease, and especially that she be free from tubercle. It further demands that those handling the milk shall be free from communicable disease, and that the milk shall never be brought into contact with anything which may have been contaminated. You will notice that absolute freedom from bacteria, except the pathogenic kinds, is not called for. This is a practical recognition of the fact that the first part of the milk usually does contain bacteria which have entered the teats or the udder from without. Also, that while the later milk, strippings particularly, is nearly or quite sterile the separation of the parts of the milk is not commercially practicable.

The second requirement largely depends upon the first. It demands the best possible handling of the milk, its perfect bottling, isolation and subsequent care. This requirement can be more perfectly fulfilled if the milk can be delivered in a very fresh condition and with but short transportation, although milk properly handled and cared for can be kept for a surprising length of time.

The third requirement of constant nutritive value calls for the use of herd milk (as against the milk of one or very few cows) to escape the derangement of the milk from any excitement whatever, especially that of rutting, which is notoriously damaging. It calls for good and uniform feeding, with a proper proportion of the nitrogenous and non-nitrogenous elements in the food.

The practical approach to the fulfilment of these standard requires a great deal of attention to detail. Measured by ordinary standards the milk supplied to New York city and its vicinity (and the district to which the Essex Commissioner's labors especially applied is included therein) is, I think, good, and a great deal is sold which is particularly good.

It is not only necessary for clinical purposes that the milk should be good, but that we should know it to be good, that we should know it to be pure, know it to be constant in composition, and know exactly what this composition is. Several dairies have endeavored to supply such milk, and they have set to themselves (some of them at least) the ideal of a milk which should be so pure as to need no sterilization. Their methods are essentially the same in kind. Many have contributed to the perfecting of details and have joined in a praiseworthy rivalry.

Without any disparagement of others, I wish especially to call your attention to the dairy under the control of Essex Co., New Jersey, Medical Commission, known as the Fairfield Dairy, because it has been pre-eminently the work of physicians, and because by it has been solved the question of good milk supply in a manner which has been since imitated elsewhere, and which is, as it seems to me, applicable to any large city—to your own if you so desire. The plan originated as far back as 1889, through the need of milk of a quality fit for clinical work, but not until 1893 did it take definite form. Dr. Coit, who as Chairman of the committee on Cows' Milk of the Medical Society of the State of New Jersey had done a great deal of work in this direction, then submitted to the Practitioners' Club, of Newark, a plan which was carried out. The plan was essentially a contract with a responsible dairyman, under which the latter, in return for the support of the medical profession, agreed to conduct his dairy in accordance with the desires and advice of a medical commission appointed by the Medical Society of Essex County. This plan was adopted, as the profession despaired of the proper enforcement of sanitary laws or of the keeping public opinion interested long at a time.

The Medical Commission have no pecuniary interest in the dairy, and receive no remuneration for their work. They establish the standards of milk and methods of procuring it. They are responsible for the frequent inspection of the dairy and the stock. They select the scientific experts, the veterinarian, the chemist and bacteriologist. The dairyman pays for all the expert work. I shall not detain you with the details of the contract, copies of which I shall hand to the secretary, but rather shall describe the actual methods as I have observed them at the dairy.

The herd had formerly quite a large admixture of Holstein blood, but since the adoption of the tuberculin test, which is applied to every cow bought, Jersey grades predominate. All cattle are bought subject to the tuberculin test and are returned if they do not stand it. As soon as they have passed they go to the regular barn, containing about 200 head. From this herd the best cows are selected by the veterinarians to recruit the "certified" herd, also containing about 200 head.

The stable is clean, dry, and constructed with a view to being kept clean. There is a cellar beneath which is used as an air space, not as a receptacle. The dung and other refuse is removed seven times, or oftener if necessary, in 24 hours, the watchman attending to this duty at night. It is removed to a receiving pocket which is suspended in the cellar beneath the stable floor. It tilts so as to load a cart instantly without any handling of the manure. It is entirely removed twice daily in iron carts. Floors are of hard pine.

For greater cleanliness a milking shed is building to accommodate twenty-six animals at once. It will be well-lighted, the sides being largely composed of movable glazed sashes. Floors of hard pine laid in tar. Side walls and ceiling made of sheet iron, painted, so that the whole may be flushed with water. The matter of floors has caused quite a little trouble, it being necessary to have a material without crevices which can be flushed thoroughly, but upon which the cattle will not slip. A cow is easily frightened, and if frightened becomes unmanageable.

Bedding is of rye straw, turned daily.

All feed and fodder is kept in separate barns away from the cattle. It consists of corn meal, wheat middlings, bruised barley sprouts, cotton seed meal, ensilage from matured corn, clover and timothy hay.

The water supply is from a spring guarded by a roof, and by sides of wire screen. The water is shown by analysis to be very pure, but for still greater safety driven wells are contemplated.

The cattle are groomed once each day and retouched about an hour before every milking. The cow's belly and udders are brushed by an attendant, who does it in advance of the milker.

The cattle are out of doors from two to seven hours daily, according to season and weather.

The workmen are mostly Poles and Hungarians with families in Europe. They are susceptible to training, are clean and temperate in their habits. They are examined physically by a local physician once or twice a month. Not going from the place, and being temperate, there is little chance for gonorrhoeal contaminations. Tubercular subjects, or those with skin affections, are excluded, and when actually ill are quarantined until seen by the physician in charge of them. This physician renders reports to the Commission.

The workmen all wear white duck suits and caps, which are changed and sterilized daily. The milkers have elbow sleeves when milking. The forearms and hands are carefully washed and the nails cleaned before milking, and the hands are rewashed with every full pail, *i.e.*, about every second cow.

The milk-pails are of block tin, the top soldered to the edge of the pail leaving only a circular opening about 7 inches in diameter, which is filled by a fine brass wire gauze disc, upon which the milk falls in milking. The pails are sterilized in the large sterilizer at the dairy house under 5-pound pressure, equivalent to a temperature of 226° F.

The milk is poured into sterilized 40-quart cans, which are sent over a suspended wire cable to the dairy house about 200 yards away, being received into the second story of the building. It is immediately put into a large strainer of white metal which contains two filtering layers. The upper consists of several thicknesses of sterilized gauze, beneath which is a wire netting, the lower of a layer of absorbent cotton. This filtering only removes visible particles, but not bacteria. From this filter it passes immediately to the cooling coil. This consists of twenty-one tubes carrying spring water of the temperature of 51° F. and twelve tubes of ice-water. The coil is carefully sterilized just before using with a hose bringing steam directly from the boiler in great quantity. This has suffi-

cient force also to wash down all dust. The walls and floors of the room are also sterilized by steam and the floors are kept moist. The milk goes over the outside of the coil and is aerated as it goes. It is delivered at a temperature of 38° F. into a trough leading to a filter of metal, lined when in use with layers of sterilized gauze. The spring water is not wasted, but passes on through pipes to the stable for use there.

From the filter the milk passes to the bottles, eight bottles being filled at once. The bottles are stopped with a wad of paste-board, sterilized in an oven at about 160° F. for 20 or 30 minutes. This wad bears the date of milking. The whole is covered with a metal cap to exclude dust, droppings and melted ice. The cap carries the certifying stamp and the injunction "Keep between 40° and 50° F." The bottles are immediately packed in partitioned boxes and covered with broken ice, and are ready for distribution. No milk is sold more than eighteen hours after milking.

Bottles are washed in soap-stone tubs in three waters, by hand, and examined before sterilizing. All bottles from houses where contagious diseases exist are brought in separate wagons, and are all boiled before washing and sterilizing. They are then put into a sterilizing chest, the door of which is fitted with steam-packing, and is screwed tightly into place. Steam is turned in and kept at a pressure of five pounds, giving a temperature of 226° F. In twenty minutes the bottles are completely sterile. When they are placed upon the filling table they are covered with a sheet of sterilized duck to keep out any droppings.

The precautions taken to ensure good milk are essentially the same for both herds; but the "certified" herd is composed of selected cows, which are examined by a veterinarian every two weeks. The milk is examined as frequently by the chemist and bacteriologist; the Medical Commission inspects every detail thoroughly monthly. If all the examinations and inspections are satisfactory the Commission "certifies" the quality of the milk. Periodically-printed copies of these certificates with the analyses which have been made are sent to those interested in such matters. These are of great assistance to physicians as giving him exact knowledge of the constitution of the milk he is using. The milk from the general barn may be equally good; but the examinations and details by means of which the quality of the "certified" milk is determined are costly, and the milk must be sold at a higher rate.

There need be no complaint of this. If one considers the nutritive value of milk as against that of any other food, it is doubtful if there is any other cheaper, even at high prices. If one considers only foods suitable for the digestion of infants and young children, milk has no competitor on the ground of economy. Common milk which the farmer sells for less than the cost of proper feed ought not to be considered at all as infants' food.

In 1895 a medical committee in Buffalo, being aroused by the investigations of Mrs. Williams into the quality of the city milk, organized a system of certified milk, following in the main Dr. Coit's lines, with very satisfactory results, not the least of which is the arousing of other dairy-men to the need of cleanliness in their methods.

In New York city, the West End Medical Society has in contemplation a contract with the Walker-Gordon Company closely following that of the Newark Society, with such alterations of details as seem to the parties to give still greater safeguards to the milk.

I have dwelt upon the details of pure milk production because it lies at the bottom of all infant feeding, and because I believe that the methods which have proved successful in Newark and Buffalo would prove equally useful in cities of similar size.

The Milk Laboratories in the few (7) years that they have existed have been of prime importance in the systematizing of infant feeding. As you all know, they are the result of the enthusiastic labor of Dr. Rotch, of Boston, and of Mr. G. E. Gordon, now of the Walker-Gordon System of Laboratories, already mentioned in connection with endeavors to secure pure milk.

I shall not dwell upon the details of laboratory work, because where laboratories exist these details are carried out by trained clerks, and while interesting in themselves they directly concern us only as do the details of pharmacy, for instance. The general plan of a laboratory of the present type calls for such arrangements as guarantee the most scrupulous care of the milk after its receipt; the testing of it for its fat value, that being the variable element. Such testing is generally done with the Babcock milk tester, which is in effect a magnified centrifuge. The milk is then separated by the ordinary Centrifugal Separator into a cream of a standard fat value and a residual milk. The fat standard for cream adopted in the Laboratories is 16 per cent., the fat being nearly all removed from the residual milk. Rotch's analysis shows the following percentage:

	Fat.	Sugar.	Proteids.
Cream.....	16.00	4.00	3.60
Separated milk.....	0.13	4.40	4.00

You cannot fail to notice how nearly the cream preserves the sugar and proteid values of the whole milk, a fact which has been much utilized in making foods at home, the cream being accepted as "a superfatted milk."

Besides the cream and the milk there is needed sugar, which is kept in the form of a 20 per cent. solution of milk sugar in distilled water. Lime water is used to correct the acidity of the mixture.

I need not detain you with a description of the methods of cleansing and sterilizing of apparatus and bottles.

If you desired to use the Laboratory for the benefit of one of your little patients, you would fill out such a prescription blank as this which I hand you. After it is taken to the Laboratory and recorded, a copy goes to the dispensing clerk, who combines from his standard materials the proper quantities to give to the total mixture the proportions of the various ingredients which you have ordered. The mixture is then divided into the number of bottles called for, they are stopped with absorbent cotton, placed in compartment baskets made to fit, sterilized at the temperature directed, and delivered and "empties" gathered at the same time. The latter basket and bottles are cleaned and sterilized when

brought back to the Laboratory. Of course, there is a limit of richness or attenuation in any and all of the ingredients, beyond which it is not possible to pass on the present basis, but these limits, I think, are never practically reached.

It would carry me far beyond my proposed limits if I were to go into the matter of special prescriptions. If there be anything which has been made especially clear by these precise methods of compounding infant food, it is the different digestive power and different needs of individual infants. And it is the ability to ascertain, experimentally, these idiosyncrasies, and to meet them by variation of the separate elements of the food, which constitutes one of the greatest benefits of the milk laboratory.

A few general suggestions regarding prescribing may be admissible. The wide variation in the fat and proteid values of mother's milk has already been mentioned. If the milk of the mother was agreeing with the infant so far as it went, its composition, if known, would probably fairly serve as a guide for the composition of the modification to begin with. I shall presently speak of some methods of determination within the reach of the general practitioner.

If the analysis of the breast milk cannot be had, then the average composition of breast milk must be our starting-point. But let me urge you to begin with percentages below this standard. For not only is it probable that the breast which has failed had before entire failure been producing an inferior milk, which has accustomed a digestion otherwise feeble to little labor, but we also know, practically, that a milk modification theoretically correct is very often indeed not so well borne as one of lower percentages. As regards the proteids, we can see a reason for this in the different digestibility of the coagulable albuminoid, casein, which predominates in cow's milk, and the soluble albuminoid, lactalbumin, which predominates in human milk. But for the greater acceptability of low fats and low sugar a reason does not so readily present itself, unless it be a difference in the constituents of human and cow's milk unrecognized by chemical and microscopical examination, but physiologically very perceptible to the infant's stomach. However this may be, the fact that low percentages are desirable at the beginning of artificial feeding, and above all in gastro-intestinal derangements, accords with the experiences of most of us who, as the phrase runs, have become accustomed to "think in percentages."

The advantages of the Milk Laboratory are evident. First of all, as now conducted, the best of milk, both as to purity and uniformity, is assumed as the basis of modification. Next is the great advantage of accuracy in the work. With extemporaneous mixtures, even if conceived in the main correctly, we very often indeed find something still unsatisfactory. But what is it? We may guess but cannot know. With mixtures of known constituent values we can change now this and now that with precision until we have reached a satisfactory result. We know each change in composition, we mark each resulting change in symptoms, we see cause and effect clearly presented, and we come to see our way surely.

No one, I presume, certainly no one of experience in this method, pretends that infant feeding has become a simple or an easy thing. But it is claimed that it is now possible to work intelligently and with precision

rather than haphazard or by guess. These characteristics, purity of material, precision and flexibility in modification, are the chief grounds upon which many physicians—some thousands already—have in the chief cities of the United States and Canada based their approval of the Milk Laboratory.

There is another way, I think, in which the Laboratories have been even more useful, although indirectly. Through their work those physicians who cannot avail themselves of the Laboratory facilities are enabled to "think in percentages," and to intelligently work out schemes and formulas for the home-modification of milk with a confidence and certainty, and, I believe, a success they never before possessed. If there be no Laboratory within reach the physician must depend upon himself, and often when it is within reach, through mistaken ideas of economy, or from less creditable motives on the part of the parents, he is unable to avail himself of it. But practically, for one reason or another, from want of the Laboratory or want of means, most infant's food, if of modified milk at all, must be home-modified. Therefore the question of home-modification becomes in the wider sense the most important of all.

For home-modification one must be his own Laboratory in all things, and must begin by securing as sound a milk as possible. If such a dairy as we have described is at hand, the quality of the milk may be accepted, and if its analyses are published, the necessity of private analyses is removed. Otherwise, unless the dairy possesses a Babcock tester, it is best to test the milk oneself. For the purpose, Holt's tubes, designed for breast milk, may be used. But better, I think, if you have a clinical centrifuge, is the tester described by Dr. Emily Lewi, which is but a miniature Babcock. This may be also used to determine the fat value of ordinary creams not exceeding 15 per cent. As before said, the proteids and sugar are so constantly near the average, that, the fat being determined, the other ingredients may be assumed at the average value. If you can get no analysis, it is fair to assume for a good milk from a herd of common cows the percentages of fat 4., sugar 4.25 to 4.50, proteids 4., salts 7.

Various plans of household modification have been devised, all intended to render easy the calculation of each ingredient. But all depend upon the assumption of certain fixed fat values in cream. This is different for separate creams, according to the speed of the separator, and gravity or raised cream, of course, varies according to the time the milk has stood. I shall give a few of the methods of calculation which seem to me most generally useful. Dr. Holt gives the following table of analyses, from which it appears that variation of the sugar and proteid values may be practically disregarded:

	WHOLE MILK.	CREAM.			
		I.	II.	III.	IV.
Fat.....	4.00	8.00	12.00	16.00	20.00
Sugar.....	4.30	4.30	4.20	4.00	3.80
Proteids.....	4.00	3.90	3.80	3.60	3.20
Salts.....	0.70	0.70	0.64	0.60	0.55

He finds that a quart of good milk, standing in ice or ice-water for four hours, gives about 10 oz. of 8 per cent. cream, or in six hours 6 oz. of 12 per cent. cream. With these two kinds and plain milk, together with solutions of milk sugar of the strength of 5, 6, 7, 8 and 10 per cent., nearly all of the modifications usually needed may be made.

But it will, of course, be seen that in every modification the relation of the proteid percentage of the fat percentage must be the same as in cream from which it was modified. To give greater elasticity, Dr. Westcott, of Philadelphia, proposes to work out the problem by assuming a proteid value of the combined milk and cream, and thence calculate the amount of cream, milk, etc., necessary to make the required modification. His working formulæ have been somewhat simplified by Drs. Harrison and Roby of New York.

The fixed proteid value of combined milk and cream is assumed to be 3.90 per cent. if 12 per cent. cream, 3.80 for 16 per cent. cream, 3.60 if 32 per cent. cream be used. With these constants in the formulæ,

- P = desired proteid percentage.
- Q = total quantity in ounces of mixture desired.
- X = quantity in ounces of cream and milk.
- F = desired fat percentage.

The formulæ will be

$$(1) 3.90 : P :: Q : X.$$

Skipping intermediate formulæ

$$(2) C = \frac{Q.F - 4x}{8}$$

$$(3) M = X - C.$$

I have taken the liberty to add to these, following Dr. Westcott's suggestion, the following, in which

- S = number of ounces milk sugar.
 - L = desired sugar (lactose) percentage in mixture.
- $$S = \frac{Q.L - 4.40 X}{100}.$$

The 12 per cent. cream is obtained by Dr. Westcott in the same way as by Dr. Holt.

Dr. Bauer, of New York, offers the following formulæ in which

- Q = desired quantity (in ounces).
- F = " percentage of fat.
- S = " " " sugar.
- P = " " " proteids.

$$(1) \text{ Cream (16\%)} = Q \times \frac{(F - P)}{12}$$

$$(2) \text{ Milk } Q \times P - C = \frac{\quad}{4}$$

$$(3) \text{ Water} = Q - (C + M).$$

$$(4) \text{ Dry milk sugar } (S - P) \times Q = \frac{\quad}{100}$$

If 12 per cent. cream be used, make denominator in formulæ (1) 8; if 20 per cent. cream make denominator 16. That is to say, the denominator will be four less than the fat percentage of the cream used.

The two sets of formulæ produce results not far apart. Thus, to make 40 ounces of food with percentages, fat 3, sugar 6, proteids 1.50, one would take, approximately, by Westcott's formulæ of

Cream (16%)	4.75	ounces.
Milk	11.00	"
Water	24.25	"
Sugar	1.75	"

By Bauer's formulæ

Cream (16%)	5.00	ounces.
Milk	10.00	"
Water	25.00	"
Sugar	1.80	"

Dr. Coit of Newark has devised a decimal method in which he makes use of the metric system, allowing just 30 c.c. to a fluid ounce. It is based upon standardized 10 p.c. materials, *i.e.*, a ten per cent. cream and a ten per cent. sugar solution. Ordinarily a 15 p.c. gravity cream is diluted with a half volume of water to make a 10 p.c. cream. If very low proteids are needed, a centrifugal cream of higher fat percentage may be diluted to the 10 p.c. standard.

Everyone will work best with the formula he is most familiar with. Having selected your method of calculation and written your prescription, which, unless you are exceptionally blessed as regards memory, you should keep on file, you will give the mother or nurse the working formula, and you will usually need to give at least one lesson in the art of mixing and in the rudiments of laboratory tidiness.

If you are not perfectly sure of the quality of the milk, you would best have her filter it, on receipt, into her own sterile (boiled) jars, and set it to raise the cream. I prefer this raised cream to separated cream as ordinarily delivered, because of the great and unnecessary irregularity of the fat value of the latter. I have found it to contain all the way from 15 per cent. to 35 per cent.

It may be proper to mention here that in the difficult case of being obliged to use the milk of one cow in untidy surroundings, I believe that the safest plan will be to milk the strippings directly into a bottle or jar which has been thoroughly cleaned by boiling. These strippings may be practically treated as milk with double fat percentage. By diluting with boiled water and sweetening properly a mixture may be made which will serve in an emergency, and I have known it to do very well indeed in some instances.

Milk sugar can be best measured with some vessel holding a given weight, made for the purpose. The ordinary tablespoon, if dipped full of sugar and the excess taken off with a knife blade, will hold about two drams; if the sugar be packed into it with the knife blade it will hold three drams. A siphon is exceedingly convenient. It may be made of a length either to withdraw the milk, leaving the cream, or the reverse. The former is better. A graduate is essential, one of 8 oz. or 16 oz. capacity

being the most generally useful. Bottles and absorbent cotton for stoppers of course you must have.

If you are to sterilize or Pasteurize, the Arnold Sterilizer or the Freeman Pasteurizer will be found most convenient, but sterilization can be done in any cooking steamer. Whether the mixture shall be sterilized is a vexed question. On the one hand are presented bacteriological studies and some clinical experiences to show that milk cannot be made safely sterile for infant feeding below 90°C ($=184^{\circ}\text{F}$), and that 100°C (212°F) is better; that with pasteurization 75°C (167°F), or lower, accidents frequently happen to the milk, and not infrequently gastro-enteric disturbances, more or less acute, occur, due to milk-poisoning. On the other hand, there is a growing distrust of sterilization and even of pasteurization, as a possible cause of malnutrition, especially of scurvy.

Now, there is no doubt that both sides present facts, but it seems to me that much depends upon the point of view. The necessity of thorough sterilization at high temperature seems to be most held by those having large outdoor clinics, where the difficulty of enforcing details is greatest. Those having affairs more in hand see the other side more clearly. There is no doubt that the one party can show cases of peculiar susceptibility where uncooked milk prepared in the best laboratories cannot be digested. The other party produces, as I myself can, cases of scurvy in which the cessation of symptoms followed the cessation of the sterilization.

Personally I follow no fixed rule, being guided in each case by an estimate of the greater probable danger of gastro-enteric troubles on the one hand, or of some form of malnutrition on the other. Whatever increases the chance of bacterial contamination or multiplication, whether poor milk supply, want of reliability of those in charge of the food, heat, unsanitary surroundings or what not, is an argument in favor of sterilization, and the thoroughness of the sterilization is to be in proportion to the probabilities of contamination. Practically, in cities, the ordinary milk supply must all be sterilized, at least in warm weather.

In the foregoing I have hoped to make evident the following points:

1. That the securing of a pure and uniform milk supply is the fundamental factor of infant feeding.
2. That the best method thus far devised for securing it is through committees of medical men, as few other persons have at the same time the knowledge and interest necessary to rigid care of details.
3. That such milk can be modified in such a manner as to make food suitable for almost any infant.
4. That this is most perfectly and easily accomplished through well-managed milk laboratories, but,
5. That it may be satisfactorily accomplished even under adverse circumstances by following, as carefully as possible, the methods of laboratories.

ENTERO-CUTANEOUS FISTULA.—Dr. Bonnet reports a case of enterocutaneous fistula, due to *ascarides lumbricoides*, in a child of seven years. Intestinal perforation, localized tympanites, abscess, and peri-umbilical fistula, due to the migration of thirty-five *ascarides*.—*La Médecine Moderne*.

SURGERY.

IN CHARGE OF

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RENAL CALCULUS.

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In referring to the clinical aspects of renal calculus, or nephrolithiasis, I wish to call attention to features essential in the diagnosis, which are somewhat at variance with the statements in text-books. A more extended review of the relation of hematuria to renal calculus will be given and the value of this symptom in other affections considered. A few words will be offered concerning the treatment. The subject-matter is the resultant of personal experience, and subject to the limitations of a small number of cases.

The term "renal calculus," as a subject for discussion, is well understood. It might have been better to use its synonym, nephrolithiasis; far better to have said "stone" in the kidney. The presence of stone or gravel in the pelvis of the kidney may be unattended with any subjective or objective symptoms. I exhibit a large calculus found in the body of a patient on the dissecting-table. In the Philadelphia Hospital, in 1887, an aged negro died of debility. He had not any organic disease that could be determined; a large dendritic calculus was removed from the kidney. It filled the pelvis and the calices, forming a complete mould of the cavity of that organ. It must have been present for many years, during which he never complained of pain. Such calculi may set up ulceration and a perinephric abscess, as in the case of H. G., aged 69. There were never any symptoms of renal calculus and no pyuria. Such conditions are rare, however, but are not likely to be overlooked at the present time if the centrifuge is used in urinary examinations.

The symptoms ascribed to the presence of a calculus in the pelvis of the kidney are *pain, intermittent hematuria, pyuria, pyelitis, renal intermittent fever, frequent micturition* and *renal colic*.

Before discussing the symptoms of stone *seriatim*, a word as to the frequency of the affection and as to some etiologic data of aid in the

diagnosis. It cannot be said to be a common affection. I have the notes of 29 cases in private practice, and of 11 in hospital practice; 13 cases only have been treated in the Presbyterian Hospital during a period of more than 25 years, during which time over 8,000 cases of all kinds were treated. Of course, it must be borne in mind that renal, as well as vesical, calculi are more common in some countries—depending on the character of the water—than in others. It is undoubtedly a disease of the middle and upper classes. This is particularly true of uric-acid calculous disease. It is not, however, a disease of the old or the very young in my experience. The youngest subject I have treated was 25 years of age; the oldest, in private practice, was 54. H. G., above mentioned, a patient at the Philadelphia Hospital, was 69. With the exception of the patient of 25, and the one aged 69, the ages ranged from 35 to 55. The youngest patient in the Presbyterian Hospital was 19 years of age. His attacks began 3 years before, or at 16. Twelve of my private patients were of the female sex, 17 of the male sex: 9 of the 13 in the Presbyterian Hospital were women. There does not seem to be much difference of frequency in the two sexes. Most authorities, however, hold to the preponderance in women, the ratio being as 3 to 1. But 2 of my patients could be said to have led an active out-door life. One was a stone cutter, the other an out-door salesman. The others were professional or business men following sedentary in-door lives, or women. One poor fellow was confined to the house with pulmonary tuberculosis. Fortunately, the small calculus I present to-night was passed without much pain.

SYMPTOMS OF RENAL CALCULUS.

PAIN—My experience accords with that of all observers, who state that pain of the affected organ is the most constant symptom, and that this pain is increased by movement, by jolting, and by pressure. Indeed, pain induced by pressure is of as great significance as spontaneous pain. It frequently is persistent, and even continues in any position assumed by the patient.

The woman from whom these large calculi were removed had pain over the right kidney, behind and along the margin of the ribs anteriorly. This pain continued for weeks, from time to time, without the other phenomena of renal colic. It was of a *bursting* character at these times, and attended by a great sense of tension. It was rendered bearable by lying on the right anterior aspect of the body, with pillows underneath to produce counter-pressure. Notwithstanding the subjective sensation of a swollen mass, no tumor could be felt at any time. Mr. P. would have at one time a pseudo lumbago, or a pseudo-pleurisy; at another time an hepatic disorder because of the variability of the pain. Always, however, a firm punch would bring out the renal origin. In the case of Mr. L., the pain was 2 in. above the transverse umbilical line and 1 in. to the right of the median line. The surface was the seat of hyperesthesia.

This is not an unusual point of pain. It is, it must be remembered, lower than the gall-bladder region on the right side. We do not forget that pain in the localities mentioned occurs from renal hyperemia, nephritis, pyelitis, tumors, and malignant disease, or from myalgia of rheumatic or other causation. Indeed we have seen renal pain and hematuria in a case of commencing appendicitis. The pain of renal calculus (not renal colic, please remember) comes and goes and is more commonly intermit-

ting and paroxysmal. Very frequently, however, it is constant and localized either in the region over the kidney, or anteriorly in the region mentioned. In my experience, it comes on during the day, and particularly the after part of the day, and not, as Jacobson would have us believe, at night. That it may occur spontaneously is not so much a peculiarity of renal calculus as that it can be excited by pressure, movement, etc.

Pain is of more diagnostic significance in renal calculus than in any other renal affection. It must be studied closely to determine its value. Every attribute that has been applied to pain belongs to the pain of renal calculus. Remote but related areas and nerve-courses join in the pain-chorus. Its very vagaries render its presence one of the most valuable signs of renal calculus. Its behavior, however, is often like the flitting nerve-aches of hysteria, and we must see to it that this counterfeit is not passed upon us. Not alone may urinary phenomena serve for the distinction; he who does not look to other neurotic manifestations or seek for the stigmata of hysteria will surely rue the day. To add to the difficulty the pain may be aggravated by the function of menstruation and even bear close relationship to it.

HEMATURIA.—Hemorrhage from the kidney is the classical symptom of stone. Indeed, we believe it is the most constant and positive symptom of renal calculus. Prior to the use of the centrifugal machine, blood no doubt escaped the eye of the observer when in small amounts, partly because it was destroyed as the urine advanced in decomposition during the period it was set aside for the deposition of its solid elements, and partly because the fewness of corpuscles rendered them difficult to find. But other causes of hematuria exist and are well known. Excluding all causes outside of the kidney, *i.e.*, of vesical and ureteral origin, renal hematuria may be due to congestion and inflammation, to infarctions, to new growths, to tuberculosis, to renal calculus and to parasites. The fevers and infections, and scurvy, purpura, leukemia and hemophilia are responsible for a number of cases. The very great importance of the relations of hematuria to renal calculus has induced me to ask your consideration of the result of the studies of the urine during the past six years. During this time 2,923 samples of the urine of 1,997 persons were critically examined. Blood was present in 364 cases; 20 of the cases of renal calculus which I have had under observation in private practice—in all of which blood was found—were studied by the aid of centrifugation, and of them I will speak specifically later. The presence of blood, it may be said in passing, was determined by microscopic examination alone. No reference will be made to chemical and spectroscopic examinations. The illness of the 264 patients in whose urine blood was found may or may not have been the cause of the hemorrhage. Yet in all cases save 20 the cause of the patient's illness could account for the blood directly or indirectly. Thus while gout, rheumatism or arterio-capillary fibrosis does not directly give rise to renal hemorrhage, the discharge of the urinary salts accompanying these affections undoubtedly inflicts trauma sufficient to produce it. It is thus seen that we must look to the accompaniments of the disease rather than the disease to explain the renal hemorrhage. In the following table the various affections of particular organs are

grouped together for the sake of brevity. It is seen that hematuria occurred in

Gastric disorders.....	35	Neurasthenia.....	5
Rheumatism.....	28	Anemia.....	5
Chronic Bright's disease.....	24	Typhoid fever.....	5
Unknown.....	20	Tuberculosis.....	2
Renal calculus.....	28	Appendicitis.....	1
Arterio-capillary fibrosis.....	19	Jaundice.....	1
Acute Bright's Disease.....	18	Tonsillitis.....	1
Pregnancy.....	17	Erysipelas.....	1
Vesical disease.....	17	Diphtheria.....	1
Valvulitis or cardiac dilatation.....	13	Goitre.....	1
Catarrhal fever.....	9	Bronchitis.....	1
Gout.....	8	Gastro-intestinal catarrh.....	1
Pneumonia.....	5		

A closer analysis of the table will show that the hematuria resulted from congestions or hyperemias (pregnancy, goitre, heart-disease, the fevers, infections and jaundice) in 56 cases. In 42 cases the hematuria occurred in the course of acute and chronic Bright's disease, and in 19 more in arterio-capillary fibrosis, being, either of renal or cardiac origin. Gastric disorders, rheumatism in many forms, gout, neurasthenia and anemia account for 81 of the cases, conditions always associated with the copious discharge of urinary salts. Vesical disease accounts for 17 cases, renal calculus for 28, and in 20 the diagnosis was not noted at the time and is forgotten.

A study of the urinary salts and their relation to the renal hemorrhage is not without interest. In 250 of the patients with hemorrhage the presence or absence of the urinary salts was noted. Of these, in 90 uric acid alone was found; in 49 uric acid and other salts; in 17 oxalates alone, in 19 phosphates alone, in 4 oxalates and phosphates were found. In 71 it was stated there were no salts. The abundant urates and oxalates could without doubt be the cause of the hemorrhage in many instances in which they were found, notably in the gastric, rheumatic, gouty, anemic and neurasthenic cases. The cases without salts afford other reasonable explanation in most instances. Thus 14 had bladder or ureteral disease, 11 had renal calculus, 12 were the victims of some fever, 4 were pregnant, 7 had some form of heart disease, 7 Bright's disease, 8 rheumatism or gout, 7 gastric affections, 7 cannot be accounted for, as setting down the diagnosis was neglected. Appendicitis and jaundice account for one each. Of course, urinary salts producing trauma might have been passed at a micturition previous to the one which the urine examined presented.

It will be noted that all the cases of renal calculus had hematuria. Indeed I am convinced that it is the one constant symptom of this affection. Moreover, I believe it is not an intermittent phenomenon alone, but one that is constantly persistent. The cases which I had the opportunity of studying over a long period of time present this interesting feature—persistence of hematuria. It is true some specimens would be free, but a study of the urine week after week would invariably show persistence of the hematuria. As long as a calculus exists in the pelvis of the kidney, not encysted, we shall find hemorrhage. It is true it may

be in small amounts and not detected unless sedimentation is done by centrifugal apparatus. A few corpuscles only may be found, but one alone means hematuria. In other cases the hemorrhage is free and can be observed by the naked eye. Note particularly that this hemorrhage occurs independently of pain or any of the phenomena of the passage of a renal calculus. Note, too, if you please, its significance is not of value during the violent throes of an attack of pain, during the presence of fever, or of any abdominal disorder disturbing the balance of the circulation.

It is of interest to recall that the hemorrhage was unattended by any urinary salts in 11 cases of renal calculus, showing that other possible factors for its production can be eliminated. I will not dwell upon the necessity of eliminating all sources of urethral, vesical, and ureteral hemorrhage before coming to a conclusion that the hemorrhage is of renal origin. Cystoscopy must be resorted to, of course, and possibly in the right hands, ureteral catheterization. If the hemorrhage is free the time of its passage in the act of urination must be determined. Likewise the reaction of the urine must be borne in mind. It is true catheterization alone can avail to pronounce from which kidney the hemorrhage comes.

A word as to blood-cylinders. They are rare, if present at all, in renal calculus. I have not observed them. They denote hemorrhage from the renal substance. Their presence would indicate that the blood is truly renal, not pelvic.

It is thus seen that blood in the urine may arise from various sources. In a person of middle life, with uric or oxalic acid tendencies, by virtue of heredity, occupation and habits, in whom no cause for the hemorrhage can exist in the urethra, bladder or ureter, the chances are that it is of pelvic origin, due to the irritation of gravel or of urine densely loaded with salts.

Klemperer has recently called attention to hematuria from healthy kidneys, as the result of over-exertion, in one case from horseback-riding, in another from the bicycle. Such causes must be borne in mind. He also reports 4 cases of hemophilia and a group due to an angioneurosis. Note now for future reference that hyaline casts were not present; indeed he specifically mentions they were absent, although blood-cylindroids were present. These forms of hematuria are not attended with enlargement of the kidneys. They do, however, present sensitiveness on percussion. He notes the presence of rouleaux of red blood-corpuscles or bloody cylinders but no casts; general symptoms of neurasthenia support the diagnosis.

PYURIA.—Pus in the urine is looked upon by all authorities as almost essential to the diagnosis of renal calculus. Unless a few leukocytes, which may come from various sources, all of which possibilities are to be excluded—unless these leukocytes warrant us in stating that pus is present—this product of inflammation is usually absent. Of the 28 cases which I examined, in 15 there was no pus; in 6 a few cells or a very small quantity was found (4, womb, cause obvious); in one it was noted as considerable (old gonorrhoea and syphilis, 4 examinations); in 1 a

small quantity (male, cause assignable); in 1 it was small in amount, twice only in some 50 examinations; in 1 it was abundant and due to genito-urinary infection as well as pyelitis. It is, of course, necessary to make repeated examinations of the urine, and it is of interest to note that in the cases in which we had this opportunity, pus was not found, although the diagnosis of renal calculus was established by passage of the stone or by operation. I am of the belief that pyuria is not present unless an accidental infection has taken place from the lower tract. I do not think we are warranted in terming pyuria a symptom of renal calculus. It may become an accidental complication from infection either before the stone has obstructed the ureter, or from infection extending from below upwards.

ALBUMIN.—In 21 patients albumin was found. It was in large excess in 3 due to co-existing Bright's disease. As a trace it is of frequent occurrence and does not imply a co-existing nephritis. I refer, of course, to serum-albumin and not globulin. The patients in whom it was found have been under my observation a long period of time and have not presented any further signs of nephritis. Its presence, as well as the co-existence of casts, need not deter one from surgical interference in a case of uncomplicated renal calculus. Nor should large amounts deter one, if pyelitis is present.

In judging of the functional activity of the kidney it is necessary, when practicable, to estimate the urea-output. When this is satisfactory, no hesitancy is justifiable, when operative resources are indicated. This was estimated in the case of one patient, and although casts and albumin were present over a long period the kidneys were normal, and she bore the operation, performed by Dr. Wharton most skilfully, very well.

CASTS.—Casts are present in the urine in nearly all cases of renal calculus. Sedimentation must be used. They are hyaline—not abundant—long and narrow. Their persistence without other signs, with or without albumin, is diagnostic of renal irritation, and with other signs points quite unfailingly to calculus. As intimated, they need not give concern as to the condition of the renal tissues unless other indication of Bright's disease are present. With albumin, they should be studied in relation to the specific gravity. If that is high and remains normal or above normal, as is usually the case, we need have less apprehension. Casts of the character above indicated were mentioned in 10 of the cases I have observed.

THE SPECIFIC GRAVITY of the urine is a cogent adjuvant in the diagnosis. Its persistence above the normal is both a comfort and a sign. It enables one to exclude renal cirrhosis, aids to eliminate hysteria or a renal neurosis—if I may use the term.

FREQUENT MICTURITION is not in my experience an indication of stone in the kidney, save when attempts are made for its passage.

PAROXYSMAL RENAL FEVER, allied to hepatic fever in its expression, rarely occurs, but when present may be due to calculus. It was present in one case only which I saw in consultation. It may be due to absorption of retained products, if the kidney is floating and becomes twisted. It may be due to pyelitis. But it is not our object to discuss the symp-

toms of rare occurrence attendant upon renal calculus, but rather to weigh the plain every-day evidence that is brought before us.

DURATION OF SYMPTOMS AND FAMILY HISTORY are valuable data upon which we must go, but need not be referred to further.

It will be seen that some statements from our very limited experience—although it covers 20 years of fairly active life—are not in accord with the various text-books. Indeed it is interesting to read the various articles, and to note their constant similarity. They read as if one article had been written from the previous article. I fear I must plead guilty myself to this accusation. We all, for instance, make the statement that renal calculus occurs in the very young and the very old; that it is most common in women; that pain, intermittent hematuria, pyuria, and the passage of a calculus are the diagnostic features. Are we not warranted in the statement that middle life is a predisposing factor, and that persistent hematuria is symptomatic, but pyuria rarely so, while albuminuria and hyaline casts in urine of high specific gravity are prominent elements of the symptom-complex upon which a diagnosis is made.

It would be of great interest to see where the literary fault was first committed. Stone was originally written about from the standpoint of the bladder, and by those who had experience with stone in countries where it prevailed on account of the water. No doubt the statements of the early writers have been handed down from writer to writer without cavil. Furthermore, my contention of the relation of age seems to be sustained by the court of final decision—the surgeon who operates for their removal when the diagnosis is absolute. Such operations are infrequent in the young. Moreover, writers on diseases of children do not speak of their occurrence as common to that age, and, indeed, Ashby and Wright inveigh against it.

THE DIAGNOSIS.—Were I asked what do I consider most essential in the diagnosis of renal calculus I should say patience and care. We are too apt to be hasty. Indeed, I hold a positive diagnosis cannot be made unless the patient is under observation for some time. Let me then plead for delay and patient study of the every-day phenomena with the every-day means at our command. The element of time is essential, first to establish the data upon which we make a diagnosis; and, second, to observe the course of the disease. Of course, the occurrence of an accident, as obstruction, demands prompt action. Is it not possible that healthy kidneys are operated on too often because the case was not carefully studied over a long period of time; or for the same reason the kidney of the wrong side cut down upon?

If such care is taken I believe the diagnosis can be established by the symptom-complex of *pain*, local tenderness, persistent *hematuria*, *albuminuria* and *casts* (the cardiac, vascular and renal origin of which is excluded), by the phenomena of *renal colic* and by *passage of fragments* of stone. Hematuria may have one more word. If the patient is put at absolute rest—no extraneous cause as heart-disease, blood-dyscrasia, etc., being present to cause hematuria—and the hemorrhage persists, it is more likely of a cancerous or tuberculous origin.

I will desist from the temptation to tabulate and discuss the differen-

tial diagnosis of renal calculus from appendicitis, movable, and twisted kidney, biliary colic, and the other stimulated affections; nor will I enter into a discussion of the virtue of catheterization and exploration by the ureter. I have had no experience with it and am not able to decry or extol. I must confess I am more in sympathy with Hollander than with Casper in the tenets he upholds. These doughty opponents have been stating their views in the recent numbers of the *Berliner klinische Wochenschrift*. I feel with Hollander, we can in a large number of cases make a diagnosis without the aid of catheterization, and I appreciate with him the danger of infection from below—of which he cites cases. It is worthy to remark that the only cases of pyelitis in my own private practice were from this source. If we had a Kelly or a Mann or a Casper at our command to perform the catheterization it would be well enough. To trust such means to the general practitioner I fear would be a repetition of our disasters from uterine specula and uterine sounds.

I had thought to say a word about treatment. I find I can say nothing new. I have been well satisfied with the use of rain-water, gathered in a proper manner. Beyond this, diet, exercise and other hygienic lines must be followed. But rarely are operative measures required. I am in accord with the indications laid down in the works on surgery: Pain that disables; obstruction; pyelitis. I unhesitatingly am against all operative measures unless a diagnosis is fully established, which can be done, I believe, if we take time, and view broadly.

INTESTINAL PERFORATIONS IN TYPHOID FEVER.

Monod gave an account of a case, which he had been called upon to treat three weeks previously, in which there was intestinal perforation. He performed a median laparotomy, which gave issue to a quantity of purulent serum and to a loop of thin intestine which was perforated. The latter was sutured, and after lavage and drainage of the stomach it was closed. Improvement seemed apparent during thirty-six hours, but the patient died. The autopsy revealed the fact that the suture had remained intact. In 1884 Leyden conceived the idea of surgical intervention during typhoid fever, and in 1890 Louis reported 11 cases with 11 deaths. Monod stated that his researches had attained a total of 35 cases among which were five recoveries, but that if carefully examined it would be found that these five cases are far from being perfectly authentic, particularly those of Drs. Murphy, Hill, and Wagner. Only two appear to be undoubted—one in 1891 and one in 1895.

It may be stated that the intestinal suture remains intact, even in these fatal cases, but the patient is already in a state of semi-collapse, and should be very carefully examined before it is decided to have him run the risk of a laparotomy. The perforation occurs in the centre of the peritoneum, and generally infects the latter. The perforations are often multiple, and even upon intervention it is not possible to find them all. A patient presenting intestinal perforation during typhoid fever dies, or is

likely to die. If there were only a single chance of recovery (and there are two) it is imperative to give the patient the benefit of this chance, particularly if the conditions are at all favorable.

Routier stated that, guided solely by the painful spot in a typhoid patient, he performed a laparotomy which disclosed two perforations which he was able to suture; he left the stomach open, but the patient, nevertheless, succumbed upon the tenth day to two new perforations. There is a difference between the perforations occurring at the beginning of typhoid fever and those presenting themselves during convalescence. The two cases of recovery were reported of the latter class.

THE USE OF THE CATHETER IN CASES OF PROSTATIC DISEASE.

Bangs (*Med. News*, February 12th, 1898) in a paper on catheter life, with some remarks on the etiology of hypertrophy of the prostate gland, lays down some general directions on catheterism which should, it is held, be rigidly followed by the patient. The soft catheter with solid tip is the best to use if possible. If a rigid one be required, one made of elastic webbing, with a curve or bend at the point, is preferable. A new catheter must be treated with the same care as to cleanliness and asepsis as one that has been in use. If possible, it should be exposed to the vapor of formaldehyde; if not, it should be immersed in a solution of formalin (1 to 2 per cent.) during at least fifteen minutes. Then it should be placed in a strip of bichloride gauze, or placed between the folds of a perfectly clean towel. Each catheter should be kept in a separate receptacle or closed drawer, where dust cannot find access to it, and where it cannot be handled except by the person who is to use it. If the patient must carry the instrument about with him, it should be kept wrapped in several layers of bichloride gauze, and outside this should be placed a wrapping of "waxed" or parchment paper, held firmly by rubber bands. Just before using the catheter the patient must thoroughly clean his hands, and rinse his fingers in pure alcohol. In the meantime the catheter should be lying in formalin solution. Then, after shaking it, and wiping off any drops that may remain upon it with a piece of clean gauze, and smearing it with a proper lubricant, the patient should gently pass it along the urethra. Immediately after use the catheter should be thoroughly washed with soap and water, be steeped for a time in the solution of formalin, and then carefully put away in gauze or clean towel in readiness for the next use.

A NEW METHOD OF DRAINING THE PERITONEAL CAVITY.

Delagénière (*Bull. et Mém. de la Soc. de Chir.*, No. 12, 1898), holding that the means hitherto used for draining the abdomen after laparotomy are defective, proposes to drain this cavity in a similar way as a spirit lamp is drained by its wick. He employs a perforated nickel tube, in which is inserted a skein of absorbent cotton. This skein closely fits the

interior of the metallic tube, and is frayed out as it projects from either end. Both the outer tube and the cotton can be readily sterilized, and the skein can be changed from time to time without removing the tube. In no case, the author states, should the metal tube be allowed to remain for a longer period than thirty-six hours. Excellent results, it is stated, have been obtained from this method of drainage, and after long and difficult abdominal operations the course of the after-treatment has thus rendered absolutely apyretic. The nickel tubes used by the author vary in length from 8 to 10 cm., and in diameter from 15 to 20 mm.

EXTENSIVE INJURY OF THE LIVER SUCCESSFULLY TREATED BY OPERATION.

Snyers (*Ann. de la Soc. Belge. de Chir.*, April, 1898) reports a case of penetrating gunshot wound on the right side of the chest, with laceration of the liver. The injury had been caused by a gun loaded with small shot. At the sternal extremity of the seventh rib was a small circular wound, which was plugged by a protruded piece of omentum. On opening up this wound, and exposing freely the abdominal cavity, the author found that the free anterior margin of the liver formed a large loose flap, which was attached to the rest of the organ merely along a portion of its upper surface. This flap was about four inches in length, and two finger-breadths in thickness. Between it and the lacerated liver structure on the under surface of the organ were found loose fragments of the seventh and eighth ribs. These fragments having been removed, several ligatures were applied along the attachment of the hepatic flap to the rest of the liver, and the flap itself was then cut away. The wound was plugged and drained by antiseptic gauze. The patient, a lad, aged 16, was much collapsed at the end of the operation, which was performed within an hour from the time of injury, but finally made a complete recovery.

SURGICAL ITEMS.

It is not essential for the management of a surgical case that the patient be placed in a hospital, but cleanliness in private quarters, with proper nursing, may secure entirely satisfactory results, by conforming to the ordinary surroundings of the patient.—*Gaston*.

A thorough comprehension of the reciprocal relations of immunity and susceptibility should lead to the adoption of conservative measures in the practice of general surgery, and the use of the most radical and aggressive measures when indicated by the nature of the case.—*Gaston*.

In the ordinary cases of prostatic enlargement of however long standing, in which the obstruction is not great and the power of the bladder is fair, in which there is not an excessive amount of residual urine, in which catheterism is easy and painless, and in which cystitis, if it exists, is not severe and can be controlled by aseptic washings and regular catheterism, operative treatment is not indicated.—*Alexander*.

MEDICINE.

IN CHARGE OF

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HEART DISEASE FROM THE STANDPOINT OF LIFE INSURANCE*

BY ROBERT H. BABCOCK, A.M., M.D.

When your president did me the honor of inviting me to address you this evening, and suggested that I speak upon this subject, it seemed to me that I had a great deal to say. Upon reflection, however, I became at a loss to decide just what to say that could be of practical interest to life insurance examiners, because the attitude of the companies with relation to heart disease is fixed. But as I was assured that the majority of my hearers would be examiners-in-chief, and the position of life insurance associations seems to me wrong, I decided to criticize their attitude in the hope of beginning a movement to induce more of the companies to modify their decision regarding applicants whose hearts do not come up to standard.

So far as I have been able to learn, only four companies—the New York Life, the Security Life and Trust of Philadelphia, the Life Insurance Clearing House of St. Paul, and an assessment company of Hartford—have thus far departed from the rule, and now issue what are known as “substandard risks.” For the most part, as you well know, insurance companies refuse applicants whose pulses or hearts deviate from the normal as follows: A pulse-rate persistently above 90 or below 60—some say above 85 and below 50—and habitual arrhythmia; a murmur, whether anemic or of organic origin, provided it be permanent, absolutely rejects the applicant. I do not ask that such risks be accepted as standard risks; but I believe it is unjust to exclude them altogether, and would have all companies establish under-average ratings.

Before I state why and wherein I believe the attitude of most companies at present towards heart disease is wrong, let me discuss some of the reasons that influence them. Doubtless it is one of cold dollars and cents, or rather experience has taught them that it is safer to reject all applicants with defective hearts than to accept the recommendation by their examiners of some of these risks.

The attitude of insurance companies toward their examiners is one of distrust of their ability to make reliable reports on the condition of heart patients and to judge of the likelihood of such persons to live out their

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expectancy. Therefore, the rank and file of medical examiners are mere machines who turn in reports, while all discrimination and decision is left to the examiners-in-chief or the medical directors. I will go further, and say that in some instances the attitude of the companies is one of discredit of the value of medical examinations. This was impressed upon me by a conversation some years ago with the general manager of one of the two largest insurance companies in the East. He said he attached so little importance to a medical examination that if his chief examiner in this city were to forget his medical knowledge the next day he would still retain him in his position, because of his knowledge of men and conditions in Chicago. This general manager added that he did not pretend to any medical knowledge himself, yet he felt so sure of his ability to judge of risks simply upon inspection that if a hundred men were to walk slowly through that office he would tell who were good and who were bad risks. To this I responded that I could bring in twenty men, every one of whom he would accept on this basis, and yet every one would have heart disease.

What are the reasons for this distrust on the part of the insurance companies? It has been suggested to me that this is due chiefly to the impossibility of securing examiners whose work can be relied upon. Now if this be the case, then I believe the companies are themselves largely to blame, first because of the methods of appointing examiners. This is done in one of the two following ways: A young physician with more time than practice applies for appointment, and sends in the names of professional friends as references. Confidential letters are sent to these or other physicians supposed to have knowledge of the applicant's ability and character, with the request that they state in confidence what their knowledge and opinion of said applicant's qualifications are. Now, it is a well-known fact that nothing is easier than for one doctor to get a recommendation from another doctor. Consequently in this instance the recipient of the confidential letter, although he may have no personal knowledge of the young man's ability, gives the desired recommendation on the assumption that having been graduated at a reputable medical school he must have been adequately trained; and on the strength of such endorsements the appointment is made.

Another method is for an agent to send to the company the name of some physician well known in the community, or who has been recommended to him by some layman. The chief examiner is then despatched to the locality, and ascertains what he can of the doctor's character and qualifications by inquiry or personal interview. If these investigations are satisfactory the physician is appointed.

Now I claim this method is defective, and that examiners should be appointed only after an examination into their knowledge of physical diagnosis, conducted by the chief examiner or some one qualified and duly authorized by the company. It may be urged that this is not practicable, and perhaps it is not; but at all events some other than the present method should be devised.

Secondly, I incline to the opinion that insurance companies would secure better examiners if they paid better fees. To this it has been ob-

jected that as a matter of fact they get better work now at three dollars than they used to at five, because it is done by active, hustling young doctors eager to distinguish themselves and to get work. This may be so, but if insurance companies would have examinations of the heart upon which they could depend, they should pay fees sufficient to command the services of authorities in our great medical centres. By this means, errors would be less frequently made in the acceptance of unfavorable risks.

On the part of the rank and file of examiners there is reason for distrust of their reports, because of their incompetency or their carelessness. There is often a temptation to do careless work when the examiner knows that the agent with an eye on his commissions is likely to throw the most of his patronage in the way of the examiner who rejects the fewest risks. You are all familiar with such instances. Some ten years ago an examiner who was inclined to refuse the application of a certain man because of a cardiac murmur sent him to me for my opinion. I agreed with the examiner, and reported unfavorably on the risk; whereupon the agent took the applicant to a second examiner, who listened to the heart through the shirt, failed to detect the murmur, and passed the risk. With competent and careful examiners such things could not occur.

Now let me pass on to the reasons why the attitude of insurance companies is unjust toward applicants whose hearts or pulses are not up to the standard. In the first place, we all know individuals who, although their hearts are defective, are nevertheless better risks than some who are already insured. It is no reason *per se*, because a young man has a compensated mitral regurgitation and is otherwise in good condition that he should not live out his expectancy. Indeed, I can recall a case of a woman who had a mitral insufficiency for nearly or quite fifty years, and another female who, with pulmonary regurgitation at the age of 58, gave a clear history of the disease having lasted since her 8th year.

Even in so serious an affection as aortic incompetence a comparatively long life is not impossible. I knew a man who when he died of this disease at 46 had certainly had it for thirty-one and perhaps thirty-four years. Of course I would not recommend even as substandard risks individuals with such grave lesions as this; nor would I limit my recommendation to cases of compensated mitral regurgitation. There is no valvular disease in which the prognosis is so good as pure and uncomplicated aortic stenosis of inflammatory origin in a young man. It is far otherwise with this relatively rare form of valvular disease when it occurs in persons of middle age or beyond. In such it may be of sclerotic origin, and the prognosis is bad. Therefore, other things being equal, I should have no hesitation in recommending for insurance on an under-average rating a young man with a moderate, thoroughly compensated aortic stenosis.

Let us now consider the instructions to examiners concerning the pulse. Tachycardia of ninety or even one hundred is often due to the perturbation of an examination, and in such a case often subsides before the examination is over, or upon a subsequent sitting. But this is not

always so, for some excitable people will have a rapid pulse every time they visit the doctor. Moreover, as stated by authors, a pulse of a hundred is natural to some individuals, and is by no means an indication of heart disease. Of course, a pulse-rate habitually much in excess of a hundred is suspicious, to say the least.

Bradycardia, or a pulse below fifty, is likewise no evidence of cardiac disease, since it may be natural to some people, as was the case with Napoleon Bonaparte. He could not have been insured because his pulse-rate was habitually forty, and yet his death was due to causes not connected with the heart. As tachycardia may be due to some poison like tea, coffee, or tobacco, so an abnormally slow pulse may be caused by some toxemia, and not necessarily by organic disease either of medulla or heart.

Even more truly may it be said of arrhythmia that it is not *per se* an indication of cardiac disease. I recall the case of a friend, a young man of about thirty-five, in whom at one time about ten years ago I found the pulse so irregular and intermittent as to be truly alarming. When I told him so he only laughed and said he knew it was due to coffee and tobacco, and that if he would only give up these his pulse would become perfectly regular. In fact, such proved to be the case later on, and he is still living in this city, an active business man, with, I have every reason to believe, a healthy heart. For these and other reasons it is wrong to reject a risk on the pulse alone without taking into consideration the physical findings of the heart.

Likewise, a cardiac murmur should not have undue weight attached to it, for as is well known it is the least important, although the most easily recognized, sign of heart disease. It is possible for a patient to have a mitral systolic murmur for years without any symptoms or secondary physical signs of heart disease, the murmur being accidentally stumbled upon during an examination for life insurance. Moreover, the intensity of a murmur is no criterion of its gravity, since a trifling lesion may be attended by a loud bruit, and, on the other hand, a dangerous one be declared by no murmur at all. More than one instance has been recorded in the last few years of regurgitation through the aortic valves, shown by every other physical sign and found post-mortem, yet in which no murmur was heard during life. Therefore murmurs should be estimated in connection with the presence or absence of other physical signs of heart disease.

There is a type of individuals whom I desire to comment on as illustrating the importance of an accurate determination of the relative and not alone the absolute cardiac dulness. These are robust-looking men of large frame and ample chests, who are apt to be accepted as first-class risks. For the most part they are hearty feeders who habitually take an excess of food both in quantity and quality, eating meat three times a day, who take comparatively little outdoor exercise, and who are of active mentality or have great responsibility. If the heart of such a man be examined, absolute dulness is usually normal, whereas deep percussion will reveal an increase of relative dulness sufficient to constitute cardiac enlargement. The left nipple is usually taken as the normal boundary

of the heart's dulness on the left; yet if in such a broad-chested individual the mammary line be from four to five inches to the left of the mid-sternum and the heart reached to this point, there is already an unduly large heart, or what Frenzel has called Enlargement of the Heart without Valvular Disease.

Owing to his sedentary habits and hearty feeding such an individual develops persistently high arterial tension, and this leads finally to hypertrophy and dilatation of the heart. These are the risks which so often die unexpectedly in the fifties or early sixties of what is called "heart failure." I have seen two or three such cases within the past week. One of them, a man of 43, manager of a large manufacturing interest, consulted me because, after an attack said to be la grippe, his family physician told him his heart was weak. He gave no symptoms of cardiac dyspnea or palpitations, but his habits as to exercise, diet, etc., were defective. His pulse was slightly accelerated, about 84, of fair volume, but rather too compressible. His chest was broad and capacious. Absolute cardiac dulness was normal, whereas the area of relative dulness measured transversely about seven inches. Excepting slight weakness of the first sound at apex and moderate accentuation of the pulmonic second, the heart sounds were negative. Here, then, was a healthy-looking man who would probably have been accepted by any medical examiner as a standard risk, and yet he had a degree of cardiac enlargement that in my opinion renders him an under-average risk.

Let me give another instance: A robust-looking man, the picture of health, about 46, was brought to me by an agent who stated that he had been passed by several examiners, only one having refused him because of a slight murmur at the apex. Absolute cardiac dulness was normal, but deep percussion showed considerable increase in the area of relative dulness. The first sound was not quite pure, but there was no murmur; aortic second sound was ringing. I do not know that I should have rejected the applicant on the heart findings even then, but when I laid him on the couch and palpated the liver I found to my surprise that its lower border reached nearly to the level of the umbilicus and was rather hard and thin. His habits as to the taking of liquor (three or four drinks a day) would be likely to induce atrophic cirrhosis rather than enlargement, and as he gave a history of inflammatory rheumatism some years before I was inclined to suspect pericardial adhesions as the cause of the cardiac and hepatic enlargement, although there were no positive signs of an adherent pericardium. Of course I promptly rejected the risk, and the man left my office very hot, saying no one had ever called his liver in question, and he thought my opinion ought to be limited to his heart. I told him that was all right, but that my opinion of his heart was largely influenced by the result of the examination of the liver. This case exemplifies the importance of determining relative heart dulness. These considerations warrant the belief that it is an injustice as well as bad business policy to accept such risks and turn down individuals who happen to have a well compensated mitral insufficiency or aortic stenosis.

Finally, let me dwell on some of the conditions which should determine one's opinion of the likelihood of an applicant with such a compensated

valvular lesion to live out his expectancy. If there be a tendency to recurring attacks of articular rheumatism, or if he have gonorrhœa or some other infectious disease liable to set up fresh endocarditis, the prognosis is unfavorable. Age also influences the prognosis. Valvular disease in children is very grave even though it be compensated; likewise at or beyond middle age, because then it is probably of sclerotic origin and progressive, whereas in healthy young adults compensation may be preserved for years. The occupation is of utmost importance, since, if it subject the individual to vicissitudes of weather or to cardiac strain from carrying burdens and lifting heavy weights, as is the case with porters, or if it necessitates irregular meal hours, loss of sleep, excitement, running, etc., as in the life of the trainman, compensation is not likely to be long maintained. On the other hand, if the work be light, meals regular, diet nutritious, and the patient of a calm, equable temperament, a rather more serious lesion may yet furnish a better prognosis than in another case of less pronounced disease but less favorable environment.

The habits, too, should not be left out of account, for if of importance in men without heart disease, they are of infinitely greater weight in making for or against the maintenance of compensation in valvular disease.

It is needless to enlarge further upon this topic to examiners who are already familiar with the value of such things. I have only taken up so much of your time and attention for the purpose of emphasizing those points which seem to me satisfactory reasons why existing rules on the part of insurance companies should be modified so as to provide ratings for persons whose hearts make them under-average risks, but ought not to wholly exclude them from the benefits of life insurance even at high rates.

[The writer gives, perhaps, too favorable a prognosis in aortic lesions; his remarks concerning hypertrophy, apart from valvular disease, are of much value, inasmuch as such a condition is frequently overlooked. We heartily endorse his protest against the employing of inexperienced or incompetent examiners who often secure appointment, not on professional merits, but by means of dexterous wire-pulling.—W. B.]

TINCTURE OF MYRRH IN MIXED INFECTIONS.—As one result of the inability to grapple with mixed infections, the administration of tincture of myrrh internally, which was first suggested in Philadelphia about ten years ago, is being resorted to in Europe, on account of its effect in increasing the number of leucocytes. Stroll, of Munich, reports eighty cases with only one death, treated by this method. He prescribes:

- R Tincture of myrrh..... 4 parts.
- Glycerine..... 8 parts.
- Distilled water—enough to make..... 200 parts.

This is given every hour, or, in severe cases of diphtheria, every half hour; the dose for a child under two years, a coffee-spoonful, and in children up to fifteen years one to two tea-spoonfuls.—*Therapeutic Gazette.*

NERVOUS DISEASES AND ELECTRO-THERAPEUTICS.

IN CHARGE OF
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NEURASTHENIA ESSENTIALIS AND NEURASTHENIA SYMPTOMATICA.

BY F. X. DERCUM, M.D., PHILADELPHIA.

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At the present day there still exist, not only in the mind of the general practitioner, but even in the minds of specialists, the most vague and ill-defined notions concerning neurasthenia. Not only do we hear from physicians of the highest standing allusions made and views expressed in regard to neurasthenia which disclose that this all-important affection has never received serious attention or study at their hands, but this is true to a very large extent of neurologists and especially of alienists. A striking illustration of this proposition is furnished by the treatise on the pathology and therapy of neurasthenia by Binswanger, which has recently made its appearance in Germany. The writer does not hesitate to say that under neurasthenia we are to group all neuropathic appearances which rest on a basis of a general functional disease of the nervous system, but which cannot be placed in the same category with the fully developed psychoses and neuroses because of their incomplete character. Surely the pages of medical literature have never before proposed as the definition of a well-defined and well-known syndrome such as neurasthenia certainly is, terms more vague or more unsatisfactory. It is largely because neurasthenia to the superficial observer seems uninteresting that it is so little studied, and yet it is an affection so common, the number of cases so large, that we certainly owe it to ourselves to obtain clear, if not elementary, notions of this disease. In truth, neurasthenia is one of the most interesting affections which we can possibly study. As I will presently point out, its syndrome is as definite and fixed as that of any other disease with which we have to deal. Its boundaries instead of being illy-defined are sharply delimited. The various symptom-groups occurring in neurasthenia, though differing widely in detail, always present the same essential features, and, from whatever standpoint they are approached, a harmonious, clinical whole—a well-proportioned and well-defined syndrome—is seen. The work of Binswanger illustrates in reality a backward step. If it is to stand, the writings of Beard, Bouveret, Von Hösling and others to whose labors we owe in a large measure our pres-

ent notions of the disease, fall to the ground, and all the value of the pioneer treatise of Robert Whyte, now over a century and a quarter old, which differentiates this affection clearly from the allied conditions of hysteria and hypochondriasis, not to speak of the writings of Sandras, Bouchut and others, disappears.

Let us analyze briefly the essential features of neurasthenia. In the simplest form of the affection there exists a more or less marked and persistent diminution of nervous energy, and to these symptoms are added those of increased irritability, both mental and physical. To the writer it does not seem that much mystery should attach to this condition, it hardly seems necessary at this day to contend that marked chronic fatigue should present a special syndrome, and yet Binswanger would have us believe that we are dealing with a condition which presents the most vague and indefinite symptomatology. These vague notions of neurasthenia are based, first upon incomplete study, and secondly upon the apparent inability to systematically arrange and properly classify the facts presented. Neurasthenia is still in the position in which hysteria was until recent years in England and America, notwithstanding the fact that the French had demonstrated unmistakably the symptomatology of the latter affection. Too often neurasthenia is looked upon as a vague affection made up of numerous pathological factors bearing little or no relation to each other. The difficulty partly arises from the fact that the symptoms of neurasthenia are in a large measure subjective, while even such symptoms as are objective lack the striking features observed in many other functional diseases. Another circumstance which has been most prolific of misconception regarding the nature of neurasthenia is the fact that physicians have loosely described as neurasthenia symptoms which properly belong to other diseases. Thus the nervous symptoms associated with anæmia, chlorosis and other diseases of the blood, the nervous symptoms associated with the diseases of the pelvic organs or with chronic disease of the stomach have been loosely termed neurasthenia. If the nervous symptoms associated with general somatic or organic visceral diseases are to be termed neurasthenic, we should be careful to bear in mind that they represent something very different from true neurasthenia. I have myself proposed for this spurious neurasthenia the term *neurasthenia symptomatica*. If the fact that there exists a true neurasthenia separate and apart from symptomatic neurasthenia is once firmly fixed in our minds, much of the confusion clinging to the subject passes away.

The next fact of importance to recognize is that in true neurasthenia, or, as I prefer to term it, *neurasthenia simplex* or *essentials*, in addition to symptoms primarily indicative of the disease, others make their appearance which are secondary in character and importance. Frequently these secondary or subsidiary symptoms are superficially evident or unusually prominent and thus their importance is mistaken and over-rated. Charcot also recognized these differences in the symptoms of neurasthenia, for he separated the symptoms into, first, cardinal symptoms or neurasthenic stigmata, and, secondly, secondary or accessory symptoms. In Charcot's group the fundamental symptoms or stigmata are the fol-

lowing: First, neurasthenic headache; secondly, sleep disturbances; third, rachialgia and spinal hyperaesthesia; fourth, muscular weakness; fifth, the disturbances of digestion (nervous dyspepsia); sixth, sexual disturbances; and seventh, mental symptoms. To these Charcot added the secondary or accessory symptoms, which group consists of all symptoms which are not essential to the diagnosis of neurasthenia. Among them he placed such symptoms as giddiness, disturbances of the special senses, respiratory, circulatory and secretory disturbances, disturbances of general sensation, disturbances of motility and febrile conditions.

Charcot in his classification of the symptoms of neurasthenia merely grouped together as the stigmata or fundamental symptoms the most prominent clinical features of the disease. We will find by analysis that these symptoms are not by any means of equal value. Similarly the secondary symptoms of Charcot, which we have just enumerated, are of very unequal value.

If we grasp the conception of neurasthenia, that it is in reality a *fatigue neurosis*, the symptoms group themselves very readily in a logical and orderly sequence. Primary or fundamental symptoms then stand out boldly and with definite relations to each other. They are always symptoms which present the essential characteristics of weakness and irritability and which are always expressive of fatigue. The secondary symptoms are all such symptoms as are adventitious or mere secondary outgrowths of the primary or fundamental symptoms. I can make my meaning clear by enumerating some of the various primary symptoms and contrasting them with some of the secondary symptoms. Beginning with the sensory disturbances, we have, first, a general sense of fatigue or tire. This sensation may be diffused throughout the entire body, but it is generally accentuated in special regions or limbs. It is characteristic of this sense of fatigue, whether it be referred to the head, to the back or to the limbs, that it is, in the simple and typical cases at least, always relieved or lessened by rest, and, further, it is always brought on, if absent, or made worse, if present, by exertion. This readiness of fatigue, this general sense of tire, I regard as the primary symptoms, if indeed not the most fundamental of all the symptoms, of neurasthenia. Fatigue sensations when they become exaggerated become painful, and they are then described by the patient as aches of various kinds. It frequently is a headache, almost as frequently a backache, or the ache may be referred to a leg or to an arm. In the latter instance a few questions with reference to the avocation will almost always reveal the reason for the accentuation of the pain in one extremity. Thus, in a collector, the fatigue sensations were most pronounced in the legs, in a physician who used his right hand constantly and for many hours daily in laryngeal manipulations, the fatigue sensation was accentuated in the right arm.

These fatigue sensations, these aches of various kinds, let it be repeated again, are primary symptoms. Not infrequently, however, we have associated with these symptoms others which are secondary and which I have in some of my writings termed adventitious. Thus the headache of neurasthenia may be accompanied by a sense of pressure or constriction or by a sense of fullness, lightness or distention. These

sensations depending as they probably do upon disturbances of the circulation are secondary and adventitious. They are not necessary parts of the neurasthenic headache and may or may not be present. Sometimes other sensations are noted, such as throbbing, sense of increased weight, whirling sensations, or vague and ill-defined feelings of distress; all of these are secondary in value.

As regards backache, the simple feeling of fatigue referred to the lumbar region may be complicated by hyperasthesia, especially over the spinal gutter, where it may be distributed, as is well known, in patches. I refer to so-called spinal hyperasthesia or spinal tenderness. This spinal tenderness I regard as a secondary symptom—as one the indirect outgrowths of a normal fatigue sensation. It is a pathological exaggeration or intensification of the fatigue sensation. The hyperasthesia, the sense of burning and the deep-seated boring pains, sometimes complained of, are clearly adventitious and not primary. The achings referred to the legs or to the arms, present a similar illustration. It is very frequent to find that in addition to or in place of aching in the limbs the patient complains of throbbing or thrilling or tremulous feelings in the limbs. These sensations are likewise to be regarded as secondary. They are not necessarily present and are clearly adventitious. Likewise is it with the various curious paræsthesiæ of which neurasthenics every now and then complain, such as pins and needle feelings, numbness, prickling or of velvety sensations, all of which belong to the group of secondary symptoms.

(To be Continued in Our Next Issue.)

GAVAGE.—John W. Bartol says that the infant, like the adult, often has in its moribund conditions of body and mind a certain distaste for nourishment of any kind, but, unlike the adult, is not able to call to its aid the power of will so often essential for the obedient execution of the physician's directions. It is obviously our duty to feed these patients against the will. In another class of cases there is a certain type of obstinate vomiting, the children taking food readily enough, but being unable to retain it even in small quantities. It will often be found in these cases that the reflex vomiting is less liable to be excited by the passage of the tube than by the food itself taken in the natural way; in some of these instances, in which there is a prospect of steadily advancing failure, the trouble may be tided over until a slight gain in tone enables the patients to resume their normal habit.—*American Journal of Obstetrics.*

URTICARIA.—

R Chloralis	
Camphoræ	āā ʒi
Pulv. amyli	ʒi-ii

M. Sig: Keep tightly corked in a wide-mouthed bottle. Rub in with the hand.—*Bulkley.*

NOSE AND THROAT.

IN CHARGE OF

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LUPUS AND X RAYS.

The author showed two cases of lupus successfully treated by Röntgen rays. In the first case, the skin over the nose was affected, and had been unsuccessfully treated by other means. The other case was lupus of the cheek, and of the nasal mucous membrane. The former was cured; the latter was hardly favorably influenced.—ALBERS-SCHONBERG, *Munch. Med. Woch.*, Feb. 15, 1898.

ANTRUM OF HIGHMORE.

The author demonstrated twenty-five preparations of the pathology of the antrum of Highmore from his collection. He considers important the thickness of bone between the teeth and the antrum in the etiology of disease of the antrum. The striking frequency of pus in post-mortem examination of the antrum he considers due to disturbance of nutrition in fatal diseases, and should be imputed to weakened constitution. One preparation showed marked decrease in size of the antrum, and a striking asymmetry of the facial bones in consequence of empyema. Spontaneous healing of chronic empyema is proved by the filling up of the antrum with connective tissue; further, by a large perforation through the anterior wall artificially, healing is brought about in an analogous way. Polypi in the antrum are found oftener when the contents are mucous, and not purulent. Mucous cysts are found in thirty per cent.—BERGEAT, *Munch. Med. Woch.*, Feb. 22, 1898.

CHRONIC CATARRH OF THE SUPERIOR AIR PASSAGES.

Besides all the other reasons of chronic catarrh, one principal one is supposed to be the too dry air in the rooms during the winter time. The rest is not of special interest.—KOPPEL, *Petersburg Med. Woch.*, No. 41, 1897.

SERUMTHERAPY IN OZENA.

The author pays particular attention to the accidents which occur in this form of treatment, and concludes that any drawbacks of a serious character may be avoided by using small doses.

He sums up the results of treatment as follows:

1. Complete disappearance or attenuation of foetor always occurs.
2. Crusts persist, though somewhat diminished in quantity.

3. It is impossible at present to say that good results are lasting. Though of short duration, they are often better than those obtained by douches and cauterization. Children react better than adults.

4. Hyperæmia and swelling certainly occur.

5. He has never observed complete disappearance of Belfanti's bacillus, or Læwenberg's coccobacillus, even during treatment.

6. This treatment if the most convenient method for combating the fœtor, but hopes of a definite cure should not be held out to the patient. In the majority of cases the result will be but temporary.

These conclusions are drawn from observation of Gouguenheim's cases at the Lariboisière Hospital.—LOMBARD, *Ann. des Mal. de l'Oreille*.

HAY FEVER.

The author reports a few cases of hay fever with gastric symptoms. So he prescribed Karlsbad waters, and at the same time treated the nasal mucous membrane. The author believes he had good results by this method.—MULLER, M. (KARLSBAD) *Wien. Med. Club*, Oct. 20, 1897.

FOREIGN BODY IN THE NOSE.

A girl, four years old, had been treated with cod-liver oil for a supposed scrofulous disease of the nose. There was profuse foetid, purulent discharge from the left nostril; there was also deafness. Examination revealed a mass, covered with secretion, in the middle meatus, which, on removal, proved to be a small piece of hard sponge. The nose was irrigated with saline solution and recovery ensued.—SEMONSOHN, MAX, *Deutsche Med. Woch.*, Feb. 2, 1898.

ON THE CONNECTION BETWEEN NASAL AND OCULAR DISEASES.

The connections between nasal and ocular diseases are essentially of three kinds. The first consists of reflex ocular disturbances, lachrymation, photophobia, scotoma, ophthalmic migraine, and especially asthenopia. Even though the direct proof of the connection of subjective ocular disturbances is not easily established from objectively proved nasal disease, yet the practical experience of a connection cannot be disputed. The second consists of an internal connection between the nose and eye, through the direct communication of the conjunctival sac with the nose by means of the tear duct. The lachrymal duct opens in the inferior meatus, and consists of a membranous covering from the mucosa, of sub-mucous and cavernous tissue like that covering the turbinate. Inflammation in the nose, hypertrophy of the inferior turbinate, ulcerative processes, cause swelling of the cavernous tissue of the lachrymal duct with stenosis, and, as a result, stagnation of tears in the tear duct. Bacteria increase and cause inflammation of the tear duct walls, producing dacryostenosis and dacryocystitis. As a result, preliminary treatment of the nose should precede probing and washing out of the tear duct. The third consists in the respective connection between nose and eye. The contents of the orbit which are surrounded by the accessory sinuses of the nose, so that inflammation of these, owing to their thin walls, can easily spread

to the eye. Every gradation, from simple collateral hyperæmia to orbital abscess and cellulitis has been observed. It has been proved that orbital abscess is usually secondary to disease of the antra.

There is displacement of the eyeball in the opposite direction from the situation of the abscess, disturbance of movement and pain. The reverse may occur; inflammation from the eye may spread to the nose. This is rare.

Discussion followed. Hirschmann stated that Nieden, Ziem and Bressgen were the first to point out the connection between nasal and ocular diseases. Reflex affections are very common; asthenopia diminishes after removal of adenoids. He describes a case of bitemporal hemianopsia, which was due to disease of the sphenoid. It was probably due to an exostosis which pressed on the chiasma of the decussated bundles of the optic nerve, for the patient showed exostoses on the vertex. Death was due to disease of the lungs, but no post-mortem could be obtained.

Hopmann stated that many cases of disease of the naso-lachrymal canal, as well as phlyctenular conjunctivitis, were treated unsuccessfully by oculists, because the nose was neglected. In a case of Basedow's disease the symptoms became less after the removal of a nasal polypus and treatment of atrophic rhinitis.

Hirschmann pointed out the importance of the vascular connections between the nose and the eye. Branches of the ophthalmic artery and ethmoidal arteries (ante and post) go to the nose, and the nasal veins communicate with the ophthalmic veins. The principal reflex disturbances are changes in the field of vision, disturbances of accommodation, fleeting scotoma; the nasal causes are hypertrophy of the inferior turbinates and adenoids.

Lieven reported a case of synechia of the inferior turbinate, where there was ciliary paresis and frequent pain in the eyeball; violent coughing was produced on pressure. After removal the symptoms disappeared.—STIEL, *Munchener Med. Woch.*, Jan. 25, 1898.

ON SUDDEN DEATH IN CHILDREN, ESPECIALLY INFANTS.

In 1879 Baginsky described a case with post-mortem appearances where sudden death was due to pressure on the trachea by an enlarged thymus. Grawitz has described two cases—one six months, the other eight months old—where, in otherwise healthy children, death occurred suddenly, due to pressure of an enlarged thymus on the trachea.

Berthold has seen four similar cases. He refers to the different causes of enlargement of the thymus, but emphasizes a simple, genuine hypertrophy, which runs a latent course, unlike the other forms, and occurs in strong and healthy children. In these, sudden acute asphyxia occurs, face becomes a deep bluish-red color, the hands are spasmodically closed, child dies without a cry. He quotes two cases described by Thomas in Freiburg, and Kopp. In Kopp's case there was enlargement of all the lymph glands (lympho-chorosis of Paltauf). He has collected forty similar cases from the literature.

He describes a case in a girl, two and a half years old, operated on by Rehn, where tracheotomy was performed without benefit owing to great

difficulty in breathing; later, the anterior mediastinum was opened, and the enlarged thymus brought forward and stitched to the fascia on the anterior side of the sternum, allowing the tracheotomy tube to be removed, and recovery ensued. He points out the importance of such cases from a medico-legal point of view.

In conclusion, he points out that an idiopathic hypertrophy of the thymus may alone cause death in infants; that a swollen thymus gland plays an important part in connection with rickets and the status lymphaticus in sudden death in children. That also an acute, perverse, lordotic bending of the neck may compress the trachea and cause asphyxia. He advises operation in the way of partial resection of the thymus when hypertrophy has been diagnosed.—BERTHOLD, *Archiv. fur Kinderheilkunde*, Vol. XXIV., Part III., 1898.

SURGICAL TREATMENT OF LUPUS OF THE LARYNX.

A boy, ten years old, with a phthisical mother, suffered from lupus of the nose, with hoarseness of two years' duration, which was treated with lactic acid without result. The laryngoscope showed the epiglottis swollen and covered with granulations, and ulceration on the edge with large granulations somewhat obscuring the view of the larynx. Vocal chords were swollen and of a white color. Breathing was difficult and the patient was aphonic. Operative treatment appeared indicated and was carried out by Gouguenheim. A Trendelenberg's tube was introduced. The thyroid cartilage was divided in the middle line; incision from the cricoid cartilage to the hyoid bone. The epiglottis was completely removed, the granulations were curetted, the ulcers scraped with a sharp spoon, and the thermocautery applied. The tube was removed the day after the operation. Healing took place in a short time. Removal of the epiglottis only caused temporary difficulty in swallowing. Voice returned four weeks after the operation. This is the second case of cure after thyrotomy. Surgical treatment of lupus is more hopeful than that of laryngeal phthisis.—GOUGUENHEIM, A., and GUINARD, A., *Ann. des Mal. de l'Oreille, du Larynx; etc.*, 1897, Vol. VIII.

REMOVAL OF A PRESSURE POUCH OF THE ŒSOPHAGUS.

In this interesting communication the author relates the histories of six cases of pressure pouches of the œsophagus which he has seen in his practice. In two of the cases the author removed the pouch with satisfactory results. He believes that the rarity of this condition has been greatly exaggerated. He remarks also that the true pressure pouch is practically always situated at the back of the junction of the pharynx with the œsophagus, and that it opens into the gullet by a longitudinal opening in the middle line, about an inch in length. It is more commonly found in males than in females. All of the author's patients were men, and in every one of them the symptoms of the pouch were first noticed after forty years of age. The one constant symptom in every case is the return of fragments of undigested food many hours after the food has been taken. The fragments may be coughed or choked up, and

occasionally liquids taken at night will run out, and make the patient cough when he changes his position during the night. Pressure on the side of the neck in the posterior triangle causes fragments of food and liquid to return into the mouth. A bougie is arrested at a distance of about nine inches from the teeth. As a rule it passes into the pouch, and its end may be made to project so that it can be felt and seen in the side of the neck (almost always the left side) behind the sterno-mastoid muscle. Wasting and loss of weight are rarely observed until the disease is very far advanced. The course of the disease is very slow. In all cases in which operation has been performed the relief afforded has been complete and permanent. The author refers to various cases which have been operated upon, and to the method of operation.—BUTLIN, H. T., *Brit. Med. Jour.*, Jan. 1, 1898.

DIABETES AND URANIUM NITRATE.—Doctor Ebenezer Duncan, of Glasgow, in a paper on this subject, said that ten to fifteen grains had been given by Doctor West in the London Hospital with rather favorable results. Very little has been done in other hospitals. In dogs, cats, rabbits, uranium nitrate produces a nephritis. Doses up to fifteen or twenty grains in the human patient produce no bad results, and may be used for two or three months.

Dr. Tyson said it was twenty years since he had used the drug until last fall, when he tried it again in much larger doses; two grains three times a day being the old dose. This last time he gave five grains thrice daily. In his cases diarrhoea often occurred, and his results had not been good.

Doctor Saundby said that in his experience uranium was not a specific, but it did good in some cases, although he had not given such large doses as fifteen grains, but had given ten grains thrice daily. Doctor Duncan, in reply, said he did not consider it a specific; he simply had stated what occurred when the drug was given in his cases.—*Medical Record*.

[Our experience with the drug is limited, but satisfactory. So large a dose at first might disagree. We have started with $\frac{1}{2}$ grain tablet thrice daily, pushing dose up to one grain.—Ed.]

BRONCHIAL CATARRH.—I could not forego *Hydrastis Canadensis* in the treatment of bronchial catarrh, acute as well as chronic, for it enables me to dispense with the use of opium and its derivatives almost entirely in the treatment of tuberculous subjects.

I have employed the form of fluid extract almost exclusively. To adults I give twenty, twenty-five or thirty drops four times a day, in a little sweetened water; large doses may be used. I have not found the alkaloid so trustworthy as the fluid extract. I have never observed dangerous or unpleasant effects from the doses of the fluid extract, but very large doses may give rise to angina pectoris in the subjects of heart disease and in very debilitated persons.—SAENGER, in *Centralblatt fuer Innere Medicin*.

PAEDIATRICS.

IN CHARGE OF

ALLEN M. BAINES, M.D., C.M.

Physician, Victoria Hospital for Sick Children; Physician, Out-door Department Toronto General Hospital. 194 Simcoe Street, and

J. T. FOTHERINGHAM, B.A., M.B., M.D., C.M.,

Physician, St. Michael's Hospital; Physician, Outdoor Department Toronto General Hospital; Physician, Hospital for Sick Children. 39 Carlton Street.

ABSTRACT OF PAPER READ BEFORE THE PHILADELPHIA PEDIATRIC SOCIETY, STATED MEETING, FEB. 8, 1898.

BY DR. D. J. MILTON MILLER.

THE USE OF THE FARINACEA IN THE DIET OF LATER INFANCY.—The writer maintained that although the excessive use of the farinacea during early infancy was now generally recognized as injurious, it was not sufficiently understood that caution should be exercised in administering these articles after the twelfth month.

It is a common experience to see infants who have thrived during the first year suffer continually from indigestion after that age.

This is due to the tendency of the mother and physician to put the child too early upon solid food. Bread, potatoes, strong porridges, and undiluted milk are given, causing frequent digestive disturbances, and, if the practice is persisted in chronic gastric and intestinal indigestion. The most common cause, however, is the excessive use of the farinacea or their administration in forms not readily assimilated. Under the mistaken idea that these substances are light and nutritious, they are given as the staple of diet to the exclusion of milk and the more nitrogenous foods.

The sanction of high authority is given to this practice, as will be seen by consulting most writers on infant hygiene, who recommend after the first year, potatoes, bread, strong porridge, rice pudding, and undiluted milk.

It should be remembered that the power of chewing is not fully developed in most children until well after the second year. The folly of giving bread is thus apparent, while in potatoes the starch granules are difficult of solution. Oatmeal porridge in excess, too, is liable to undergo fermentative changes in the intestinal cause. The result of a diet largely composed of these farinacea is often an intestinal catarrh, induced by the constant irritation of the mucous membrane from the fermentation which the carbohydrates are apt to undergo when imperfectly digested.

The diet in the vast majority of instances best suited to the child during the second year is a nitrogenous one, with a minimum of carbohydrates. Milk should be the staple, and this fluid should not be given undiluted until the eighteenth, twentieth, or twenty-fourth month. The milk should be diluted with gruels or jelly, made by boiling crushed wheat,

barley, or oatmeal, for many hours. To this may be added rare or raw scraped meat, as advised by Holt, after the eighteenth month, and at the twelfth or fifteenth month, fruit juices, as orange juice or baked apple. Potatoes and bread are best omitted until the completion of the second year. The porridges may be given at the twentieth month, the preparations of wheat and barley being selected in preference to the more starchy varieties. Difficulty in digesting the farinaceous foods may be met by the addition of a dry extract of malt, or diastasic essence or extract, a few minutes before eating. This will often liquify the food before the meal is finished.—*Pediatrics*.

In the *Archives of Pediatrics* for April there are two very excellent and thoughtful editorials, on The Modern Child, and on Children's Toys. The sophistication of our modern society and the vastly increased complication of our multifarious activity is narrowing the domain of simplicity and domesticity in which alone the child should be reared. Even in Canada, at least in the cities, the child is exposed to the same evils, in kind if not in degree, as in the license-loving cities of the American Republic, where mechanical restraints, want of room, absence of grass-covered plots and breathing room, put a premium on mischief both physical and moral, and tend inevitably to the breeding of a race with unstable nervous equilibrium and other negative disadvantages, quite apart from the positive evil wrought by the vicious habits acquired in the hotbed existence which children, and parents too, perforce lead when brought up in close contact with a crowd. To the subjoined sentiments from the editorials in question we enter a hearty acquiescence.

"To the student of sociology, one of the most notable features of the past decades is the growing attention bestowed upon children. The children are apparently considered a far more important factor in every household than they were fifty years ago. It is at least a fact that they receive more attention and are brought into much greater prominence. The average child of to-day has a score of toys where his grandfather had one. Many children are overburdened with them, and are less happy than they would be with a smaller number. The most contented and quiet children that the physician sees in his rounds are certainly not those with the most playthings.

"We are far from criticising the general tendency to bestow more attention upon children and more thought upon their education and training, but it cannot be denied that the matter in many families is carried to a very injudicious extreme. Neither can it be denied that the general tendency is in the direction of bringing children into too great prominence, in making them the most important and first-to-be-considered members of the family, and in laying burdens upon them too great for their strength. These errors are undoubtedly greater in the cities and large towns where the high tension of life is felt by all sorts and conditions of men, by children and adults alike.

"We have before referred to this subject in these pages, and have pointed out the error on the part of some parents, namely, a tendency to adopt the habit of too great camaraderie with their children, and the growing tendency to remove the barriers between childhood and age. This naturally results in the feeling that children should enjoy the same pleasures and indulge in the same pastimes as their elders. Such recreation is frequently of a character far too stimulating for the sensitive nervous organism of the child. The prevailing tendency of the times is certainly to over-stimulation of children. This tendency pervades our whole educational system. It permeates juvenile literature, it is manifest in childish recreations, and has invaded the home. Such over-straining and stimulation of the mental and nervous organism cannot fail to cause harmful effects during childhood, and frequently produce a neurasthenic and nervous temperament in later life."

OBSTETRICS AND GYNAECOLOGY.

IN CHARGE OF

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A STUDY OF THE ACTIONS OF QUININE IN ONE HUNDRED CASES OF LABOR.

BY L. J. HAMMOND, M.D., PHILADELPHIA.

I have been prompted to make a clinical study of the action of quinine in the parturient woman from being so frequently confronted with the statement from students that the labor has been so long continued, notwithstanding the fact that they have given quinine, and when questioned why such prompt delivery is expected after the administration of this drug, I am generally told that their text books strongly recommend it, and I believe it is taught in several of the medical schools of this city. My further reason, therefore, for endeavoring to determine its value as an ecbolic was largely to satisfy myself whether or not it possessed the merits claimed for it by many, or if not claimed for it, at least so long and universal a usage has seemed to establish in the minds not only of the students, but also of the practitioners throughout the obstetrical world, a precedent, which seems to place it in the front rank of agents which are supposed to increase the expulsive power of the uterus.

That it has so long and universally been administered to parturient women is not, I take it, sufficient argument either for or against it without an effort being made to determine just what amount of clinical difference obtains in a sufficient number of cases between uterine actions after and before its administration. In order to do this it seems to me necessary to secure enough cases similar in their action to accomplish this object. I have therefore endeavored to select one hundred cases as near alike in the behavior of their labor as was possible, a detailed study having been made of the character of the labor before—that is, the frequency of contractions and interval between the contractions. The drug was then given in ten-grain doses and repeated every half hour until thirty grains had been administered.

The first observation was made one-half hour after the administration of the drug and in the beginning of the second stage, and repeated every half hour until the labor was terminated. No case was used for the investigation where the second stage was so far advanced as to justify the belief that it would terminate within an hour, neither were any cases used which might be termed under the head of irregular labor—that is, those where labor was rapidly precipitated; nor were any used where

there was any abnormality in the relative size of the foetal to the maternal parts. There were a few in this group of cases where it was necessary to terminate the labor instrumentally. This was due entirely to my inability to determine from the earlier portion of the labor whether there was this relative difference in the size of the presenting part to the maternal.

The detailed method of making the observations was as follows: Duration of the contraction and the interval between contractions before the drug was given, which I have tabulated in one column, the hour of administration of the drug, duration of the contraction and the interval between contractions after administration of the drug have been noted in another column; the duration of the contractions being calculated in seconds and the interval in minutes. The duration of the labor previous to the administration has also been noted, as well as the stage in which the drug was given, frequency of administration and frequency of observation, together with the behavior of the uterus after the termination of labor. These, I say, have all been noted in tabular form.

Both primiparas and multiparas have been used. In the case of the latter (m), an effort was made to determine the character and duration of the previous labors, but it was found to be so unsatisfactory that it was abandoned, the number of primiparas being thirty-eight (38), multiparas sixty-two (62).

There were never less than five (5) nor more than seven (7) observations recorded except in two or three cases, where four (4) were made, owing to the rapidity of the termination of labor, and as so large an amount of time would be consumed in reading these half-hour observations, I have endeavored to boil it down sufficiently to make clear the results of the investigations without too greatly wearing upon your patience, and with this object in view have endeavored to take the maximum number of seconds and the minimum number of seconds and the maximum minutes of interval and the minimum minutes of interval before the drug was given and compare them with the maximum number of seconds and the minimum number of seconds and the maximum minutes of interval and the minimum minutes of interval after the drug was given. Usually from three to five observations were made before administration of the drug, no observation being made during the very last moments while the head was passing through the vulva.

The study of the action of the uterus after being emptied of its product of conception was to note, first, whether any excess of bleeding, second, whether firm contraction immediately after it was emptied, third, whether any condition of hour-glass contraction took place.

As the report shows, but five evinced any tendency to excessive bleeding, and in no case was there any contraction of the lower segment (hour-glass) noted. In all the rest the uterus promptly and permanently retracted after prompt expulsion of the placenta.

In but one of the cases was the temperature, pulse or respiration sufficiently disturbed from the normal course to be noteworthy, and that was in the third case in the table, which shows pulse 110, respiration slow, 14, temperature normal.

In comparing the frequency of contractions in multiparas with those of primiparas, we find that the interval between contractions is slightly longer in the former than in the latter, while on the whole the duration of contractions in multiparas is longer than that of the primiparas.

I think it is important to state that these observations were made on women living in courts and alleys, mostly in the extreme lower section of the city, where the sanitary conditions, as well as the food stuffs used, were far below what is necessary for the safety and comforts of life. The district is said to be the most malarious in the city, and taken all in all, I believe this class of women to be an ideal one for securing the best results from any therapeutic agent whose benefits are supposed to be produced by its action as a tonic.

I realize the great difficulty in determining just what amount of the increase both in the duration and frequency of contractions that are noted in these observations are due to the action of quinine; first, because it is well-known that as the second stage of labor progresses the interval between contractions is diminished, as well as the duration of the contractions increased. The prompt increase, however, in the duration of contraction and the diminution of the interval between contractions, which is so uniformly shown to have occurred in this series of cases, and in the hands of twenty-five (25) different observers, would seem to justify the belief that this drug does exercise a marked influence on the expulsive powers of the uterus, and I am quite satisfied that, given a woman whose muscular system is below par and an atonic condition of all the muscular structures of the body, I believe the administration of quinine, begun in the early stage of labor, will not only increase the expulsive powers of the uterus by its general tonic action, but it will also, through this same action, tend greatly toward lessening the dangers of septic invasion, which this class of cases is particularly liable to, owing to this impoverished condition of the system. In other words, it has been my experience to find that uterine inertia, which is said by some to be so common, is extremely rare, and is found only in the class of cases that I have here described. From a large experience, both in this class and in a better class of cases, I am convinced that the so-called uterine inertia does not exist in any other class of cases than that where all the other muscles are tired, or, more properly defined, where there is general muscular atony.

As above intimated, these investigations were, many of them, made by the students of the University of Pennsylvania, though entirely under my supervision.—*American Gynecological and Obstetrical Journal.*

MALNUTRITION IN INFANTS.—The following emulsion is recommended as useful in cases of rickets or chronic malnutrition:

℞ Olive oil.....	3 iiii
Glycerine.....	3 iss
Yolks of two eggs.....	

Make an emulsion and add one-half minim of creosote to each drachm
—*Ex. Pædiatrics.*

MEDICAL SOCIETY REPORTS.

TORONTO CLINICAL SOCIETY.

The forty-sixth regular meeting of the Toronto Clinical Society was held in St. George's Hall, Toronto, May 11th, 1898.

President, Dr. Albert A. MacDonald in the chair. The following Fellows were present: A. A. MacDonald, J. A. Temple, G. S. Ryerson, W. H. B. Aikins, A. Primrose, G. A. Peters, G. Boyd, F. Fenton, H. A. Parsons, A. Baines, W. Oldright, R. Dwyer, J. N. E. Brown.

Dr. Brown gave notice of motion, that in view of the fact that the Clinical Society had its full quota of Fellows, and as there was a number of eligible applications for fellowship, any Fellow absenting himself from all of the meetings of the Society for one year should have his name struck from the roll.

Dr. William Oldright presented a boy aged six whom he had operated upon for talipes equinus, doing a tenotomy of the tendo achillis. The patient was aged six, and the trouble had been in existence since he was — years of age. The affection had supervened after a long walk. Photographs before and after the operation were shown. He had applied a plaster Paris splint to keep the foot in the corrected position. The boy was wearing a thick-soled shoe on the affected side.

Dr. Primrose stated it to be his experience that most cases of talipes equinus were the result of injury. He reported a case following a gun-shot wound.

Dr. Primrose reported a case of gun-shot wound in which the bullet had entered the palm of the hand and had passed completely through the carpus, and lay situated on the dorsal aspect of the wrist below the head of the ulna. The "X rays" revealed the situation of the bullet, and only a small incision was necessary to extract it.

The doctor reported a second case, that of a boy who was accidentally shot by a 44-calibre revolver last Christmas. The bullet entered the body at about the level of the 10th rib, three or four inches from the median line. It was probed for at the time unsuccessfully. The wound healed up. About eight months after the boy complained of pain in the hypochondriac region. This followed by the vomiting of blood, and purulent material. The patient became very weak. The "X rays" were used and showed a tumor of the left hypochondriac region. A tumor in this region could be felt, and it was a question whether it was in the abdominal wall or not. An exploratory incision revealed an enlarged spleen. It appeared from inquiry that the patient had suffered from malaria, although the blood count showed only 220 thousand white corpuscles.

Dr. Primrose reported a third case in which the patient was injured from the bursting of a gun. The man had been experimenting with smokeless powder and had used too heavy a charge. The left arm was severely lacerated by a piece of the barrel. It was probed for but could not be felt. The "X rays" showed it distinctly lying between the bones

of the forearm. In the upper arm there was a piece of the barrel $\frac{1}{4}$ of an inch square to be seen in front of the humerus. A good deal of cellulitis had set in. Operation was done, the piece in the lower arm being found, the upper one not. The patient was improving. An interesting nerve involvement had taken place, involving the median and ulnar nerve.

Dr. Boyd who had charge of the case, Dr. Primrose reported first, said he was able to reach the bullet with a probe, but thought it wise not to attempt to extract it through the palm for fear of dangerous hemorrhage.

Dr. Parsons discussed the question of leucocytosis in malaria, pointing out that as long as the malarial organisms exist in the body the leucocytes will not increase, but as soon as quinine is administered there is a regular inflammatory leucocytosis.

Dr. Primrose closed the discussion.

Dr. W. Oldright presented a patient upon whom he had resected a portion of two ribs for necrosis.

Dr. Oldright presented another patient from whom he had removed a wedge-shaped portion of the first meta-tarsal bone to correct a mal-position of the great toe, caused by a bunion.

Dr. J. A. Temple presented a specimen of an ectopic gestation which he had removed from a woman aged 24, mother of one child. Two weeks before she consulted him she suffered from pain in the left side. She had missed two periods. The rupture had induced a state of collapse. After a good deal of persuasion an operation was consented to, and done at 11 p.m., when the patient was almost *in extremis*. The abdomen was found full of blood and the break close to the cornu of the uterus; so close, indeed, that the corner of the uterus had to be transfixed to secure the pedicle. Hypodermic and rectal administration of stimulants was resorted to, and the woman made a good recovery. One point that had rendered the diagnosis more difficult was that the woman positively asserted that she was not pregnant. She stated that she had missed her periods frequently.

The text-books would lead us to believe, Dr. Temple asserts, that this accident occurs only in women near the menopause, or those who have borne no children for some years. The above cases, with several others he had seen, led him to disagree with this statement of the authors.

Dr. MacDonald discussed the question of pain in ectopic gestation and the causation of the trouble.

Dr. A. Primrose presented a hernial mass containing a piece of the omentum, adherent to the sac. This procedure, he stated, shortened the operation very much.

Dr. King presented two similar specimens, in the removal of which he had followed a similar plan.

Dr. W. Oldright discussed the question.

The election of officers for the coming year was then proceeded with, and resulted as follows:

President, F. Le M. Grasett.

Vice-President, G. A. Bingham.

Corresponding Secretary, H. A. Bruce.

Recording Secretary, John E. Brown, re-elected.

Treasurer, W. H. Pepler.

Council, W. B. Thistle, G. Boyd, F. Fenton, H. J. Hamilton, and G. Chambers.

The retiring President, Dr. MacDonald, was then tendered a vote of thanks for the acceptable manner in which he had presided over the meetings for the past year. He, in a few words, expressed his thanks to the Society for their appreciation of his efforts, and for the assistance they had given him during the year.

The Society then adjourned for refreshments. The next meeting will be held on the 2nd Wednesday in October.

TORONTO MEDICAL SOCIETY.

The last regular meeting of the Society for the year was held in the Council Building on the 26th May, 1898.

Dr. T. F. MacMahon presided.

The minutes of the previous meeting were read and adopted.

Dr. H. Hook Oldright read a paper on "Tuberculous Inguinal Glands," resulting from wound in the foot. It was discussed by Drs. Parsons, Smuck and Oakley. Dr. Graham Chambers reported a case of Purpura Hæmorrhagica.

Dr. Webster reported a case and presented a patient—general septic arthritis. A number of the larger joints he had drained. The patient began to improve after the administration of antistreptococcic serum.

The treasurer's report was then received and adopted.

Dr. Parsons moved that the meetings be held fortnightly instead of weekly. Lost.

The motion to lower the fee was withdrawn.

Dr. W. J. Wilson moved: "That in the opinion of the Toronto Medical Society no one should receive free treatment as an in-door patient in our public hospitals except those receiving their hospital maintenance from the municipality to which they belong;

"That a copy of this resolution be sent to the public Hospital Boards and to the Medical Council;

"That the president, and Dr. B. E. McKenzie and the mover be a committee to see that the spirit of the resolution be carried out;

"And that the Secretary communicate with the other medical societies with a view to securing their co-operation in the matter."

Carried unanimously.

The Society then adjourned.

The election resulted as follows: President, A. Primrose; 1st Vice-President, F. Oakley; 2nd Vice-President, J. Webster; Corresponding Secretary, M. Currie; Recording Secretary, J. N. E. Brown (re-elected); Treasurer, G. H. Carveth (re-elected); Council: W. J. Wilson, J. E. Graham, and T. F. MacMahon.

The Society then adjourned until the first Thursday in October.

“APENTA”

THE BEST NATURAL APERIENT WATER.

BOTTLED AT THE SPRINGS, BUDA PEST, HUNGARY.

APENTA WATER IN THE TREATMENT OF OBESITY.

“The *Berliner klinische Wochenschrift* for March 22, 1897, speaking of some experiments made under Professor Gerhardt's direction in the Charite Hospital as to the value of Apenta water in the treatment of obesity, says that such experiments could not be carried out until quite recently, on account of the inconstant composition of the bitter waters coming into the market. In this respect, the Apenta water is favourably circumstanced, and it was chosen for these observations because of its constancy of composition. The conclusions arrived at as to the value of Apenta in the treatment of obesity, and as to its influence on tissue-change, were that it succeeded in producing a reduction of fat in the body without detriment to the existing albumen, and that the general health of the patient suffered in no wise, and the cure ran its course in a satisfactory manner.”

—NEW YORK MEDICAL JOURNAL, *Feb. 5, 1898.*

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Editorial.

LEGISLATION FOR INEBRIATES.

This exceedingly important subject seems to be at last on the eve of securing a fuller measure of the public interest and attention that it so much deserves. The benevolent profession of Medicine has long had well defined views on the matter, and has done at least a part of its duty in mitigating the ferocity (this is not too strong a term) of public opinion as to the social status of the unfortunate *habitué* of alcohol. The part played in this educational campaign by the Prisoners' Aid Association of Canada, whose President is Hon. S. H. Blake, Q.C., and Secretary Dr. A. M. Rosebrugh, is most praiseworthy, and should be vigorously seconded by every practitioner in the Province. Fresh interest has been lent to it by the recent attempt of that huge monopoly, the Keeley Company, to get control of the treatment of inebriate prisoners in the county gaols and Central Prison of the Province, and so arrogate to itself influence from the ægis of the Provincial authority, and reputation for charitableness at the same time. Fortunately the Prisoners' Aid Association when approached

succeeded in putting itself publicly on record against the Keeley Company and all its works in a way that should leave the profession and public in no doubt as to the soundness and positiveness of their principles. An organization which has made Keeley a millionaire fifty times over from the frailties of the unfortunate, as we are assured the Keeley Company has done, is not in urgent need of assistance from philanthropic associations or individuals, but should rather be given a wide berth until it proceeds to spend some of its own gains in the succouring of those who need assistance against drug-habits.

The British Medical Journal in its issue of April 30 has an editorial giving the present status of legislation of this kind in Britain. For the purposes of the Inebriates Act habitual drunkards are arranged in two classes, criminal and non-criminal.

Public opinion is still largely set in the direction of punitive, retributive treatment of these cases, rather than of preventive and curative treatment, and the people will, in our judgment, learn differently mainly through our teaching and influence as medical men.

"The Habitual Inebriates Bill, introduced by Sir Matthew White Ridley last Monday, proposes that the State or local authority shall provide inebriate reformatories for criminal inebriates convicted of grave crime, and that certified inebriate reformatories shall be provided by voluntary enterprise, aided by a Treasury grant, for habitual inebriates guilty of minor offences, such as police-court repeaters. Some amendment of the practical working of the Inebriates Acts is proposed, but we regret to see no provision for the attestation of a non-criminal habitual inebriate's request for admission and detention, by one justice instead of by two justices as at present. Disappointment will be felt by many at the absence of any expression of an intent to provide for the compulsory therapeutic restraint of non-criminal habitual drunkards, so loudly called for and urgently needed; but we appeal with confidence to every member of the Association to do his utmost in supporting the Government in their amended legislation for the substitution of sound medical and reformatory treatment, in lieu of the existing inefficient penal system of fine and imprisonment, which neither reforms nor deters."

At the January monthly meeting of the Executive Committee of the Prisoners' Aid Association Dr. Rosebrugh was commissioned to visit American Inebriate Hospitals and to interview specialists in alcoholic inebriety. The Doctor has executed his commission and presented his report. With regard to the question of efficiency of treatment in inebriety, the results of his enquiries are as follows:

"Between 80 and 90 per cent. remain sober for periods varying from a few weeks to several months, but that only 35 per cent. are permanently cured. Out of 10,000 cases treated at the Washington Home, Boston, previous to 1885, 34 per cent had remained total abstainers for over ten years. Dr. Mason, of Brooklyn, followed the history of 600 cases for ten years, and 34 per cent. were still sober men. From correspondence with Hon. Mr. Eustis, ex-mayor of Minneapolis, Minnesota, I learn that about two years ago some fifty-seven discharged prisoners from the county workhouse were given medical treatment for inebriety, and that at

the end of a year and a half only one half had relapsed, although many, if not most of them, had been convicted for drunkenness several times—one of them twenty-eight times.

“ If from 33 to 50 per cent. of prison inebriates can be reclaimed by medical treatment, as these statistics would seem to indicate as being possible, the Government would certainly be justified in introducing the treatment in the Ontario prisons. Rather, it would be negligent of its duty if it did not do so. The subject is worthy of the serious attention of temperance organizations as well as of the Government. Dr. Rosebrugh makes the following recommendations, founded upon the information gained by his recent visit and from his knowledge of the subject generally :

“ 1. For male inebriates (a) the establishment in Ontario by the Government of an industrial reformatory on the farm colony plan, and reserving this for the more hopeless class who should be committed on the indeterminate sentence system. (b) *Utilizing local hospitals* throughout the Province, and the establishment of a *special hospital in Toronto* for a few weeks' treatment of the more hopeful class of pauper inebriates. (c) Pending the establishment of an inebriate hospital in Toronto—supplying the inebriate inmates of the Central Prison with medical treatment for inebriety, and preferably under the supervision of our association.

“ 2. For female inebriates, (a) sending the more hopeless class to the Mercer Reformatory on indeterminate sentences or on maximum sentences for two years. (b) For the more hopeful class of female inebriates, commencing in Toronto, either the establishment of a special home in Toronto, or utilizing some of the existing homes for a course of three or four weeks' special medical treatment of this class.

“ 3. With a view both to *economy and efficiency* in giving practical effect to the foregoing recommendations, and for the purpose of the establishment of a new era in Ontario for the treatment of pauper inebriates—calling upon the Ontario Government to *appoint an Inspector of inebriate hospitals.*”

The profession should, we think, use their very great influence upon the communities in which they live, so that a public opinion can speedily be created which will induce the Legislature to carry out some such plans as those suggested by Dr. Rosebrugh. For there is no doubt that in spite of the proper British hesitancy to legislate against the liberty of the individual, the demands not only of public advantage, but of the good of the unfortunate and those who suffer with him have long ago justified public action in the matter. Legislation of this kind would, in our opinion, be vastly preferable to any abortive attempts at total prohibition of the use of alcohol.

INTERNATIONAL ASSOCIATION OF RAILWAY SURGEONS.

The eleventh annual meeting of the members of the above Association will be held in Toronto, commencing July 6th, and they will remain in session for three days.

The convention will meet in the auditorium of the Education Depart-

ment, St. James' Square, where there will also be a display of surgical instruments and physicians' supplies shown by foreign and Canadian manufacturers and agents, in the Drill Hall or Gymnasium immediately in the rear of the Auditorium.

It is anticipated that the attendance will be very large—the present membership of the Association being nine hundred, and applications for membership are coming in more rapidly as the meeting approaches.

The programme of papers is not available yet, but will mainly deal with traumatic surgery, car sanitation, etc.

One of the most interesting features of the coming meeting will be the symposium on Shock, the preliminary programme for which is:—

SHOCK—I. Nature and Pathology. Leading paper by Dr. F. J. Lutz, St. Louis, Mo. A resumé of an Experimental Research into Surgical Shock, by Dr. Geo. W. Crile, Cleveland, Ohio.

II. Varieties and Causes—Predisposing and Active. We have not the names of readers of papers for this section yet.

III. Symptoms—Diagnosis and Prognosis. Leading papers by Dr. Jabez N. Jackson, Kansas City, Mo., and Dr. S. R. Miller, Knoxville, Tenn.

IV. Prevention and Treatment. Leading paper by Dr. James H. Letcher, of Henderson, Kentucky.

It is proposed that the welcome of the Association and the President's annual address will take place on the evening of the first day of meeting,

Dr. George Ross, of Richmond, Va., being President; and

Dr. Bruce L. Riordan, of this city, Chairman of the local Committee of Arrangements.

The Rossin House has been selected as headquarters.

An afternoon water trip has been arranged, and an excursion of the members to the Muskoka district will take place on Saturday, July 9th, the day following the closing of the meeting.

The Grand Trunk Railway will run a special train of Pullman coaches from Chicago to Toronto for the accommodation of the western delegates. Invitations to be present at the meeting will be sent to the Presidents of all the Canadian Medical Associations.

EDITORIAL NOTES AND CLIPPINGS.

DIET IN TYPHOID FEVER.

Dr. F. C. Shattuck (Jour. Am. Med. Association) says:

“During the twelve years, 1886 to 1897 (both inclusive) 380 cases of typhoid fever have come under my personal care in the Massachusetts General Hospital. From 1886 to 1893, 233 cases were treated under a milk diet, with a mortality of 10 per cent. From 1892 to 1897, 147 cases have been treated under a much more extended diet, with a mortality of 8.1 per cent. I know well the liability to reach false conclusions, in reasoning from too small figures in a disease like typhoid fever; and it is also true that water has been used more efficiently of late than in former years. But I can see nothing in my figures to contravene my observation

that an enlarged diet has not been injurious. I would not be understood as advocating an indiscriminate diet. My plea is simply for treating the patient rather than the disease; for feeding him with reference to his digestive power rather than solely or mainly with reference to his fever; for the view that the danger of accidents from the local intestinal ulceration is not increased by allowing him to partake of articles which leave no irritating residue, and which cautious trial shows are digested without disturbance or discomfort. At one end of the scale are the cases with such irritability or weakness of the stomach as to lead to the unfortunate term gastric fever, or those with pronounced diarrhoea and undigested food in the stools; at the other end are those more numerous cases with clean tongue and a desire for food. Between the two is every gradation. The line of the former may depend on the skill and ingenuity of the doctor, assisted by the intelligent devotion of the nurse. The comfort and the duration of disability of all others may be materially modified for good by careful study and wise individualization of our cases. A long list of permissible articles, from which selection can be made for different cases, and for the same cases at different times under varying circumstances, can be given. That which I append makes no claim to completeness, but is meant merely to be suggestive and illustrative:

Typhoid Diet.—1. Milk, hot or cold, with or without salt, diluted with lime water, soda water, apollinaris, vichy; peptogenic and peptonized milk; cream and water (*i.e.*, less albumin); milk with white of egg, slip, buttermilk, koumyss, matzoon, milk whey; milk with tea, coffee, cocoa.

2. Soups: Beef, veal, chicken, tomato, potato, oyster, mutton, pea, bean, squash; carefully strained and thickened with rice (powdered), arrowroot, flour, milk or cream, egg, barley.

3. Horlick's food. Mellins' food, malted milk, carni-peptone, bovine, sonatose.

4. Beef juice.

5. Gruels: strained cornmeal, crackers, flour, barley-water, toast-water albumin, water with lemon-juice.

6. Ice cream.

7. Eggs, soft boiled or raw; egg-nog.

8. Finely minced lean meat, scraped beef. The soft part of raw oysters. Soft crackers with milk or broth. Soft puddings without raisins. Soft toast without crust.

Blanc mange, wine jelly, apple sauce and macaroni.

THE FOLLY OF AN EXCLUSIVE MEAT DIET.

The non-digestion of starch is unquestionably one of the most common causes of disordered digestion.

This is doubtless the chief cause of the extensive use of beef and other forms of flesh food in this country. Meat is readily dissolved in the stomach, and its digestion is not accompanied by the flatulence, acidity and other distressing symptoms present in amylaceous dyspepsia.

A beef diet is the most ready means of obtaining relief from these

annoying symptoms, and hence is one of the most common diet prescriptions made by physicians, and one which is, perhaps, more frequently than any other, made use of by patients for themselves.

The result is relief from a certain set of symptoms, but at the same time the development of others which, if less disagreeable, are in the end not less serious.

An exclusive meat diet robs the system of its proper supply of fat, and overwhelms the body with a great quantity of ptomaines, leucomaines, and of tissue poisons, which decrease the resistance of the body to disease.

Bouchard, Rogers and others have shown that the poison-destroying function of the liver depends upon the amount of glycogen which it contains.

This is almost exclusively derived from the starch of "farinaceous foods;" hence a person who, in consequence of inability to digest starch, confines himself largely to meat diet, is exposed to the double injury—the introduction of toxic substances into the system and the lessened ability to destroy toxins and ptomaines.

The dyspeptic who is suffering from the inability to digest starch, in exchanging a farinaceous for a flesh diet, simply exchanges one class of morbid condition for another, the biliousness or general toxæmia, the uric acid diathesis, and the resulting rheumatism, neurasthenia and allied conditions which proceed from a meat diet being far more serious in their ultimate effects than the acidity, flatulence, and other annoying symptoms experienced from the indigestion of starch. The fermentation of proteids in the stomach, intestines and colon, which always accompanies a flesh diet, produces toxic substances of a peculiar character, while the fermentation of starch results in the formation of acids and gases which are annoying and irritating, but not to any degree toxic.

The substitution of a meat diet for one consisting of farinaceous foods, while a convenient mode of dissipating certain unpleasant symptoms, is, nevertheless, not the best remedy for this condition.

What the patient requires is not the withdrawal of starchy foods, but the ability to digest them.

SURGEON-CAPTAIN B. H. SCOTT.

In the Illustrated London News for May 14th. 1898, there appears an excellent photograph of a graduate of Trinity Medical College and Trinity University. The "personal" accompanying it speaks for itself, and we are pleased to reproduce it. The Army Medical Service traditions are evidently being bravely kept up by the Canadians who enter it.

"Surgeon-Captain B. H. Scott of the Army Medical Staff, who was severely wounded while taking part in Major Norris's march between Karene and Port Lokko, had been on the west coast of Africa but a couple of weeks when he was despatched as medical officer to the expeditionary force under Major Norris. He had previously seen active service with the Chitral Relief Expedition. Surgeon-Captain Scott's wounds were, unhappily, very severe. The bone of his left thigh was broken, and a bad flesh wound over the heart added to his suffering. Yet he behaved with

the utmost courage and self-sacrifice, and, as the only medical officer of the force, insisted on removing many bullets from the wounded soldiery and otherwise alleviating their distress, while all the time he had himself to endure a painful journey of three days' length before he could obtain medical relief. He is now on his way home, and it is hoped that by means of the Röntgen-rays he may be relieved of the bullets which have not yet been extracted from his wounds."

Captain Scott is a nephew of that favorite *emeritus* of Trinity College, Professor Covernton of this city, and should his furlough bring him back to Canada he will meet with a warm welcome from his many friends.

ENURESIS.

The following formula is given by Alfred Hand, Jr., M.D., of Philadelphia, as having effected a complete apparent cure in a very severe case of enuresis in a boy of 2½ years, in whom all other measures had failed, including circumcision. The pill was ordered as a nervine tonic for the mother, who, by mistaking the directions, gave them to the child, instead of taking them herself, with happy results this time.—J. T. F.

R Ext. Cannab. Ind. gr. ½
 Hyoscyamia gr. ¼
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--*Paediatrics.*

It is important from a medico-legal point of view to remember that from an injury to the back we may have unsuspected fractures of some of the vertebræ and that, although there may be no head symptoms and no head injury and no paralysis, yet the injury inflicted may be of a fatal nature, although life may be prolonged for several days, until death occurs from some accidental movement.—*E. C. Mann.*

Book Reviews.

THE excellent work of Dr. C. K. Mills, of Philadelphia, on the Nervous System and its Diseases, so fully reviewed in our May issue, is to be had of A. P. Watts & Co., 10 College St., Toronto.

THE SAFE METHODS OF USING ANÆSTHETICS AND ANALGESICS. By H. H. Oldright, M.D., Assistant Surgeon to St. Michael's Hospital Toronto. A. P. Watts & Co., publishers, 10 College St., Toronto.

This monograph, reprinted from the *Canadian Practitioner*, is an exceedingly useful *resumé*, historical, clinical and practical, on the subject. The experience of the writer is extensive, and his brochure is a very readable one. It will be useful particularly to the student, from whom now a special course of instruction is demanded as preliminary to the license to practise in Ontario. A very excellent short statement of the more useful means of resuscitation in threatening death under anæsthesia closes the little work.

A COMPENDIUM OF INSANITY. By John P. Chapin, M.D., LL.B., Physician in Chief Pennsylvania Hospital for the Insane. Pp. 227. W. B. Saunders, Philadelphia.

We have in this little book from Dr. Chapin's pen a clear and concise description of the several forms of insanity given with directness and accurateness, making it valuable for general practitioners, students and members of the legal profession. The writer modestly calls it a compilation but every page reflects the man of wide experience, and has a personality of its own.

There are several chapters on the four chief divisions of mental diseases, namely, mania, melancholia, dementia and paresis, which the writer considers a sufficient classification for the general practitioner; another important chapter on the actions of the insane, and others upon abnormal psychical states, not included in the foregoing, and morbid anatomy.

The elaborate classifications and fine distinctions which the European alienists lay so much stress upon are not much more than mentioned.

The perplexing question of home or institutional care and treatment are taken up with each class of cases, general rules being given to guide the family physician, and the dangers of home treatment pointed out but we are pleased to see that it is advised in certain cases, providing proper facilities can be obtained. The decrease of puerperal insanity, owing to antiseptic methods in obstetric practice, is shown by the writer's statement that for a period of ten years preceding the year 1897 twenty cases of acute puerperal insanity were admitted at the Pennsylvania Hospital for the Insane, while for a corresponding period preceding 1877 ninety-nine cases were received.

Wholesome advice regarding the care of patients, the signing of certificates of lunacy and the medico-legal aspect of the cases is given, and the book closes with a chapter on feigned insanity. As we lay it down, it is with the hope that the writer will give to the medical world the benefit of his forty years' experience in a more extended treatise on insanity.

SAJOUS' ANNUAL AND ANALYTICAL CYCLOPÆDIA OF PRACTICAL MEDICINE. Cloth, \$5.00; half Russia, \$6.00. The F. A. Davis Company, publishers, Philadelphia.

For years there has been a constant and increasing chasm between the generally-accepted facts in medicine and surgery and that which is more or less subject to debate. There was once a happy time, years ago, when the average doctor learned his trade and practised it in peace and quiet thereafter. But those days have gone, never to return.

A great relief was afforded by Sajous' Annual in classifying the periodical literature, especially to those who have taken each consecutive issue; but there is nothing so good that it cannot be improved upon; and thus, after many years of careful consideration, the editor has worked out what is believed to be the solution of the whole problem.

A large number of busy, general practitioners, who not only feel the financial tax for medical works quite severely, but find that the possession of a large reference library only entails a corresponding amount of labor in using it, look upon Dr. Sajous' plan with particular favor.

The new publication has the alphabetical arrangement, and comprises a concise statement of the generally-accepted methods in vogue, in one style of type, while in a different type, on the same page, can be found the opinions of well-known authorities bearing upon whatever may be debatable regarding the subject in hand. This alphabetical arrangement will consider all the practical subjects of medicine and surgery and the clinical application of therapeutics. It will appear at the approximate rate of one volume each six months, the whole alphabet being thus covered in three years, and during this time a monthly supplement (The Monthly Cyclopædia), alphabetical from A to Z, will be brought out; so that a doctor can have a complete synopsis of the latest journal literature to reinforce his system of reference.

Subscriptions are taken for the entire series only at \$5.00 per volume, in cloth. This secures a large six-volume reference system, with thirty-six monthly supplements during that period.

The volumes will be beautifully illustrated; each volume will be handsomely bound in two colors of cloth. The half-Russia binding will be furnished at \$6.00 per volume, if desired.

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The prescribed dose produces a feeling of buoyancy and removes depression and melancholy ; *hence the preparation is of great value in the treatment of nervous and mental affections*. From the fact, also, that it exerts a double tonic influence, and induces a healthy flow of secretions, its use is indicated in a wide range of diseases.

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Parke, Davis & Co. have always led in the advance guard of scientific pharmacy. The improvements which they have effected in pharmaceutical preparations have done much to place the science and art of medicine on a surer and more definite basis, and humanity has been correspondingly benefited. Parke, Davis & Co., for instance, was the first house to advocate the principle of standardization as applied to the preparations of drugs containing alkaloids, etc., that were capable of being chemically assayed. They were the first to place standardized preparations of such drugs upon the market, and the medical profession so warmly endorsed their action in this respect that the last revisers of the United States Pharmacopœia felt constrained to fall into line and give official recognition and approval to the principle.

Chemical standardization alone, however, does not represent the Ultima Thule of this matter. There are some drugs, such as Indian Cannabis, Digitalis, Strophanthus, Squill, Cantharides, Ergot, etc., that cannot be satisfactorily standardized by chemic test. Parke, Davis & Co. now stand as the first advocates for the further application of the principle of standardization to these, which can only be done satisfactorily by test upon living organisms, *by physiologic test*.

It is not our intention to here picture the magnificent biological laboratory which Parke, Davis & Co. have erected to efficiently prosecute the standardization by physiologic test of the drugs above referred to. It is rather, as an illustration of the progressive methods characteristic of the firm's policy, explanatory of the unqualified praise which is accorded to their products wherever they go. The medical men who use Parke, Davis & Co.'s preparations know that in them they possess the most reliable, up-to-date, scientific instruments of *Materia Medica*. The keynote of the ever-increasing favor, therefore, which compels Parke, Davis & Co. to keep enlarging their manufacturing facilities, to multiply their branch houses and their agencies, is typified in their trade-mark, "*Medicamenta Vera*."

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The establishment of the Walkerville, Ont., branch laboratory of Parke, Davis & Co. is only one of many instances which go to show the wonderful growth and expansion that is steadily marking the career of this great firm. Appreciating the favor which had already been manifested towards their products, Parke, Davis & Co. decided to meet the demand for them by a purely Canadian enterprise, which would be able on Canadian soil to operate under much more favorable commercial conditions. Accordingly, in 1887 they erected a modest building which was estimated to be sufficient for their Canadian trade at that time and also for some time to come. The very encouraging success which immediately attended this effort made it at once apparent that a larger building was necessary, and in 1890 they moved to a large, handsome new laboratory. Now a third enlargement of premises has been found necessary to meet the rapid development of their Canadian trade, and an additional two and a quarter acres of land have been added. On this is now in course of construction a four-storey building, 60 by 100 feet, that will give, with other minor improvements, 25,000 additional feet of needed floor space. This will then yield employment to about 125 people, exclusive of their ten travelling representatives, who are scattered all over the Dominion.

In the Walkerville laboratory of Parke, Davis & Co. every preparation receives the same care, is brought up to the same standard, must respond to the same tests, as those emanating from the huge parent laboratory in Detroit. Their preparations may be relied upon in precisely similar conditions to yield precisely similar results, since all chemic and physiologic tests are identical in the control of their manufacture. In only one series of preparations has it been considered unadvisable to duplicate manufacturing facilities, and that is in the preparation of Anti-Diphtheritic Serum; this is still manufactured exclusively in Detroit. All crude drugs purchased after a physiologic test of submitted sample are procured through the Detroit laboratory, in order to insure the animal tests being uniformly applied. With access to the same staff of chemical and botanical experts which has helped so materially to build and maintain the reputation of the parent firm, it can readily be assumed that the products of the Walkerville manufacturing branch may be relied on as fully as those issuing from the Detroit laboratory on the opposite side of the magnificent river upon which they both stand.

MONTREAL BRANCH.

So much delay has been complained of in shipments to Eastern Canada that Parke, Davis & Co. have often been strongly urged to establish a depot or branch which would serve as a distributing centre on or near the Atlantic coast. Since the transit delay was ascertained to be located chiefly between Walkerville and Montreal, they decided that a branch house in the latter city was almost a necessity, and that its establishment would afford tangible relief to a large number of patrons in the eastern part of Ontario, the Province of Quebec and the Maritime Provinces. The branch is located in the centre of the wholesale district of Montreal, No.

378 St. Paul St., and will carry a *complete* stock of Parke, Davis & Co.'s preparations, although for the present it will not be a manufacturing laboratory. It is recommended as a base of supplies to all those living sufficiently near Montreal to expect a lessened time of transit in their shipments than would be the case if ordered from Walkerville.

Speaking of Canadian trade brings to notice the other evidences of high appreciation which Parke, Davis & Co.'s products receive from the medical men who are subjects of Queen Victoria. As a profession they are second to none in the world, and there are none who more carefully scrutinize, more carefully examine and test their preparations, nor who afterwards more thoroughly endorse them. A large manufacturing laboratory is maintained in London, England, at No. 21 N. Audley St. (No. 451 Oxford St.), Grosvenor Sq., W., which has been steadily increasing its plant, and its products, meeting with increased favor ever since its installation. Not only has Parke, Davis & Co. a large demand for their preparations in Great Britain alone, but from the remotest corners of the globe have come most unexpected demands for them—in fact, from wherever an educated physician is to be found. They experience constantly opening new and unlooked-for channels of export for their goods, and even a partial list of their branch establishments and agencies is a formidable one. Parke, Davis & Co. maintain a special corps of travelling representatives in Australasia, and they have no less than fourteen depots for the supply of their products in that remote continental island. In New Zealand they have seven. In British India they have five (one of these being in Ceylon). In the Hawaiian Islands they have three, and in China two. On the continent of Europe they have six. Other countries where but one agency or depot is maintained, are Egypt, Japan and Java. This is not inclusive of a large number of wholesale houses in Mexico, Central and South America and the West Indies, who carry their products in stock.

In New York city, Parke, Davis & Co. do an immense distributing business; here, also, they conduct a special and distinct enterprise, their Crude Drug Department, which does a vast importing and jobbing business in medicinal herbs, barks, leaves, resins, insect powder, etc. Wherever they have established branches in the United States their business has advanced with the same rapid strides which have characterized their Canadian trade. They have also large and completely equipped stocks located in Kansas City, New Orleans and Baltimore. Last, but certainly not least, is their immense

DETROIT LABORATORY.

Here is located the large staff of scientific experts, analytical chemists, physicians, microscopists, botanists, etc., whose controlling influence ramifies to the remotest circumference of the vast business.

When the Ontario Medical Association visited the establishment of Parke, Davis & Co. a year or two ago, its members were particularly impressed with the completeness and magnitude of the bacteriological and pharmacological laboratories. These have since been increased five-fold in capacity and outfit. Here was made the first American diphtheria an-

titoxin that was offered on this side of the Atlantic. Their superior product of this article—the finest in the world—is well worthy of the immense department which was equipped for this special purpose. Provided with all modern paraphernalia, powerful microscopes, huge incubators, sterilizing apparatus, extensive stables and animal laboratories, this branch of enterprise is prepared to keep abreast of the latest discoveries in bacteriological science. They are now engaged in the production of several antitoxins—of diphtheria, tetanus, streptococcus, etc. Their diphtheria antitoxin enjoys the enviable distinction of never having caused a fatality or serious casualty of any kind, and its record in reducing the mortality of this dread disease is unparalleled by any other similar preparation on the market. About one hundred and fifty horses are at the present time undergoing the immunizing treatment for its production. In addition there are several thousand guinea pigs, etc., which are used as control indicators of the potency of the toxins and antitoxins.

A new department is being added in the shape of a vaccine farm. Shortly, Parke, Davis & Co. expects to be able to furnish an unexceptional virus, and the plant and facilities now being installed for this purpose are unsurpassed.

Here is also located the pharmacological laboratory where physiologic assay of the powerful drugs such as Ergot, Strophanthus, Indian Cannabis, etc., is made. Not an ounce of any preparation of these leaves the laboratories of either Walkerville or Detroit without undergoing crucial trial and receiving a positive guarantee of its medicinal activity.

All these departments, bacteriological, physiological and vaccine farm, are under the care of Prof. E. A. Grange, late State Veterinarian of Michigan, whose undoubted ability and experience gives assurance that no expense or care will be spared for the proper observance of hygienic conditions in the stables and laboratories.

The enterprise which this firm has shown in the introduction of new remedies is evidenced by a partial list of its earlier efforts in this direction. Such drugs as the following are now recognized as valuable members of the *Materia Medica*—*Cascara Sagrada*, *Jamaica Dogwood*, *Jaborandi*, *Grindelia*, *Coca*, *Kola*, *Berberis Aquifolium*, *Corn-silk*, *Quebracho*—yet they were not known to the medical profession until introduced by the preparations of Parke, Davis & Co.

The price list of this house, of which a new edition will be mailed in July or August, comprises thirty distinct *lines* of pharmaceutical preparations and five thousand items. There are one hundred and thirty representatives of the firm travelling over every continent and every clime, in addition to those we have mentioned above as strictly Canadian. Despite the hard times which have so generally prevailed the last few years, Parke, Davis & Co. have been steadily adding to their huge travelling staff, opening new branch houses, building new laboratories by the acre, and essaying every promising line of scientific enterprise. They have committed themselves to an aggressive policy of advancement all along the line, and it remains but to say that their desire to raise pharmacy and therapeutics to higher levels is almost daily receiving the endorsement of the best and most thoughtful men engaged in this practice.

LIFEBUOY

ROYAL - - -  DISINFECTANT

SOAP.

LEVER BROTHERS, Limited, Port Sunlight, England, Proprietors of SUNLIGHT SOAP, have received the following Report on LIFEBUOY ROYAL DISINFECTANT SOAP from Dr. Karl Enoch, Chemisch, Hygienisches Institut, Hamburg:—

The examination of the sample of "Lifebuoy Royal Disinfectant Soap," furnished to me by Messrs. Lever Brothers, Limited, of Port Sunlight, England, gives the following results as to its action as a disinfectant:—

Solutions of 1, 2 and 5 per cent. of Lifebuoy Royal Disinfectant Soap in water were made. These solutions were brought to bear on a variety of clean cultivated microbes (Bacillus), in each case a certain exact time being allowed for the operation; and thus the capacity of this Soap for destroying the various live and growing germs was proved. To carry out this the following species of germs or microbes, amongst others, were used:—

1. Typhoid Microbe.
2. Cholera Microbe, taken from Hamburg and Altona.
3. Diphtheria Microbe.
4. Carbuncle or Boil Microbe.

THE RESULTS were as follows:—

1. The obstinate Typhoid Microbes, with the 5 per cent. solution, were dead within 2 hours.
 2. The operation of this Soap on the Cholera Microbes was very remarkable, and showed this soap to be in the highest degree a disinfectant. These were taken from persons who died of Cholera in Hamburg, and showed a result as follows:—
With the 2 per cent. mixture, Cholera Microbes were dead within 15 minutes. With the 5 per cent. same were dead within 5 minutes.
 3. The Diphtheria Microbes were killed after 2 hours with the 5 per cent. solution.
 4. The 5 per cent. solution was tried on fresh Carbuncle germs, and the result showed that the Microbe life was entirely extinct after 4 hours.
- From the foregoing experiments it will be seen that the Lifebuoy Royal Disinfectant Soap is a powerful disinfectant and exterminator of the various germs and microbes of disease.
- (Signed) KARL ENOCH,
Chem. Hygen. Inst. Hamburg.

A DOCTOR'S OPINION: "We cannot overrate the value of cleanliness of person, that is, of clothes and body. The bath, whether it be the daily cold tub, the evening warm bath, or the weekly Turkish, does far more than most people would believe. To avert sickness and maintain the body in health, such a soap as LIFEBUOY soap is beyond all praise; its softness and purity must commend it to all."
TWYFORD, BERKS, ENGLAND.

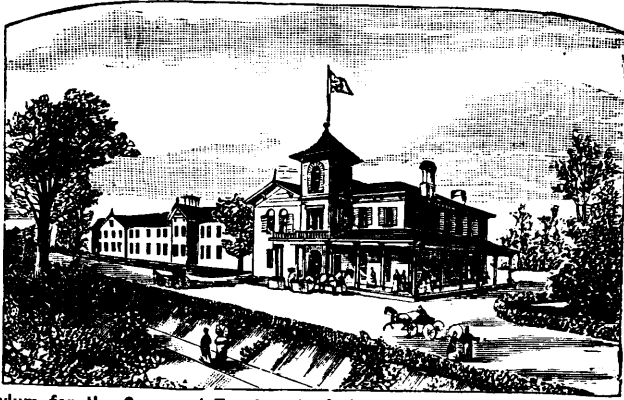
DR. GORDON STABLES, R.N.

A NURSE'S OPINION: "I think it right that you should know I used your LIFEBUOY soap for patients' clothes and rooms extensively throughout the late epidemic. I never travel without it, and have found it invaluable. The more I use it the better pleased I am."
L. POLLARD,
5 PATSHULL ROAD, KENTISH TOWN, ENG. [Late Nurse of the R.H.S. and other Hospitals.]

LIFEBUOY SOAP is guaranteed perfectly pure, and free from any injurious chemicals. As a Cleanser Purifier and reliable Disinfectant it is simple in use and pleasant in operation.

DIRECTIONS FOR USE: You can use LIFEBUOY SOAP in the same way that you use SUNLIGHT SOAP—in hot water, cold water, hard water, or soft water. Its daily use in every household will conduce in every way to health, long life and happiness.

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It is unequalled as a nutrient or as sole diet in all Wasting Diseases, as Tuberculosis and Bronchitis; in convalescence after Typhoid and other Fevers; in Dyspepsia, Insomnia, etc.; and in Bright's Disease, Diabetes, etc., where a nitrogenous diet is required. Supplied to patients at the very low price of **\$1.50 Per Dozen Pints.**

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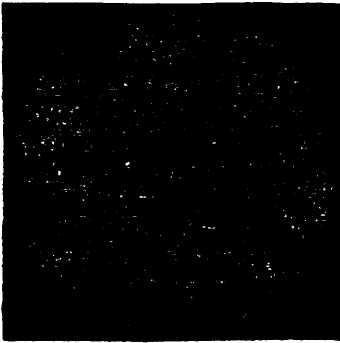
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A New Thing—and a New Name which, though literally translated (Blood Treatment), may not convey to every one a definite idea. It is a treatment which consists in opposing to a condition of disease the very power—good and sufficient Blood—that would naturally prevent it, that would still cure it spontaneously, and that actually does cure it spontaneously, wherever the blood-making work of the system is perfectly efficient; and therefore also *will* cure it, if a deficiency of the vital element be supplied from without, under proper medical treatment.

That Blood is such a power as here described, is an undisputed physiological fact. Its transmission from one animated organism to another, for the purpose of supplying a defect in the latter, is the substance of the Blood Treatment; and How to Do this, in different cases, is the form or description of the same. Blood may be taken from a healthy bullock (arterial blood—elaborated with due scientific skill); or it may be obtained in the well-attested living conserve known as bovine, from any druggist; and may be introduced into the veins of the patient in either of four ways, that may be most suitable to the case: viz.: by the mouth and stomach; by injection, with one-third salt water, high up in the rectum; by hypodermic injection; or by topical application to any accessible lesion.

A FILM OF BOVINE:
Showing the Blood-corpuscles Intact.



Micro-photographed
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THE CURE OF PULMONARY CONSUMPTION

is one of the latest and most wonderful developments of Blood Power—introduced mainly by the mouth, and sometimes also by spraying bovine into the trachea by an atomizer. Every week of judicious internal blood treatment, with proper medical and hygienic care, has resulted in steady improvement as to all symptoms, with scarcely an instance of check, much less of relapse, until complete apparent cure, and that in the more advanced stages of the disease. As further examples, may be mentioned: Anæmia, Cholera Infantum, Typhoid Fever, Hæmorrhagic Collapse, and many other of the most dangerous and aggravated diseases.

IN SURGERY: A CHRONIC ULCER,

of no matter how long standing or obstinate and aggravated character, can be cured with certainty—at least, the first instance of failure has yet to be heard of—by constant application of bovine to the wound with proper surgical treatment and sterilization. Such cases are usually cured in from four to six weeks. So of traumatic injuries of all kinds; carbuncles, fistulas, abscesses, and even gangrene.

NUMEROUS CLINICAL REPORTS

of well known Physicians and Hospitals, where the Power of Supplied Blood is constantly relied on as a cardinal factor in the cure of disease and support of surgery, are at the service of every practitioner who desires to keep up with the progress of his profession, and may readily be obtained (including, of course, the technique and subsidiary treatments pursued) by applying to

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Dr. W. E. Hamill, 88 Yonge Street, who conducts the Medical Exchange, informs us that he has many active buyers with spot cash for medical practices, and wishes us to direct the attention of physicians who desire to sell out that this is a most opportune time to register their practices for sale with him.

OLD REMEDY—NEW USES.—There are very many important uses for antikamnia, of which physicians, as a rule, may be uninformed. A five grain Antikamnia Tablet prescribed for patients before starting on an outing, and this includes tourists, picnickers, bicyclists, and, in fact, anybody who is out in the sun and air all day, will entirely prevent that demoralizing headache which frequently mars the pleasure of such an occasion. This applies equally to women on shopping tours, and especially to those who invariably come home cross and out of sorts, with a wretched "sightseer's headache." The nervous headache and irritable condition of the busy business man is prevented by the timely use of a ten-grain dose. Every bicycle rider, after a hard run, should be advised a bath and a good rub down, and two five-grain Antikamnia Tablets on going to bed. In the morning he will awake minus the usual muscular pains, aches and soreness. As a preventive of the above conditions, Antikamnia is a wonder, a charming wonder, and one trial is enough to convince.

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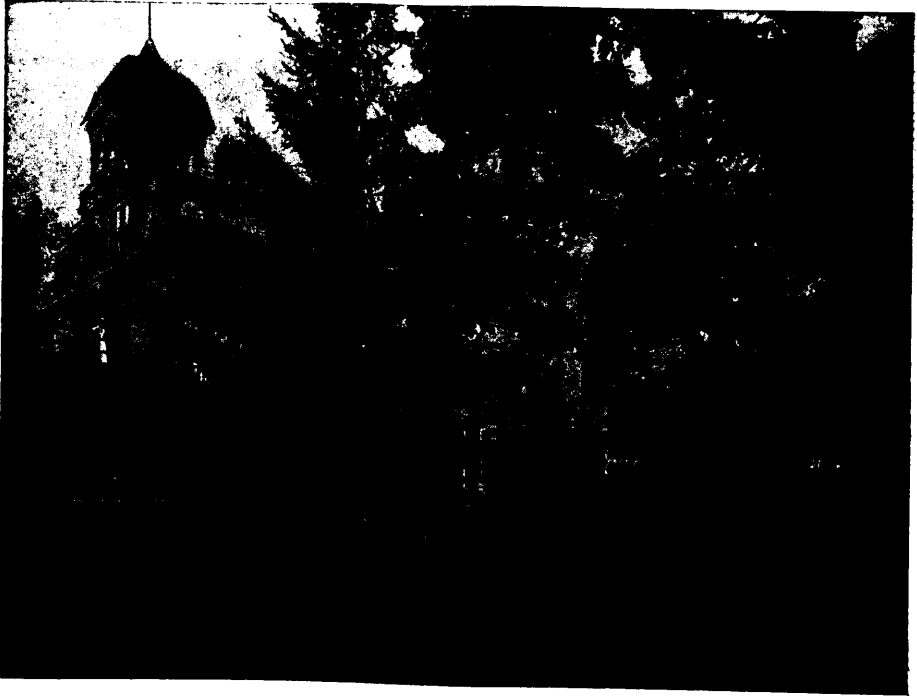
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Diseases of the Nervous System

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It is also being used in the TORONTO GENERAL HOSPITAL.

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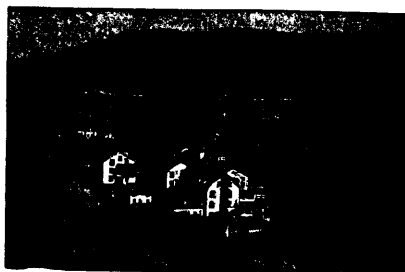
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Ferrol contains 6 grains of Phosphate of Iron to the ounce and 50% Cod Liver Oil, together with Glycerine and other ingredients to make a most pleasant and desirable preparation.

The advantage of thoroughly breaking up iron and oil into minute particles in a pleasant and permanent Emulsion must be apparent to every physician, and in order to give the profession an opportunity of thoroughly testing FERROL we will send a full-sized bottle (16 oz.) to any physician sending his name and address.

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Kangaroo Tendons— FINE CAT GUT AND ANIMAL GUTS,
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Prepared at the Laboratory of

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This Department of work is under the supervision of a thoroughly qualified and long experienced chemist.

Each Suture is selected, and a number of each batch are tested as to their strength after coming through the sterilizing process, before they are put on the market. Scientific tests are also made as to their sterility.

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No. 1—Single Tendons, fine, 12 inches long, 5 Tendons, in 9 inch tube bottle. Per bottle, \$0.50, per suture.....	10
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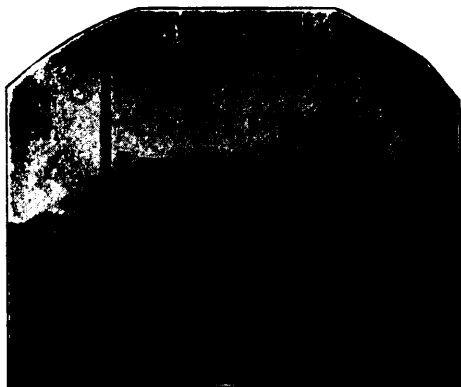
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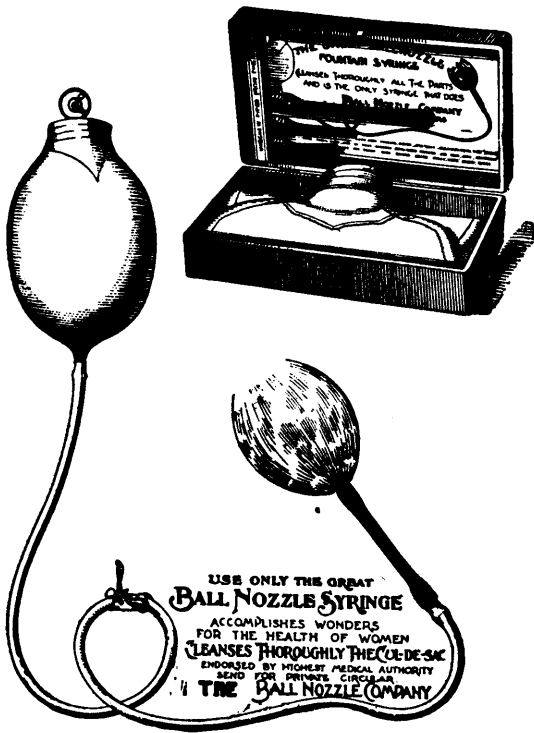
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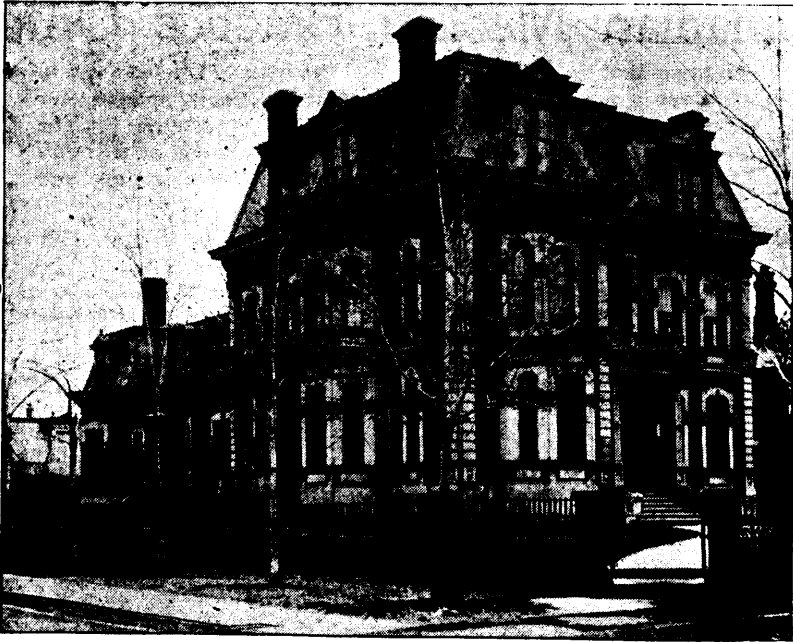
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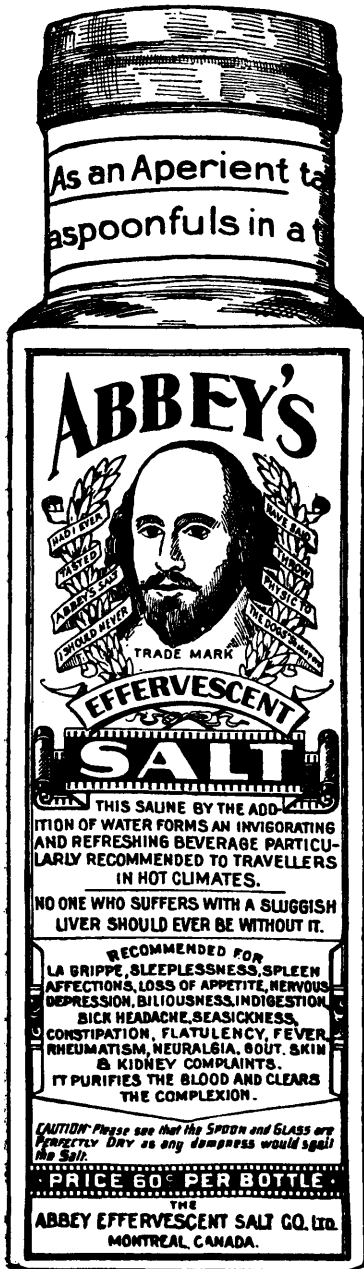
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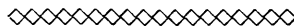
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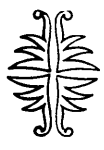


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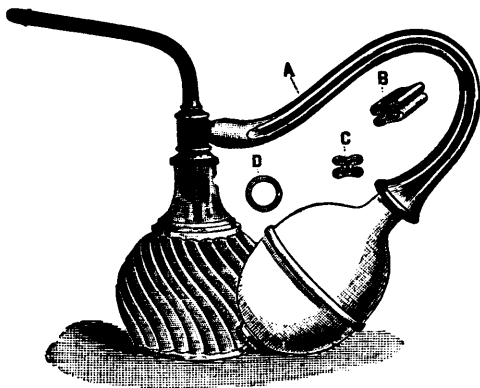
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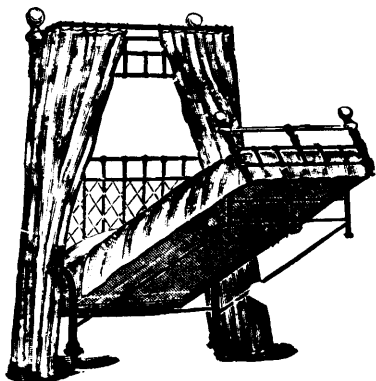
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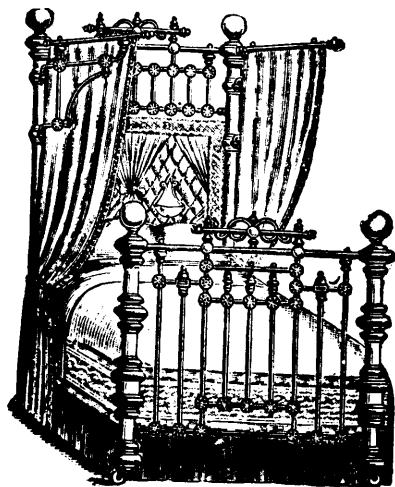
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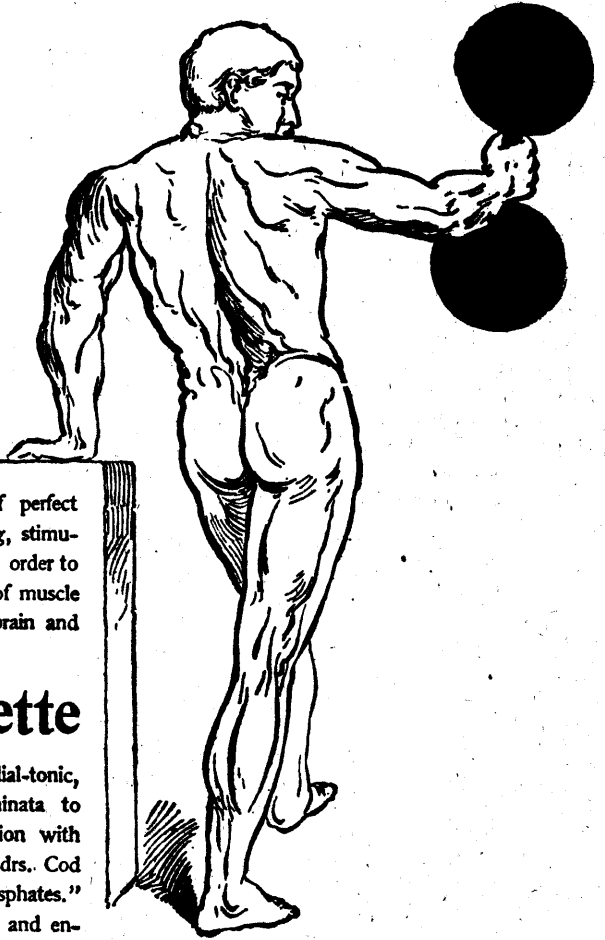
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