



size of the bacilli was $8 \mu \times 1 \mu$. No capsules were seen and many bacilli showed sub-terminal empty spaces probably representing spores which had not distended the bacterial outline. Typical rounded ends were present in all bacilli and many of them were slightly curved, others were at right angles to each other giving the impression of branching hyphal forms. Cultures from the drainage tube on the fourth postoperative day for anaerobic bacilli failed to produce any growth.

Immediately after receipt of the pathology report massive penicillin therapy was started with very favourable response. On the 16th postoperative day the patient was discharged after a minor lung infection had cleared up with broad spectrum antibiotic therapy. Liver function was normal except for slightly reduced serum protein (5.4 g/100 ml).

We were intrigued by the presence of the Gram-positive bacilli, since there was only mild bruising of the anterior abdominal wall and no bowel injury was found. Ascent of bacilli in the post-traumatic state up the common bile duct is the probable source of these organisms. Bacteria, especially anaerobes, have been found after death in human and animal livers at necropsy.¹ Cultures of liver biopsies are generally negative, but this is believed to be due to the bactericidal action of fatty acids. Bacteria entering the biliary tree or the portal circulation from the intestine have also been reported.¹ Experimental hepatic damage also leads to bacteria in the bile or lymph.

The exact classification of these bacteria was not possible because specimens for anaerobic cultures were not obtained during the surgical procedure. The morphology and gas formation would suggest *Cl. welchii* or organisms of the gas-forming anaerobic group.—We are, etc.,

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¹ Popper, H., and Schaffner, F., *Liver Structure and Function*, New York, McGraw Hill, 1957.

Neonatal Conjunctivitis

SIR.—Dr. D. J. Hansman (18 March, p. 748) described a case of neonatal conjunctivitis due to *Neisseria meningitidis* and rightly stressed the need for thorough bacteriological identification if such cases are not to be

confused with gonococcal infection. The following report of a case of purulent conjunctivitis, apparently caused by *N. catarrhalis*, may serve to reinforce Dr. Hansman's advice.

A healthy 11-day-old baby developed a purulent discharge from her left eye. Staining of the pus revealed large numbers of polymorphonuclear cells, some of which were packed with Gram-negative diplococci. Cultures yielded a heavy pure growth of *N. catarrhalis*, of which the identity was confirmed by the National Collection of Type Cultures, Colindale, London. The baby was treated with chloramphenicol eye drops and made a rapid recovery.

The possibility cannot be excluded that the conjunctivitis had some other underlying aetiology and that *N. catarrhalis* was a harmless superinfection. However, the organism was grown in pure culture from swabs taken on two separate days, and its location within pus cells might suggest that its presence was not welcome. Although *N. catarrhalis* is normally considered to be a harmless commensal it occasionally assumes a pathogenic role, particularly in the young. For example, Cocchi and Olivelli¹ described a case of meningitis caused by *N. catarrhalis* and cited 17 similar cases from the literature, and Graber *et al.*² attributed three cases of urethritis to infection by this organism.

It seems likely, therefore, that *N. catarrhalis* may at times be responsible for neonatal conjunctivitis and this problem will only be elucidated by careful investigation.—I am, etc.,

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¹ Cocchi, P., and Olivelli, A., *Acta Paediatrica Scandinavica*, 1968, 57, 451.

² Graber, C. D., Scott, R. C., Dunkelberg, W. E., and Dirks, K. R., *American Journal of Clinical Pathology*, 1963, 39, 360.

Asymptomatic Bacteriuria—a Serious Disease?

SIR.—Asymptomatic bacteriuria is a common finding in children¹ as well as adults.² Its clinical significance, however, is presently unknown, but might be elucidated by a few observations from our studies of urinary tract infections.

The frequency of *E. coli* in the R phase varies between different categories of patients with urinary tract infection. The Table shows that R phase bacteria are uncommon in primary infections, but increase in frequency with recurrences to be common in chronic pyelonephritis. In 48 children with

Type of infection	% R phase <i>E. coli</i>	No. of urinary isolates
First known infection, girls	3	119
Recurrent infection, girls	6	63
Infection in pregnant women	29	302
Asymptomatic bacteriuria, women	40	121
Chronic pyelonephritis, women	44	34
Asymptomatic bacteriuria, girls	22	48

asymptomatic bacteriuria we found R phase bacteria in 22%. In addition 28% of the strains showed a broadened agglutination pattern suggesting partial S-R degradation.³ This suggests that asymptomatic bacteriuria in childhood might be a finding indicating that the patient has had previous attacks of

urinary tract infection. Further, the frequency of *E. coli* of O groups less common in urinary isolates also was higher in the children with asymptomatic bacteriuria than in those with their first known infection, which is possibly a result of repeated infections which have induced immunity to the more common O antigens allowing only less common bacteria to invade the urinary tract.

In our experience one third of the patients with a first recurrence after acute primary pyelonephritis are asymptomatic, whereas twice as many of those with further recurrences are asymptomatic.⁴ Thus, the frequency of asymptomatic infections increases with the number of recurrences. This would suggest that asymptomatic bacteriuria mainly occurs in patients with previous attacks of urinary tract infections, although many of these might have passed unrecognized.

In our material more than 15% of the children with asymptomatic bacteriuria have signs of renal damage, in accord with the observation of Kunin.¹ We believe that the renal damage is not the forerunner of the urinary tract infections in most of these cases, but a sequel of the infections since such lesions develop in about 10% of the children who have a history of acute pyelonephritis.^{5,6} The highest frequency is seen in patients who have had many, often asymptomatic, recurrences.

These findings suggest that asymptomatic bacteriuria might be considered a potentially dangerous disease in many cases and not a harmless invasion of the urinary tract, although in a few of our cases the bacteriuria has vanished spontaneously. Longitudinal studies of patients with asymptomatic bacteriuria may hopefully define the characteristics of the patients at risk.—We are, etc.,

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¹ Kunin, C. M., Zacha, E., and Paquin, A. J., *New England Journal of Medicine*, 1962, 266, 1287.

² Sussman, M., *et al.*, *British Medical Journal*, 1969, 1, 799.

³ Bettelheim, K. A., Taylor, J., *Journal of Medical Microbiology*, 1969, 2, 225.

⁴ Bergström, T., *Acta Paediatrica Scandinavica*, 1967, Suppl. 177, 45.

⁵ Bergström, T., in preparation.

⁶ Lindblad, B. S., and Ekenren, K., *Acta Paediatrica Scandinavica*, 1969, 58, 25.

D.T.P. Immunization by Intradermal Jet Injection

SIR.—With reference to the article by Professor J. P. Stanfield and his colleagues (22 April, p. 197) the following may be of interest. I described in 1944¹ a small investigation into the feasibility of using the intradermal route of administration of diphtheria aluminium precipitated toxoid (A.P.T.). The series consisted of 75 children mostly under four years of age, who were all originally Schick-positive. They were all treated one week after the test with a 0.1 ml syringe-administered intradermal dose of A.P.T. This was followed 28 days later by an identical injection. Schick tests performed

three to five months later showed that only one child had remained faintly Schick-positive. As the tetanus used in the D.T.P. was a toxoid one would expect the jet injection of this to be satisfactory.

It may appear that I am suggesting that two intradermal doses of 0.1 ml of diphtheria would be adequate, but this is not necessarily true. Until 1962 it was generally accepted that the Schick test dose of toxin of 1/50 guinea-pig minimum lethal dose was far too minute to function as a primary stimulus. L. B. Holt and I investigated this² and showed conclusively that the test was capable of exercising a primary stimulus. In retrospect, therefore, my series should be regarded as a three dose method.

At the time I did my work, even Wellcome A.P.T. was not much purified, and local reactions and tiny intradermal abscesses made me conclude that the method was unsuitable in practice. It is nice to know that modern highly purified toxoids can be satisfactorily administered intradermally.—I am, etc.,

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¹ *Medical Officer*, 1944, 71, 141.

² Bousfield, G., and Holt, L. B., *Monthly Bulletin of Ministry of Health and Public Health Laboratory Service*, 1962, 21, 31.

Vasectomy

SIR,—It is my impression that vasectomy, as carried out by the standard method through the scrotum is, in more instances than is acceptable, followed by tiresome wound complications. I wonder whether any statistics on this are available?

For some time now I have approached the cord through a 2.5 cm incision over the external ring. By doing so I find the vas identified, and kept identified, with the greatest ease, and the wound invariably healing cleanly.

I wonder whether any of your readers could tell me what the disadvantages of this approach may be? To me it looks the obvious and satisfactory one.—I am, etc.,

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Breast-milk jaundice and the Pill

SIR,—We share the disappointment of Dr. D. E. Barnardo and others (6 May, p. 348) in not being able to confirm a relationship between prior maternal oral contraceptive pill consumption and jaundice in breast-fed neonates. However, their results for the incidence of pill taking (admittedly losing 38 out of 120 cases, which may influence the result either way) can be simply presented as follows:

	Incidence of Mothers taking the Pill consumption	
Jaundiced Infants		
Breast-fed	15/38	39.5%
Bottle-fed	9/44	20.5%
Non-jaundiced infants		
Breast-fed	8/33	24.2%
Bottle-fed	12/49	24.5%

The incidence of pill taking is highest in mothers of breast-fed jaundiced infants and may suggest the two conditions are related in some way, as we stated (13 November 1971, p. 403). Regarding their criticism on data, these were given in our last paragraph.

We have already agreed (25 December 1971, p. 815) that the title "breast-milk jaundice" was misleading, but we do not agree that it should be reserved only for instances where there is evidence that breast milk does indeed contain a factor inhibiting conjugation of bilirubin in vitro, since it is still questioned whether inadequate fluid and/or calorie intake may be responsible (25 July 1970, p. 178). The term "breast-milk jaundice" will remain confusing until its aetiology is clarified.

It is hoped that the report of Dr. Barnardo and his colleagues will stimulate further studies from other centres.—We are, etc.,

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Evidence to the Lane Committee

SIR,—I should be grateful for space in your columns to raise a matter of importance to gynaecologists. The Royal College of Obstetricians and Gynaecologists has just submitted evidence (8 April, p. 65) to the Committee of Enquiry into the Working of the Abortion Act (1967), and this evidence may well be taken as representing the considered views of at least the majority of practising gynaecologists in this country.

Unfortunately parts of the document, which has been widely circulated, would seem to present views, unsupported by evidence, from which I would wish to be publicly disassociated. I would quote one section, part of the evidence dealing with the effect of the Abortion Act upon gynaecologists, as an example.

"We fear that not only will the young doctors of today hesitate to take up obstetrics and gynaecology as a specialty but that those who do, will be of inferior quality so that the whole obstetrical and gynaecological service will deteriorate. Already there is evidence that those who see possibilities for financial gain by undertaking abortions are seeking to take up obstetrics and gynaecology. And these post-graduate students sometimes come from overseas countries where the ethical standards are different from those which obtain among the medical profession in Britain. A few of these young specialists, having become members of our College, are then enticed into working in approved places."—I am, etc.,

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Forgotten Bradykinin?

SIR,—How odd that Dr. E. J. Ross (18 March, p. 735) in his description of carcinoid syndrome fails to mention the role of bradykinin in the production of the acyanotic flush that characterizes a proportion of patients with the syndrome. While he points out the difference between

carcinoid tumour arising from mid- or fore-gut derivatives—in as much as the latter produce 5-hydroxytryptophan and histamine mainly and the former 5-hydroxytryptamine—the omission of discussion of the role of bradykinin surely gives an incomplete view of the syndrome.

Serious doubt as to the role of 5-hydroxytryptamine in producing the flushing attacks characteristic of the syndrome was raised by the work of Robertson *et al.*¹ This was complemented by the work of Oates *et al.*,² who showed that the flushes induced by intravenous adrenaline in patients with the carcinoid syndrome were accompanied by a rise of kinin concentration in the hepatic venous blood.

In contradistinction Levine and Sjoerdsma³ found it difficult to induce flushes by the administration of serotonin (5-HT), that with spontaneous flushing it was rare for blood serotonin levels to increase, and that severe flushing could occur in the absence of significant rise in the urine concentration of 5-hydroxyindoleacetic acid. Furthermore, the work of Oates showed that the severest flushing was found in those patients who showed the most marked rise in kinin concentration of hepatic vein blood.

In many patients with the syndrome both 5-hydroxytryptamine and bradykinin may have a role—for example, flushes caused by bradykinin but diarrhoea caused by 5-hydroxytryptamine (the latter can be limited by the 5-hydroxytryptamine antagonist, methysergide⁴), both having a part to play in causing symptoms. Thus to attribute all symptoms to 5-hydroxytryptamine, 5-hydroxytryptophan, and histamine while there is such good evidence that the kinins have a part to play is surely an unnecessary oversimplification.—I am, etc.,

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- ¹ Robertson, J. I. S., Peart, W. S., and Andrews, T. M., *Quarterly Journal of Medicine*, 1962, 31, 103.
- ² Oates, J. A., Melmon, K., Sjoerdsma, A., Gillespie, L., and Mason, D. T., *Lancet*, 1964, 1, 514.
- ³ Levine, R. J., and Sjoerdsma, A., *Annals of Internal Medicine*, 1963, 58, 818.
- ⁴ Peart, W. S., and Robertson, J. I. S., *Lancet*, 1961, 2, 1172.

Abortion Act

SIR,—Mr. H. P. Dunn of Auckland (6 May, p. 354) refers to the paper by Forssman and Thuwe¹ on 120 children born after therapeutic abortion was refused. He says that the key question always overlooked when this paper is quoted is: what was the initial selection of the abortion-seeking patients? And goes on to say that they were all patients of the psychiatric department of the Sahlgren Hospital. This is true, but all applicants for abortion came to the department only because it served as a counselling centre for mothers seeking legal abortion. There is nothing to suggest that the population studied was simply a group of psychiatric outpatients, as I take it Mr. Dunn intends to imply.—I am, etc.,

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¹ Forssman, H., and Thuwe, I., *Acta Psychiatrica Scandinavica*, 1966, 42, 71.