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 proctoclysis (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 proctoclysis 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

F. W. PAVY, M.D., and H. W. BYWATERS, D.Sc.,
LL.D., F.R.S., PH.D., F.I.C.

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

the absence of free acid the larger portion of the sugar is precipitated by the basic lead salt in the same manner as happens in the case of a pure glucose solution, and hence from the filtrate no osazone may be obtained.

The form of osazone crystal obtained is dependent on the varying conditions of concentration, rate of cooling, presence of foreign matter, etc.; and by suitably altering these conditions the same osazone may be made to separate out in different forms—as, for example, in ill-defined aggregates, feathery masses or sheaves of fine hairlike crystals, or needles grouped in sheaves or in starlike clusters. Urines of low specific gravity may require to be concentrated, whilst those of high specific gravity may require dilution before the characteristic crystalline osazone deposit is obtainable. It has often been found that boiling with the phenylhydrazine for a longer time (thirty minutes) led to the deposition of well-defined crystals where amorphous masses had otherwise been previously obtained.

The sugar present in normal urine is not solely, nor even chiefly, glucose. In a communication on the nature of the sugar present in normal blood, urine, and muscle, by F. W. Pavy and R. L. Sian, published in vol. xxvi of the *Journal of Physiology*, 1901, attention was drawn to the existence of a disaccharide—*isomaltose*—in association with the glucose. As *isomaltosazone* is more soluble than *glucosazone*, it follows that a larger quantity of osazone crystals will be yielded by a specimen of urine if the *isomaltose* is converted, prior to the treatment with phenylhydrazine, into glucose by hydrolysis with a mineral acid.

In Cammidge's pancreatic reaction, hydrolysis constitutes one of the essential features, and hence the conditions are such as to favour the production of osazone crystals from the sugar normally present in the urine. Adopting the method of hydrolysis described by Cammidge, it has been found that, after treatment with lead carbonate, basic lead acetate, and phenylhydrazine, most of the specimens of healthy urine examined have yielded a deposit of characteristic osazone crystals.

Besides normal human urines, the urines of horses, cats, and rabbits have been submitted to experimental treatment, and in almost all cases have been found to yield typical osazone crystals.

Although a sort of reluctant assent is now generally given to the statement that normal urine contains sugar, there nevertheless still seems to exist a tendency to minimize its significance. The quantity, however, although the urine may not give a reaction with Fehling's solution on account of the inhibiting effect of certain of its constituents, may be in reality considerable, amounting, for instance, as a general condition, to 2.5 or more per 1,000. It is therefore to be looked upon as nothing more than a natural occurrence that osazone crystals should be obtainable from normal urine, and it all depends upon incidental circumstances whether they are obtained or not.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CALCIUM CHLORIDE IN RHINORRHOEA.

It will be conceded even by the most experienced rhinologists that the treatment of that exceedingly annoying and distressing symptom, rhinorrhoea, is, to put it mildly, unsatisfactory.

It is considered, and has been considered for a long time, that rhinorrhoea is a symptom of a vasomotor rhinitis. All the remedies recommended for its relief had their basis in the idea that this symptom was an evidence of a neurosis. Personally I had felt for a long time quite helpless in the matter of treatment. There appeared only one other source for the trouble; and that was the blood. Consequently, some two years ago I first tried the effect of calcium chloride, giving 30 to 45 grains a day for two weeks. With scarcely an exception this objectionable symptom was completely removed; sometimes it recurred at long intervals, always to yield again; and, so far, no case of rhinorrhoea has proved absolutely unresponsive, though one was very intractable.

The real pathology of the condition I have not attempted

to elucidate, but the amount of chloride in the blood may yield a hint as to the causative factor, probably merely excessive osmosis.

I have not employed the salt so far in spasmodic sneezing, hay fever, or asthma, but it might possibly be of use here also.

London, W.

RICHARD LAKE, F.R.C.S.Eng.

A CASE OF SELF-PRODUCED ALOPECIA.

A MAN aged 30 is at present a patient in Northumberland County Asylum suffering from chronic mania. On admission three years ago he had a thick crop of hair and a heavy brown moustache. Some months since he began to pluck the hairs out of his scalp and face. Epilation has been carried out so extensively that except for a slight downy covering, he has no hair on his scalp, eyebrows, or face. He has also removed all hair from the axillae and pubes.

Though this form of self-mutilation is by no means uncommon amongst the insane, I have seen no other case in which epilation has been so persistent and complete. I have at present under my care another man who has in time past indulged in this insane practice. He has several whitish patches on his scalp, where the hair has grown again after epilation, but with a change in colour.

G. R. EAST, M.B., D.P.H.

Northampton County Asylum, Morpeth.

INJURY OF EAR BY HATPIN.

THE following case, as illustrating the dangers of the large hatpin, is, I think, worth recording:

On April 9th I received an urgent message to see a lady who was said to have run a hatpin into her ear.

On arrival, I was informed that the patient, in trying to fix on her hat with a large pin before the mirror, had inadvertently run the pin into her ear instead of the hat. She immediately suffered from giddiness and collapse, and nearly fainted.

On examining the ear, I could find no perforation of the tympanic membrane, but close to the drum the floor of the meatus showed a scratch. She complained of giddiness and tinnitus, but no pain, and was deaf to the watch and tuning-fork.

Under careful antiseptic dressing the wound healed without any discharge, the deafness and tinnitus remaining.

On May 13th I asked Dr. Stevenson, of Liverpool, to see her as to prognosis of recovery of the hearing. He reported: "I could not see any wound in the membrana tympani, but I think there is no doubt she has partially dislocated the stapes from its vestibular attachment, or, at any rate, altered its position. I think she will slowly improve."

Under politizerization—absorbent drops and mild counter-irritation to the mastoid—she has at the present date somewhat improved, but considerable deafness and tinnitus remain.

Chester.

ALFRED MANN, M.D.

URINE REACTION IN LOBAR PNEUMONIA.

I SHOULD like to call attention to a urine reaction in cases of lobar pneumonia which is not mentioned in any books on urinalogy or clinical medicine as far as I can discover.

The reaction is obtained by using Heller's test for albumen. A dense-white or dirty-white ring, or perhaps only a haze, appears above the junction of the acid and the urine. In albuminuria it is at the junction of the two fluids. Sometimes it only appears after the treated specimen has stood for an hour or more, whilst in others it appears immediately. If the urine is turbid it must be filtered, and the reaction will appear in the clear filtrate.

In all cases in which the reaction appears day after day the prognosis is favourable; if it disappears before the crisis or immediately after the crisis unfavourable symptoms are experienced. From my observations the quantity of precipitate appears to bear a distinct relation to the severity of the pneumonia and to the eventual recovery or otherwise. I have only known it to appear in one fatal case, and in this case three distinct rings were visible.

It is found most plentifully in those cases of pneumonia which have no abnormal temperature, or where the com-