tions are seldom encountered even with the most energetic infusions. Also in a series of 84 adults to be published shortly¹ the patients commonly had large fluid deficits and several litres of fluid had to be infused before urine flow became established. As demonstrated in the case report of Dr. Savege and his colleagues, an increased urine flow is an important factor in salicylate clearance. In some patients, therefore, a rapid infusion rate is mandatory.

Drs. Morgan and Polak also claim that their regimen is free from important complications, but this is perhaps hardly justified, as six of their ten patients developed capillary pH values in excess of 7.5, and although all the serum potassium levels were normal at the outset eight developed significant hypokalaemia with a potentially dangerous level in five. As these changes occurred rapidly, it seems likely that considerable acid-base changes with associated electrolyte shifts were taking place. These findings are similar to those encountered with the early regimens of forced alkaline diuresis described by Cumming and his colleagues in 1964.²

Treatment with bicarbonate and acetazolamide, therefore, still requires very careful laboratory control and in its present form, is less safe than the newer modifications of the Cumming's regimen referred to in your leading article (January 4, p. 3).—I am, etc.,

A. A. H. LAWSON.

Department of Medicine,
University of Edinburgh,
Edinburgh 4.

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Recirculating Pump and the Rupture of Ultraflow Twin Coils

SIR,—The twin-coil dialyser with fibre-glass supports remained basically unchanged for a decade after its introduction.¹ The only major improvement in its performance over that period was achieved by sealing it more efficiently in its case with a pneumatic cuff and substituting a faster recirculating motor.² This combination imposed a considerable shearing stress on the coil, which was only partly prevented by an improved upper support,³ but no harm ensued. The membrane was encased in a double-sewn layer of fibreglass mesh so that individual winds of the coil could move on one another without damage to the membrane.

During 1968 fibreglass coils were superseded by the Ultraflow range incorporating Hoeltzenbein's non-woven plastic mesh. These give a higher clearance and ultrafiltration at a lower priming volume and residual blood volume than fibreglass coils of the same area.⁴⁻⁶ Following the changeover several centres, including our own, experienced a disturbing rise in the proportion of coils which ruptured early in dialysis with a major blood leak into the dialysate. In our case the leakage rate rose from less than 1% with fibreglass coils to a peak of 5% with early production batches of the Ultraflow. We were advised to soak the coil for 15 minutes before priming, and to prime at slow speed (setting of 10 on the Sarns pump), and have observed these precautions since. There was no

striking reduction in the leakage rate, and we think that these time-consuming precautions should be studied in a controlled trial. We did, however, notice a relationship between the recirculating pump employed and the incidence of rupture, and this problem was examined under controlled conditions.

Of four identical outlets of a multiple patient system, three were fitted with standard Travenol pumps producing about 20 l./min., and one with a fast pump yielding about 40 l./min. All coils were sealed in their cans with a full width cuff at 200 mm. Hg. During 58 dialysis days there were nine leaks in 67 coils on the fast pump and two leaks in 176 coils on the standard pumps; the difference is significant ($0.02 < P < 0.03$).

We conclude that the Ultraflow coil is more easily damaged by shearing stress than its predecessor, presumably because a single layer of mesh separates successive layers of membrane; any distortion of the coil must result in friction on the membrane. The value of a very fast recirculation rate has not been established with the Ultraflow, and any small advantage it may give in clearance is certainly outweighed by the risk of coil rupture. We recommend a return to the standard pump for the time being.—We are, etc.,

WILLIAM CROSSLEY.
PETER J. B. TILLEY.
DAVID N. S. KERR.

Department of Medicine,
Wellcome Research Laboratories,
University of Newcastle upon Tyne.

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Epidemic Influenza and General Hospitals

SIR,—In your leading article on epidemic influenza and general hospitals (14 December, p. 655) you state "perhaps 95% of patients with epidemic influenza withstand their (infections) *without undue inconvenience*" (my italics). Between 15 January 1953 and 5 May 1953 the Army Chest Centre (Connaught Hospital, Bramshott) was asked to deal with the overflow of cases of viral respiratory tract infection involving a predominantly young military community. In all, 500 cases were admitted and every case had a radiograph of the chest on arrival in hospital. The incidence of pulmonary opacities was most revealing—at least 13% of all cases—but in certain categories the incidence was as much as one in five. All such cases had clearance chest radiographs so as to estimate the time taken for complete resolution.^{1,2} It is felt that in many cases without chest radiography a significant number of pulmonary opacities will be missed and cases returned to work before they are really fit to

do so, with the inevitable "relapse." This stresses the need for facilities for domiciliary chest radiography.³

A review of 355 consecutive cases of viral respiratory tract infection admitted to a British military hospital in Belgium between 24 November 1945 and 14 January 1946 indicated that considerably less than 95% of patients had an easy passage.⁴—I am, etc.,

JOHN MACKAY-DICK.

Edinburgh 12.

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Lithium and Foetal Abnormalities

SIR,—The question was recently raised (11 January, p. 102) whether there is risk of teratogenic effects from lithium treatment. We agree entirely with the information given and the views expressed in the answer. A number of systematic studies on rats and rabbits are now under way; some are not yet finished, others are finished but not published. The experiments have until now been clearly negative. No malformations have been observed in the young of lithium-treated mothers.

Furthermore, a Scandinavian register of "lithium babies" was founded about one year ago. At present it contains records of 20 children born of mothers who had been treated with lithium. In four cases lithium was given within the first trimester, in 16 cases throughout the pregnancy. None of the children had malformations. It would be desirable to extend the series with cases from outside Scandinavia. Any relevant information may be sent to us.—We are, etc.,

MOGENS SCHOU.
AMDI AMDISEN.

Psychopharmacology Research Unit,
Aarhus University Psychiatric Institute,
8240 Risskov, Denmark.

Synacthen Depot Used in General Practice

SIR,—The papers¹⁻³ and the letter⁴ that you have already published on Synacthen depot have demonstrated its longer duration of action and its tolerability by patients sensitive to natural A.C.T.H., but they have given rather little information on its clinical usefulness and none under the conditions of general practice. We have recorded details of the first 60 patients treated in a general practice, and the results seem interesting enough to report.

One patient was of particular interest and his case merits special comment. A man of 45 years of age with rheumatoid arthritis of three and a half years' duration was previously being treated with indomethacin 25 mg. three times a day and aspirin 3.6 g. daily with only moderate control, since he was unable to work at his job of plasterer's labourer for the greater part of this time. He was started on injections of Synacthen depot 1 mg. daily for three injections, and the interval between injections was progressively extended from two to seven days over the next month. The dose was then reduced to 0.5 mg. weekly, and he has continued on this for over two months.

The improvement in his rheumatoid condition was immediate and sustained, so that he was able not only to return to work but, perhaps ill-advisedly, to take on an evening job as well. Reduction in ancillary treatment has also been possible. More remarkable is the fact that this patient has suffered from alopecia totalis for three years and three months, and four weeks after starting treatment was found to have developed some growth of hair on the scalp and elsewhere. This hair-growth has continued, and while it is somewhat patchy and irregular at the moment, it is not just the downy lanugo hair sometimes seen.

Altogether in the series there were 34 males and 26 females whose ages ranged from 8 to 72 and from 12 to 69 years respectively. Dosage frequency was usually twice weekly, sometimes less, although in some cases a few alternate day injections were found to be needed at first. Injections were almost all given in the surgery by either my partner or myself, but could equally well have been given by either the district or the practice nurse. Tolerance was satisfactory. On direct questioning a degree of discomfort at the site of injection was not uncommonly admitted, but this was never severe enough to cause interruption of treatment. It is our impression that doses of 0.5 mg. were better tolerated by some patients than the 1 mg. which was the standard dose used in the early cases. Also on direct questioning there were seven complaints of possibly related systemic side-effects. Six of these occurred in women, of whom four complained of flushing. One man appeared to develop some fluid retention on 1 mg. intramuscularly on alternate days, probably due to overdosage.

The diagnoses and outcome of treatment are briefly summarized in the Table.

Diagnosis	Cases	Rapid Resolution	Mod-erate Benefit	Little or No Benefit
Skin disorders:				
Allergic rash ..	3	3		
Eczema (1 with asthma) ..	2	2		
Wasp sting ..	1	1		
Respiratory disorders:				
Asthma ..	5	3	1	1
Rheumatic disorders, major:				
Rheumatoid arthritis ..	2	2		
Osteoarthritis ..	2			2
Rheumatic disorders, minor:				
"Fibrositis" ..	18	15	2	1
Lumbago/back strain ..	11	9	2	
Sciatica (5 with lumbago) ..	6	5	1	
Other muscle strain/injury ..	5	3		2
Tennis elbow ..	3	3		
Olecranon bursitis ..	1	1		
"Rheumatism," severe ..	2	2		
Painful os calcis ..	1			1
Cervical spondylosis ..	1			1
Miscellaneous				
Ulcerative colitis ..	1	1		
Facial neuralgia ..	1			1
Brachial neuritis ..	1		1	
	66*	50	7	9

* Some had more than one condition.

The overall results mean very little, since they depend so much on selection of cases. We started with the conventional indications, but soon became more experimental in order to explore the frontiers of this form of treatment. We were surprised and encouraged by the results in minor rheumatic conditions,

so that the series became heavily weighted by them. Many of these patients appeared to respond quickly to a short course, or sometimes even to a single injection. Because of the duration or history of troublesome previous attacks, a placebo effect often seemed unlikely, but it is clearly impossible accurately to assess the true value of Synacthen depot in these conditions without a double-blind trial. This is now in hand.—we are, etc.,

J. ERIC MURPHY.
J. F. DONALD.

Northampton.

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Sensitivity of some Mycobacteria to Rifocin-M

SIR,—I have recently tested the activity of Rifocin-M (rifamide; Lepetit Pharmaceutical Ltd.) against 20 different strains of four groups of mycobacteria. The strains comprised: nine wild strains of human tubercle bacilli, six of which were sensitive, and three resistant, to isoniazid; strains H37Ra (NCTC 7417) and H37Rv (NCTC 7416); and two, four, and three strains belonging to Runyon's groups I, II, and III respectively.

The drug was incorporated in Middlebrook culture medium, 7H10 oleic acid albumin agar (Difco) at 50° C. which was then allowed to solidify at room temperature. The medium was inoculated using a standard suspension of the strains prepared according to Medical Research Council methods (Appendix 2, Canetti *et al.*¹). Cultures were examined after seven and 14 days' incubation at 37° C. Growth of all the human strains was inhibited by Rifocin-M at a concentration of 1 µg./ml. The strains of the Runyon groups were not inhibited by this concentration of drug.

These results may be compared with those of Hobby and Lenert,² who used a liquid-medium system. They showed that both isoniazid-sensitive and isoniazid-resistant strains of tubercle bacilli were inhibited by 0.08 µg./ml. Rifocin-M in liquid tween-albumin medium, and by 0.31 µg./ml. in albumin liquid medium. They also reported that two of their four strains of the Runyon groups were inhibited by 0.31 µg./ml. Rifocin-M in liquid tween-albumin.

Rifocin-M is given by injection. Its use in undeveloped countries, where the main burden of tuberculosis lies, is therefore limited. Its potential usefulness, however, suggests that further comparisons be made of its activity in solid and liquid media.

I am grateful to Lepetit Pharmaceutical Ltd. (Miss J. A. Stanford) for supplying the drug, and to Drs. John Marks and Stephen Lapage and Mr. C. H. Collins, who supplied most of the strains used in the experiment.

—I am, etc.,

PETER CAVANAGH.

London School of Hygiene
and Tropical Medicine,
London W.C.1.

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Gastric Ulcer in Jamaica

SIR,—The current practice article by Dr. A. Morton Gill (17 August, p. 415) on gastric ulcer, and the subsequent letter by Dr. S. P. Bohrer and his colleagues (23 November, p. 515) in which they point out the omission of the epidemiology of gastric ulcer in Dr. Gill's article, are interesting in relation to my own observations of gastric ulcer in Jamaica. In a recent survey of this condition I found 81 (62%) of 130 gastric ulcers were concomitant with (and therefore secondary to) duodenal ulcers. Of the 81 cases with concomitant gastric and duodenal ulcers, only 12 had evidence of gastric retention and three evidence of pyloric stenosis.

Dr. Bohrer and his associates found a high incidence of antral stasis (presumably equivalent to retention) in cases with duodenal ulcer in Nigeria and were therefore surprised that gastric ulcer in their series was uncommon, because Dr. Gill, quoting Dragstedt *et al.*¹ and Burge,² incriminates antral stasis as a cause of gastric ulcer (this theory was also presented in more detail by Burge³ in a Hunterian Lecture). The fact that stasis is a common complication of duodenal ulcer in Nigeria, where gastric ulcer is uncommon, and that stasis is an uncommon complication of duodenal ulcer in Jamaica, where concomitant gastric ulcer is common, is evidence against the (antral) stasis theory, but is compatible with the more recent theory of the reflux of duodenal contents as a cause of gastric ulcer which was so elegantly presented by Capper,⁴ also in a Hunterian Lecture. This comparison between gastric ulcer in Nigeria and Jamaica illustrates the value of the concept of geographical pathology as stressed by Dr. Bohrer and his associates in the solution of the complex problems of medicine.

It is also of interest to speculate why duodenal ulcer frequently produces stasis in Nigerian but not in Jamaican patients. In Nigeria patients may be referred to or attend hospital at a later stage of duodenal ulcer disease when pyloric stenosis has developed, whereas in a relatively more developed country like Jamaica they attend at an earlier stage. It is also possible that duodenal ulcer in Nigerians, by causing excessive fibrosis,^{5,6} is more prone to cause pyloric stenosis and not duodenal reflux.—I am, etc.,

ERIC M. BATESON.

Department of Radiology,
University Hospital,
Mona, Kingston 7,
Jamaica, W.I.

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Radiotherapy in Cancer

SIR,—The valuable record of results of cancer treatment at the Christie Hospital and Holt Radium Institute recently reviewed (19 October, p. 172) could be made even more valuable by inclusion of the figures necessary to calculate the age-corrected survival rates, in addition to giving the results in this par-