culosis give also clinical manifestations of disease, older children overcome the primary tuberculous infection, the more probably the older they are at the time of the infection, without showing more pronounced symptoms of disease.

The prognosis of tuberculosis developed in the several years becomes better from year to year. According to an approximate calculation, the mortality from fresh tuberculosis in the several periods is as follows:

1. First year	70 per cent.
2. Second year	10 "
3. Third to fourth year	7 "
4. Fifth to sixth year	2 "
5. Seventh to tenth year	2 "
6. Eleventh to fourteenth year	1 "

It is, therefore, clear that tuberculous morbidity decreases from year to year, although the incidence of tuberculous infection increases from year to year.

The statistics regarding the incidence of tuberculosis among the children of Vienna obtained by means of tuberculin reaction are confirmed by *post-mortem* results in recent years. Since the autopsy of children of over 6 years has been made with special attention to the probable existence of a tuberculous focus, an almost equally great frequency of tuberculosis in Vienna has been determined by autopsy as by the tuberculin test on the living patient. If in former years the statistics obtained by autopsy as to the incidence were much lower, this is explained by the fact that the examination was not sufficiently searching.

It must be specially emphasized that the figures obtained by Monti and myself refer only to the poorer population of Vienna. Probably in the wealthier population a much lower percentage of positive tuberculin reaction would be obtained than is the case in the poorer classes. In the case of the well-to-do open pulmonary tuberculosis—the only source of tuberculosis in childhood—is not only much more rare than in the case of the poor, but the wealthy protect themselves much more carefully from every infection.

The question now is whether the figures obtained by Monti and myself in Vienna are applicable to other towns as well. I think they are. If Ganghofer obtained lower figures in Prague than Monti and myself in Vienna, this is explained by the fact that the cutaneous reaction does not reveal all tuberculosis. The "Stich" reaction—that is, the local subcutaneous reaction—must also be employed if every case of tuberculosis is to be detected. That the frequency of tuberculosis is approximately as great in other large towns as in Vienna is supported by a recent publication by Nothmann, who gives almost the same figures for Düsseldorf as Monti and myself for Vienna. One may assume the same figures with regard to the incidence of tuberculosis in childhood in all the larger towns as I now present with regard to Vienna. In the country the incidence is probably rather less, and above all more irregular, than in the town.

Since the majority of persons develop tuberculosis in childhood we cannot be surprised that tuberculous symptoms are so common in childhood. Indeed, tuberculosis in children usually offers very different symptoms to those of adults.

CONCLUSIONS.

1. The majority of persons become infected by tuberculosis in childhood.
2. The frequency of tuberculous infection increases from year to year, whilst tuberculous morbidity—that is, the frequency of manifest tuberculous disease—decreases from year to year.
3. Tuberculosis is very commonly latent, producing no symptoms; this is especially so if the infection dates from the third or fourth year.
4. The prognosis of tuberculosis in childhood becomes more favourable the older the person is at the time of the first infection.

THE extra-parliamentary commission which is drawing up administrative regulations under the French old age pensions law will not report before November, so that the law cannot come into force until this time next year. It is estimated, however, that £1,800,000 will be required in 1911—that is to say, about one-third of the total estimated expenditure for a year.

ADDRESS ON THE PREVENTION OF MORTALITY FROM PELVIC OPERATIONS.*

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[ABSTRACT.]

[DR. MACNAUGHTON-JONES discussed the increased responsibility attached to operative interference through the perfection of modern preventive methods in diagnosis, preoperative measures, technique, and the post-operative management of the patient, entering separately into several points in each. The pernicious effects of delay in diagnosis were emphasized, as also the incalculable harm done by the present-day resort to boomed remedies, involving the postponement of seeking professional advice, and the danger arising from the reliance on the part of the public on popular medical literature which takes the form of some indispensable Household Medical Cookery Book, compiled on the "Every Man His Own Lawyer" principle. The exceptions in which a difficulty was found in making an early diagnosis were summarized. The pleading was not so much for a definite differentiation of the nature of conditions, as an early recognition of an abnormality, which, in the great proportion of cases, either at the time requires, or in the near future will demand, surgical interference. Vain temporizing, or the lulling of a patient into a sense of false security added in various ways to the magnitude, complications, and consequent risks of the future operation.]

How (he asked) is not life lost and operative risk increased by dallying with appendical disease, ectopic gestation, tuberculous and gonorrhoeal salpingitis, ovarian blood cysts, adnexal carcinoma, streptococcus and *B. coli* abscess of the tube or ovary, early carcinoma of the portio, exhausting hæmorrhages, fibromitis, degenerations, adhesions, and the renal and cardiac complications of myoma of the uterus? The delusions that the ovaries are not frequently invaded by malignant disease; that myomata are not often the sources of fatal degenerations, or that the menopause is a time when expectancy is justified, and which explains various pathological conditions, of which the patient will be relieved when the climacteric has ceased, are myths of the past. Now we know that just in proportion to the years after 50 the risks and fatality from myomata are increased by necrosis and malignant degenerations.

The immediate antecedents of an operation might well be divided into the surroundings, and the preparation of the patient. Either we are ourselves the dupes of a fanciful, faddish system, and a Will-o'-the-wisp hunt after an impossible ideal, or we are striving to secure on scientific and assured grounds the greatest immunity from risk of those who place their lives in our hands. If we are justified in the steps we insist on as essential to effect the latter in our public hospitals and their costly theatres, with the refinements of aseptic precautions in tiled walls, mosaiced floors, with special drainage, filtered air, temperature regulators, sterilizers, pedalled sinks and dressing holders, airtight cases and glass operating tables—ought we not to come as near them as possible in our cottage hospitals and nursing homes?

There are cases in which, short of letting the patient die from her ignorance, we should absolutely refuse to operate, or before consenting, by the plainest speaking place the responsibility on her and her friends. It is not for us to condone a line of conduct which we believe increases enormously the risk to life.

There might be in every large town self-supporting sanatoriums, so furnished and equipped as to meet the requirements of the better-off classes, or the more modest or unpretentious demands of the poorer, and the charges should be regulated accordingly. The control might be municipal, but this need not exclude the right of private enterprise in the erection and conduct of the institution. Each sanatorium would have at least two operating theatres, and the necessary preparation, anaesthetizing, photographic, and radiographic rooms, with one general

* Delivered to the Maidstone Division of the South-Eastern Branch of the British Medical Association, June 23rd, 1910.

sterilizing department. Built on the corridor principle with lifts, the patients could be easily carried from the bed to the theatre with the least possible disturbance or exposure. They would have their own private medical attendant and select their own consultants. Each sanatorium would be under the immediate control of a medical director and assistant, and a joint medical and lay committee be responsible for the administration. All might be subject to State inspection. This is but a skeleton idea. It is the principle on which Loeve's Sanatorium in Vienna was conducted when I visited it. The details are easily worked out. It has these advantages—there is no mixing up of charity and legitimate expenditure of public money for the poor, with the indirect use of the same by those who are not ashamed to avail of it, and who have no right to it; it obviates the dislike of many who, shrinking from availing of a hospital, yet cannot afford the luxury of the private home; it leaves the medical attendant free to operate himself if he elect to do so, and to attend his patient.

[The questions of preoperative rest, attention to the bowel, mouth, teeth, and diet, were each separately discussed. The scopolamin-morphine-chloroform method of anaesthesia (with or without oxygen) administered by the Harcourt regulator was advocated in certain cases. The advantage of ether over chloroform as an anaesthetic in secondary operations for sepsis, or in acute suppurative septic states, he considered was established by the results recorded by Harold Stiles and Beesley of acetone production, and the experiments on anaphylaxis by Besredka. Spinal anaesthesia and infiltration anaesthesia had each its proper place.]

With regard to a sepsis, quite apart from scrupulous attention to surroundings, appliances, the precautions of the operator, assistants, nurses, the sterilization of the clothing of the patient, and the material and the appliances used, as well as the final toilet and subsequent dressings, there were other matters quite as important in the effort to arrive at an ideal a sepsis. This included the careful dealing with imprisoned septic fluids and exposed tissues, or any accidental bowel communications, the complete arrest of haemorrhage, and the use when absolutely necessary, and only then, of drainage. Operation by the clock was to be deprecated. There were exceptional occasions when time came in as the most important element for consideration. But a modern pelvic operation, in complete haemostasis, the anticipation of future perilous adhesions by careful covering of pedicles and raw surfaces, the examination of suspicious tissues or organs, entirely exclude any justification for "hurry," a word we should not at any cost admit into our surgical vocabulary.

In an instance of a large collection of putrid pus involving a probable septic infection of an extensive wound, after closure of the peritoneum and the application of formalin solution (1 in 1,000) to the infected surfaces, he had resected the edges for their entire length, also inserting a suprapubic rubber drain, with a most successful result. Paquelin's cautery might be used instead of the formalin. The rubber drain is preferable to the gauze, save in the case where a Mikulicz pack is required, or in vaginal drainage. Saline flushing of the pelvis and abdominal cavity, save in very exceptional cases, is better avoided. Careful and gentle mopping out with gauze, wet with weak formalin solution, is preferable. It were well to remember the immediate and remote dangers arising from overlooking residual septic products in cases of arrested pregnancy when the uterus was emptied by ovum forceps or curettage. Such are easily overlooked, and hence the necessity for douching while maintaining dilatation of the canal, and repeating the curettage if the temperature and nature of the discharge called for it.

Shock, either during or after operation, is not so often heard of now with our present technique and the improved administration of anaesthetics. The recent advances in the employment of continuous saline irrigation of the rectum, or proctocolysis (J. B. Murphy), the employment of "infundibulin" by intramuscular injection (Blair Bell), and the use of the principle "tyramine" obtained from ergot, afford most important means of dealing with shock, paresis of the bowel, and haemorrhage. The Fowler position, aided by proctocolysis and suprapubic drainage, was an invaluable adjunct to the treatment of post-operative peritonitis. Cyllin is a highly valuable remedy in gastro-

intestinal complications. It is a most powerful bactericide, especially of the *B. coli*; is well borne, assists in checking sickness and in the disinfection of the bowel. I have used it habitually for some years as a post-operative remedy in these cases.

No hard and fast rule can be laid down for the resort to morphine. The administration of a nightly dose of atropine $\frac{1}{100}$ m and $\frac{1}{4}$ m of morphine has often an admirable effect in controlling sickness and inducing a restful night. It may be stated as a general rule that morphine is better avoided, but a woman's temperament is a powerful asset in her recovery account, and an important item either on the credit or debit side of our operative balance sheet. As to diet and movement, I do not believe in pre-operative starvation. We do not now follow the old practice of Lawson Tait, and give nothing save hot water for so many hours after operation, nor do we keep any longer the patient on her back for days; still, *in medio tutissimus ibis* and *festina lente* are good surgical mottoes, and we are safest in feeling our way, first with fluid, and then with light, easily assimilable nourishment, and not too soon taking the risks of movement out of bed and walking.

ON THE PRESENCE OF SUGAR IN HEALTHY URINE AS A SOURCE OF THE OSAZONE REACTION.

BY

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THE communication of Dr. William Russell in the BRITISH MEDICAL JOURNAL of July 2nd, p. 5, on "The 'Pancreatic Reaction' in Abdominal Disease," has led us to send for publication the subjoined notes, drawn from an unpublished paper written about two years ago, and founded upon experimental work.

The question of the presence of sugar in normal urine was, at a period now long since past, the subject of a warm and somewhat prolonged discussion, in which one of us (F. W. P.) took an active part on the affirmative side. It was contended that the cupric oxide reducing power, recognizable by means of the ammoniated cupric test, was due, at least in part, to the presence of free sugar, and this free sugar was, as a matter of fact, found to be susceptible of separation by precipitation with lead acetate and ammonia, and afterwards to undergo alcoholic fermentation in contact with yeast.

The introduction of the phenylhydrazine test by Emil Fischer has since furnished the means of forcibly corroborating the conclusion previously arrived at. An osazone is always readily obtainable from the extracted sugar derived from a moderate quantity of urine; and, further, as will be seen from what follows, the preliminary separation of the sugar is, in many cases, unnecessary, inasmuch as the amount of it that is present in normal urine is sufficiently large to permit of osazone crystals being obtained by direct treatment with phenylhydrazine.

It is advantageous, however, to treat the urine in the first place with lead acetate to remove certain of the urinary constituents which seem to prevent the osazone from assuming a crystalline form; 20 c.cm. of the urine are shaken with 5 c.cm. of a 25 per cent. solution of neutral lead acetate and the resulting precipitate removed by filtration. The excess of lead is then got rid of by adding 2 grams of powdered sodium sulphate, boiling, cooling in a stream of cold water, and filtering off the precipitated lead sulphate; 15 c.cm. of the filtrate are now added to 2 grams of sodium acetate, 0.8 grams of phenylhydrazine hydrochloride, and 1.5 c.cm. of acetic acid (*B.P.*), contained in a small flask, and the mixture is boiled under a reflux condenser for fifteen minutes. The liquid is filtered while still hot into a test tube and allowed to stand for some hours. The small deposit which collects at the bottom of the tube will, in most cases, be found on microscopic examination to consist of the characteristic sheaves and rosettes of osazone crystals.

The same results follow if the neutral lead acetate be replaced, as in Cammidge's pancreatic reaction, by 4 grams of powdered tribasic lead acetate, provided sufficient acetic acid be added to give an acid reaction to the mixture. In