warrant the diagnosis. It was the necessity for finding definite physical signs which accounts for the prolonged average stay in hospital before operation (D).

Operative Treatment.

The operative technique and post-operative treatment introduced by General Sir Robert Jones was invariably carried out.

Post-operative Treatment.

Complete recovery following the operation was in many cases delayed. When the soldier was anxious to rejoin his unit the average stay in hospital was one month. In other cases the soldier was anxious to prolong his stay in hospital and complained of weakness and instability of the knee, though full movement was present. In such cases wasting of the quadriceps was the only physical sign. A soldier with such symptoms and the added wasting of the quadriceps might obtain sympathy when inspected by another medical officer. Consequently no soldier was discharged to a command dépôt until the quadriceps had regained its full volume and strength under massage, gymnastic exercises, and electrical treatment. Without the co-operation of the patient this was often delayed, and accounts for the prolonged post-operative stay in hospital (D).

When, in spite of all treatment, wasting persisted, the patient was discharged to sedentary work; this accounts for the five cases discharged as fit for home service only (C).

Further History of the Patient.

The patient on joining the command dépôt is often anxious to avoid long route marches, and now complains of pain in the scar, weakness and instability of the knee, and walks with a limp. Wasting of the quadriceps again arises. With an unsympathetic medical officer the soldier realizes the game is up, and is soon passed out Class A. Should the medical officer show any sympathy the symptoms persist, and the soldier is eventually passed out in a low category. This is especially likely to happen in the case of medical officers who believe that the excision of a cartilage prevents a soldier from again becoming fit for active service. Such judgement is not in accordance with facts, and simply encourages malingering.

That too much attention is paid to subjective symptoms and too little to physical signs is especially shown in the case of men discharged in whom nothing abnormal was present in the knee; only 33 per cent. of such cases were passed fit for active service (F). In both E and F all the soldiers, after a short stay at the command dépôt, should have been discharged as fit for general service.

The Position of the Operation in Military Surgery.

From a purely military aspect an operation of choice is only justifiable if it raises the soldier's category, or relieves him of a condition the persistence of which would be harmful. It is dangerous for a soldier, liable to recurrent dislocation, to be placed in the firing line (Class A). The highest category in which he should be put is B (garrison duty), and then only if recurrence is infrequent, otherwise arthritis may arise.

Internal derangement of the knee in the intervening stage is easily simulated. In a doubtful case the conscientious medical officer will often give the patient the benefit of the doubt, since he realizes the risk of sending the genuine case back into the firing line, and knows that subjective symptoms without definite physical signs are not uncommon. Were all such cases to be returned to the firing line a grave injustice would be done to the genuine case. On the other hand were all the cases to be placed in Class B malingering would certainly increase.

Careful investigation of all doubtful cases is essential, and owing to the increased facilities for diagnosis most of these cases find their way to the home hospitals. It is the difficulty of proving that anything wrong is present in the knee that accounts for the prolonged pre-operative stay in hospital.

Full movement of the knee after an operation is usually regained in three weeks, and graduated exercises should then be started. There would be no necessity for the cases to stay in hospital were it possible for them to be sent to a special command dépôt to be under the supervision of a medical officer who understands his work, and the method of developing the quadriceps by graduated and resistance exercises. The post-operative stay in hospital

would thus be considerably reduced, and a much larger percentage of the patients would rejoin their units in a much shorter period of time.

That only 53 per cent. of the men discharged are finally passed as fit for general service is due to lack of judgement and perhaps energy on the part of the medical officers at the command or regimental dépôts. During my term of office as registrar at Alder Hey on no occasion did any communication about a knee operation arrive. That the category of 47 per cent. should have been lowered without any reference to the nature of the operation indicates that far too much attention is paid to subjective symptoms. With proper supervision 95 per cent. of the cases operated upon should have been placed in Class A.

A CLEAN MILK SUPPLY.

BY

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THE Sanitary Committee of the Manchester City Council has had under consideration for some years the improvement of the milk supply. The report which it recently published on the methods of testing cow's milk in relation to standards of cleanliness was prepared by me at their request to supply them with information as to:

1. The best method of determining the degree of contamination of milk for administrative purposes.
2. The actual state of the Manchester milk supply.

I may incidentally refer to the fact that the provision of a clean milk supply has been under consideration in Manchester since 1896, and that the question of controlling the distribution on lines resembling those recommended lately by the Minister of Food had received attention.

The methods of testing cow's milk are dealt with in the first section of the report, and in the second part the present state of the milk supply is shown to be very unsatisfactory. It was, for instance, found that the milk supplied to several hospitals and milk dépôts was highly contaminated, as can be seen by the following summary:

The number of bacteria growing on agar at 37° C. was—
Over 1,000,000 per c.c.m. in 39 per cent. of the samples.
100,000 to 1,000,000 per c.c.m. in 45 per cent. of the samples.

As regards the souring time at 30° C. it was found to be—
Less than ten hours in 26 per cent. of the samples.
Ten to fifteen hours in 55 per cent. of the samples.
Fifteen to twenty hours in 13 per cent. of the samples.

It was also found that the proportion of tuberculous samples was three times as great as before the beginning of the war.

As in my opinion this deplorable state was only in small part due to errors in the methods of distribution I felt it my duty to give additional information regarding the ways in which the milk becomes contaminated, and the methods of collection and distribution which should be adopted to protect milk against pollution.

Detailed evidence is given in the report showing that the most serious sources of pollution are to be found at the farm, where dirt from the cow, the shippoon, and the milkers, is allowed access to the milk at the time of milking, and where dairy vessels of various kinds may, even when apparently clean, harbour numerous bacteria. It is also demonstrated that the strainer on which the farmer depends for the removal of gross dirt is an important source of contamination, and that even the cooler is not above reproach.

Of the experiments mentioned in the report the following is instructive:

Three cows were milked into sterilized covered vessels, and their milk was mixed in a sterilized churn. Part of this milk was then strained through a common strainer in use at the time, and received in an ordinary, apparently clean, but not sterilized churn. The unstrained milk remaining in the sterilized churn, and the strained milk transferred to the ordinary churn was carried to town by road, and examined two and a half hours after milking.

The unstrained milk was found to contain 1,500 bacteria per c.c.m.
The strained milk was found to contain 43,200 bacteria per c.c.m.

The milk in the two churns was then kept for 23 hours at 20° C., when it was found that:

- The unstrained milk contained 800 bacteria per c.cm.
- The strained milk contained 236,000,000 bacteria per c.cm.
- The unstrained milk was sweet at the end of 90 hours.
- The strained milk was sour in 14 hours.

It will be noticed that both samples of milk had remained in the churns in which they were placed at the farm. It is clear from this, and from many other experiments and observations recorded in the report, that milk collected in sterilized vessels and unstrained, is very much less contaminated, and has a much longer life of usefulness than milk collected and treated in the usual way. The postponement of souring has obvious economical advantages. Milk which remains sweet for two or three days can be used to meet the fluctuating demand for fresh milk, and the surplus may still be utilized in various ways.

I have come to the conclusion that to obtain a clean milk supply certain conditions have to be observed which may be enumerated as follows:

- Clean shippings, cows, and farm hands.
- Sterilized covered milk pails.
- No handling of the milk at the farm beyond transfer from sterilized pail to sterilized churn.
- Rapid transit from farm to town in clean cool vans.
- Distribution of milk to consumer in sterilized vessels with as little handling as possible.

To meet these requirements the small farmer will have to abandon some of his cherished practices and learn what sterilization means. A full account of simple and economical methods of sterilization is given in the report. Further, the railway companies will have to provide clean and cool means of transport. Finally, the distribution of milk to the consumer will have to be undertaken by distributing centres under strict control.

When the small farmer has been shown what he has to do, and how he can do it economically, it will be reasonable to insist upon his doing it. The introduction of grading, and, if necessary, of penalties, will then be advantageous.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CAMPHOR IN ACUTE INFLUENZAL BRONCHITIS AND BRONCHOPNEUMONIA.

DURING the recent outbreak of influenza at Felixstowe I treated 250 cases with camphor, with a mortality of one—a man who died after three days' illness from bronchopneumonia.

The incidence of bronchopneumonia in the 250 cases was 26, or 10 per cent.; in another series of 200 cases during the same outbreak, and untreated with camphor, the incidence was 8 per cent., but the number of deaths was 4, a mortality of 2 per cent. The outbreak was very severe, and the cases treated ranged in severity from very acute to mild cases. The temperatures varied from 105.5° to 100° F.

The treatment adopted was the administration of pills containing four grains of camphor made up with soap, in mild cases three times daily and in the very acute cases every three hours. The treatment was continued until the temperature dropped and the signs of bronchitis or bronchopneumonia cleared up. A typical case may be of interest.

A boy, aged 10, was suddenly taken ill on September 6th with acute pains in the back and head. When seen the temperature was 105.6° F., pulse 120. There was slight cyanosis, and marked and widespread signs of bronchitis with patches of bronchopneumonia were found over both lungs. On September 7th the boy became unconscious. The camphor pills were begun on September 8th, after the unconsciousness had lasted thirty-six hours. Pulse 130, temperature 104.8° F. Within twenty-four hours the boy recovered consciousness. The signs in the lungs slowly cleared up, and the chest became normal on September 12th.

There was no doubt in the minds of those who watched the boy that his recovery was entirely due to the camphor. The only other treatment was a diaphoretic mixture, which was stopped on September 9th.

The effect of camphor in large doses is very marked, and though the number of cases treated is too small to allow me to describe it as a specific, there can be

no doubt, from the difference in the mortality in the two series of cases treated during the same outbreak with and without camphor, that the curative action of camphor is remarkable. Certainly its effect in clearing up the lungs and lowering the temperature far surpasses that of any other drug that has been tried.

Felixstowe. P. L. GIUSEPPI, M.D.Lond., F.R.C.S.Eng.

THE SIGNIFICANCE OF FATS IN THE DIET.

THE following figures from the tropics, 1° 17' north of the equator, may be of interest. They were obtained from observations during the past two years on the diet nutrition and excretion of the Asiatic races in Singapore.

Subject.	Protein.	Fat.	Carbo- hydrate.	Total Calories.	Fat Calories per Cent. of Total Calories.
Chinese medical student	Grm. 60	Grm. 43	Grm. 227	1,577	25.4
Tamil medical student	58	32	277	1,672	17.8
Malay medical student	57	31	239	1,502	19.2
Brahmin medical student	83	68	371	2,493	25.4
Tamil gardeners	76	19	468	2,407	7.3
Chinese estate coolies	86	17	611	3,015	5.2
Native prisoners (Class I)	84	50	432	2,580	18.0
Native prisoners (Class II)	84	18	541	2,730	6.1
Native prisoners (penal diet)	62	13	522	2,515	4.8

The diets of the medical students and Tamil gardeners are those of choice; the other diets are fixed.

Naked eye observation of the food of the Singapore native labourer is sufficient to show that the fat per cent. is very low.

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THE TREATMENT OF BILHARZIOSIS BY INTRAVENOUS INJECTIONS OF TARTAR EMETIC.

OUR knowledge of the situations occupied by the parasites in patients suffering from bilharziosis has hitherto acted somewhat as a deterrent in attempting a radical cure of the disease by the introduction of poisonous substances into the general circulation. In consequence treatment has been largely confined to measures tending to mitigate the severity of the symptoms. It is interesting, therefore, to see in the JOURNAL of December 14th an article by Dr. J. B. Christopherson on the efficacy of intravenous injections of tartar emetic in this disease.

In 1916, in Cairo, at the Australian Dermatological Hospital, a case was successfully treated on these lines; the notes suggest a specific action of the drug.

M. I., a native washerman, working at the hospital, complained of increasing frequency of micturition, pain above the pubes, scalding during passage of the urine, and haematuria. He first noticed haemorrhage at the end of micturition two years previously, but experiencing no trouble beyond this, he had not sought relief for some time, but finally urinary discomfort induced him to be treated at the out-patient department of a civil hospital, where he attended some months without appreciable relief. His urine contained numerous flocculi, which on examination under the microscope were found to consist of red blood corpuscles, pus and epithelial cells, and characteristic spined ova entangled in mucus.

In view of the disability caused by his symptoms, we decided to try the intravenous administration of tartar emetic; 10 injections of gr. j in 100 c.cm. of sterile normal saline were made into one of the veins of the antecubital space at intervals of a week. They were given towards evening, and the patient instructed to rest on returning home. The solution was introduced slowly, care being taken that none escaped into connective tissue surrounding the vein. No fits of coughing or faintness, such as often occur during the transfusion of this drug, were noted in this case. Fever and malaise followed all injections after a few hours except the first two, but apart from two mornings following the administration of the remedy, the patient went about his ordinary duties. Treatment was begun on March 7th, and the urine was examined microscopically at weekly intervals. A fortnight later marked relief of symptoms was experienced, and the number of blood cells and ova in the urine was appreciably decreased. After four injections no blood was passed, and after six the ova had disappeared from the urine. At the end of ten injections the urine was clear