pulled in, and oxygen administered by mask. These capsules would be used by recumbent patients requiring lengthy treatments, such as those with gas emboli, coronary thrombosis, and traumatic vascular lesions.

The theatre compartment (far right in Fig.) is also filled with air and can be entered at either end. It would be used for patients requiring constant attention or surgery under pressure.

The advantages of this system are. (1) Should the patient in a capsule require attention during treatment he is accessible without undergoing complete decompression. (2) The treatment of one patient can be controlled without interrupting that of others. (3) A capsule can remain empty while the others are in use, so that scrupulous cleaning can be performed after use by an infected patient. (4) If suitably designed the patient can sit up, which is impossible in a conventional small chamber.

With the equipment now available, however, I believe that several small chambers in a properly staffed unit is the most practical solution if hyperbaric oxygen is to be made available to those who require it.—I am, etc.,

D. J. D. PERRINS

Research Institute,
Churchill Hospital,
Headington, Oxford

¹ *Proceedings of the Fourth International Congress on Hyperbaric Medicine*, ed. J. Wada and T. Iwa. London, Bailliere, Tindall and Cassell, 1970.

² Western Regional Hospital Board, *Working Party on Fire Hazards in Hyperbaric Environments*, Glasgow, 1967.

³ U.S. Navy Diving Manual, Washington, D.C., U.S. Government Printing Office, 1963.

SIR,—When clostridial infection is confined to the central nervous system there is no evidence that the infection spreads through healthy brain and no clinical indication of toxæmia.¹ The spread of the disease and the toxæmia are the factors controlled by raising the tissue oxygen tension. Further to your leading article on gas gangrene and hyperbaric oxygen (23 September, p. 715), may I make the comment that there seems to be no place for hyperbaric oxygen in clostridial gas-producing infections confined to the central nervous system?²—I am, etc.,

A. J. KEOGH

Royal Infirmary,
Sheffield

¹ Cairns, H., Calvert, C. A., Daniel, P., and Northcroft, G. B., *British Journal of Surgery (War Surgery Supplement No. 1)*, 1947, p. 198.

² Keogh, A. J., *Postgraduate Medical Journal*, in preparation.

Induction of Labour

SIR,—Rupture of the forewaters to prevent the risks of postmaturity is a simple procedure that can be carried out in hospital, in a general practitioner unit, or in the home. The method becomes hazardous when labour fails to start after 24 hours and oxytocic drugs have to be used. Salzman¹ described the tapping of natural maternal oxytocin by manual suckling of the breasts. He applied his technique to the maintenance of strong, efficient contractions in the first and second stages of labour and to the management of the third stage. He doubted whether suckling could be used to initiate labour because it was usually ineffective if cervical dilation was absent. But sweeping

of the membranes and digital dilation of the cervix are commonly performed immediately before artificial rupture of the membranes, and by this action conditions are set for an immediate response to suckling.

The areola of one breast is squeezed between forefinger and thumb just behind the nipple in precisely the same manner as in manual expression of milk. The pressure used should be just sufficient to express colostrum and should not be uncomfortable to the mother. Manipulation is continued for 45 seconds at intervals of five minutes. The first uterine contraction should occur after not more than four periods of suckling and a contraction should follow each stimulus thereafter. Sooner or later contractions occur spontaneously before the next suckling action is due. The mother is then in labour and will continue without further aid. It is unusual to have to continue artificial suckling beyond one hour.

The average induction-delivery interval can be cut from 22½ hours when using artificial rupture of the membranes to 10½ hours when breast stimulation is added. This reduction is achieved almost entirely by removing the delay between artificial rupture of the membranes and the establishment of labour. The technique is applicable both to primigravidae and multigravidae, and no significant difference was noted between the two classes in speed of establishment of regular contractions.—I am, etc.,

D. R. FIRTH

Teignmouth, Devon

¹ Salzmänn, K. D., *Journal of the Royal College of General Practitioners*, 1971, 21, 282.

² Salzmänn, K. D., *Journal of the Royal College of General Practitioners*, 1971, 21, 670.

Diagnosis of Chronic Beryllium Disease

SIR,—The widespread use of beryllium in modern technology constitutes a continuing hazard to the health of industrial workers, as even trivial injuries contaminated with beryllium may lead to extensive disease.¹ Chronic beryllium disease is characterized by epithelioid-cell granulomas in the tissues similar to those of sarcoidosis and the two conditions may be difficult to distinguish in the absence of chemical analysis.² Beryllium metal and salts are known to be sensitizing agents, but the use of beryllium-patch skin tests poses hazards of sensitizing unexposed subjects. Alternative methods for the diagnosis of both diseased and sensitized subjects are therefore required. It has recently been shown³ in one patient that in vitro blastoid transformation of lymphocytes by beryllium salts may be of value.

We have studied seven patients with chronic beryllium disease using the macrophage migration inhibition technique (M.I.F.). Lymphocytes were cultured for 72 hours with 0.5 ml of 10⁻⁹M beryllium sulphate solution. The presence of M.I.F. was assessed using unsensitized guinea-pig peritoneal macrophages. All the patients examined had a history of beryllium exposure with clinical, physiological, and radiological evidence of chronic pulmonary disease. Additional evidence for the diagnosis was present in the following: sarcoid type granulomas in lung biopsies (4/4) and positive beryllium patch tests (2/4). Six of the seven were on corticosteroid therapy at the time of testing. Two of the seven patients show a migra-

tion index (M.I.=migration area with antigen/migration area without antigen) of less than 0.8. In 10 apparently healthy subjects with no beryllium exposure the M.I. was greater than 0.8 (see Fig.).

The two M.I.F.-positive cases (M.I.<0.8) were both on corticosteroids, though we have previously found that steroid therapy inhibits the M.I.F. reaction in a study on sarcoidosis.⁴ In one patient the diagnosis is completely proven¹ but in the second patient biopsy, patch test, and chemical analysis confirmation are not available. The positive beryllium M.I.F. test therefore confirms the diagnosis in case 1 and is of value in diagnosis and in the exclusion of sarcoidosis in case 2.

We would like to thank Dr. V. U. Lutwyche, Harlow Chest Clinic, Essex, Dr. G. S. Kilpatrick, Welsh National School of Medicine, and the late Dr. C. B. McKerrow, M.R.C. Pneumoconiosis Unit Cardiff for access to clinical material. Miss Jennifer Grey is in receipt of a Welsh Hospital Board clinical research grant.—We are, etc.,

W. JONES WILLIAMS

JENNIFER GREY

ELIZABETH PIOLI

Pathology Department,
Welsh National School of Medicine,
Cardiff

¹ Jones Williams, W., *Proceedings of the Royal Society of Medicine*, 1971, 64, 946.

² Jones Williams, W., *British Journal of Industrial Medicine*, 1958, 15, 84.

³ Van Ganse, W., Oleffe, J., Van Hove, W., and Groetenbriel, C., *Lancet*, 1972, 1, 1023.

⁴ Jones Williams, W., Pioli, Elizabeth, Jones, D. E., and Dighero, M., *Journal of Clinical Pathology*, in press.

Fungal Contamination of Cervical Sponges

SIR,—For several years now it has been the practice in the gynaecological outpatient department of the Victoria Infirmary of Glasgow to employ autoclaved wedges of polyvinyl sponge in place of the more conventional Ayre spatula for the purpose of obtaining cervical smears for exfoliative cytology.¹ The main advantage of this method is that when a smear is equivocal, unsatisfactory, suspicious, or positive the sponge can be processed, affording more material for diagnostic purposes.

When abundant fungal mycelia have been recognized in the smear or in the sponge it has been the custom to report this fact. In a recent case, however, fungi which were not classical yeasts were detected in the smears. Examination of the corresponding sponge revealed such large numbers of identical periodic-acid Schiff positive fungi within its interstices as to arouse suspicion of contamination. Further investigation showed a batch of polyvinyl sponges used as a source for the smaller cervical ones was contaminated by black fungus while still within the maker's wrappings. This fungus was cultured on Sabouraud's medium and proved to be a penicillium. An approach to the makers elicited the information that though fungicide was incorporated during manufacture contamination was a well recognized problem owing to the fact that the sponges were marketed damp within their polyethylene wrappings. The presence of fungi in the smears in this case can therefore be directly attributed to the use of a sponge in lieu of the traditional Ayre spatula.

It should be emphasized that no fungus grew in culture after the routine autoclaving process used in this hospital for the sterilization of cervical sponges. Thus the organisms were no longer viable and there was therefore no danger of causing any infection of the genital tract. In view of the initial difficulty which we experienced in distinguishing this contaminant from a true fungal infection of the genital tract we felt that cytologists should be aware of this potential source of diagnostic confusion and that care should be exercised in diagnosing a fungal infection on smears made from sponges until such time as the fungus in question has been conclusively identified.—We are, etc.,

A. D. BREMNER
M. H. S. BELL

Pathology Department,
Victoria Infirmary of Glasgow

¹ Watson, A. A., *Lancet*, 1966, 1, 957.

Survey of Alimentary Radiological Findings

SIR,—Dr. E. M. Bateson (22 July, p. 233) draws attention to the lack of data about concomitant gastric and duodenal ulcers in our survey of alimentary radiology findings (8 April, p. 78). We were aware of the limitations of the preliminary report of the survey, as only an illustrative selection of the information of the vast amount of data collected could be presented.

The information requested is presented in the accompanying Table. The pattern by age and sex was similar throughout the survey. The combination of gastric ulcer and duodenal ulcer was more often seen in males and also in antral (prepyloric) rather than body gastric ulcers. Reference to the original paper will allow derivation of the estimated rates of detection per 100,000 of population at risk.

We note the surveys quoted by Dr. Bateson and agree that geographical comparisons are of value, especially if related to a defined population and may provide useful information about the aetiology of disease. Further studies based on the north-east of Scotland survey are in process.—We are, etc.,

J. C. PETRIE
C. D. NEEDHAM
L. A. GILLANDERS

Aberdeen Royal Infirmary

Occurrence of Concomitant Duodenal and Gastric Ulcer (Body or Antrum/Prepyloric) 1967-70 by Sex and Age Distribution (19,667 Examinations). Total Duodenal Ulcers Demonstrated: Male, 3,242; Female, 1,290

Ages (Years)	Male		Female	
	D.U. + G.U. (Body)	D.U. + G.U. (Antrum)	D.U. + G.U. (Body)	D.U. + G.U. (Antrum)
12-19	—	—	—	—
20-29	4	2	0	1
30-39	10	7	7	1
40-49	9	10	3	4
50-59	12	13	5	4
60-69	16	15	7	5
70-79	4	5	3	3
80+	1	0	6	1
Total: G.U. + D.U. ..	56	52	31	19
All gastric ulcers (1967-70)	222	157	180	77
Percentage of concomitant G.U. + D.U. ..	25%	33%	17%	25%

Dialysis and Transplantation in Britain

SIR,—You have drawn attention in leading articles to the need for expansion of the services for the treatment of chronic renal failure in Britain. In Exeter we have been transplanting kidneys for the last five years and we now find that there is one aspect of national policy which restricts development of transplantation. We refer to the policy of the Department of Health that only those hospitals officially recognized as transplant centres can receive cadaver kidneys from the National Organ Matching Service (N.O.M.S.). Transplantation and dialysis go hand-in-hand and should be performed in the same centre under the supervision of the same personnel, who know the frequently complex clinical and social circumstances of their patients. Transfer of patients from an "unrecognized" to a "recognized" centre for transplantation is unnecessary and undesirable, especially from the points of view of hepatitis and prolonged and distant separation from the home.

We have the requisite facilities for transplantation—namely, a large, regular dialysis unit, tissue-typing facilities, a pool of recipients, surgeons experienced and specially trained in transplantation, local good will, the co-operation of colleagues, and all the back-up facilities of a large, major district hospital—but even so access to cadaver kidneys from the N.O.M.S. is still denied to us and our patients. At the same time the N.O.M.S. welcomes any kidneys we may send them, and so far this year we have sent 14 but been allowed none in return.

This policy of the Department of Health is surely retrograde and prevents the development of a comprehensive service for patients unfortunate enough to have chronic renal failure.—We are, etc.,

CYRIL SHALDON
M. S. GOLBY
G. H. HALL

Royal Devon and Exeter Hospital,
Exeter

Tetracyclines for Malaria

SIR,—I write to point out that the leading article under this heading (26 August, p. 487) gives quite a misleading impression of the drug trials that were being reviewed. A combination of quinine and tetracycline, later

mentioned as being a ten-day treatment, was stated to have cured a much higher proportion of falciparum malaria infections than had a three-day treatment with quinine and chloroquine. The trials took place in Thailand, where chloroquine-resistant falciparum malaria is fairly common, and the comment was made: "It could be argued that the quinine-chloroquine regimen might have been given a fairer chance if its duration had been extended to at least one week."

I did not see how such trials could provide any evidence of the value of tetracyclines in malaria. If carried out as described, they would merely have confirmed that a three-day course of quinine is insufficient to cure many falciparum infections and that a ten-day course will produce better results. Further judgement however had to be suspended until I could consult the original paper;¹ only when I had done so did it become clear that the description of the trials given by the writer of the leading article was at fault.

The American authors¹ used two drug regimens: (1) quinine sulphate for three days followed by tetracycline hydrochloride for 10 days, (2) quinine sulphate for three days followed by chloroquine phosphate, 1,500 mg base in 48 hours. (The italics are mine.) As the same small dose of quinine was given in each instance, the results of this comparison do support the assumption that tetracycline has some effect against falciparum malaria when combined with quinine, but the authors warn against using it alone because its action is so slow. The duration of the treatment was 13 days, not 10 as stated.

It is unfortunate that the wording of this particular leading article does not permit a fair assessment of the value of the work it purports to describe.—I am, etc.,

T. WILSON

Portstewart,
N. Ireland

¹ Colwell, E. J., Hickman, R. L., and Kosakal, S., *Journal of the American Medical Association*, 1972, 220, 684.

Abortion Deaths

SIR,—The abortion deaths quoted by Professor H. C. McLaren (30 September, p. 826) are derived from the *Confidential Enquiry into Maternal Deaths in England and Wales, 1967-69*,¹ a period which spans the start in April 1968 of the operation of the Abortion Act, 1967. In the inquiry series of cases totals for abortion deaths were: 1967, 40; 1968, 44; 1969, 34.

These figures and knowledge of the complete figures as well as of the inquiry series presumably prompted Sir George Godber's comment in the preface that "Abortion remains as in the last three reports the largest single cause of maternal death, but in 1969 there was a substantial reduction in the number of deaths due to abortion, even though in that year the number of therapeutic abortions was greatly increased as a result of the Abortion Act." However, the deaths in the inquiry series included three groups of abortions—legal, the illegal, and the so-called "spontaneous" abortions. When these three groups are separated the major decreases are seen to affect both the illegal and spontaneous groups and, as Professor