has its origins in the complex racial and political problems of the contemporary American scene. The "in" part of teach-in is derived from the civil rights movement and goes back to the American sit-in strikes of the 'thirties. A teach-in is a cooperative enterprise of teachers and taught and of students of different disciplines. All those at a teach-in are not only free to participate but the very success of a teach-in depends on audience participation. The teach-in movement was conceived as a protest at the American Government's position. This feeling of protest, not against the Government but against the traditional type of dogmatic address or lecture, together with the desire to have a meeting in which doctors of all categories, members of the ancillary medical professions, scientists, and others could freely participate, led a group of general practitioners to suggest an experimental series of medical teach-ins as part of the postgraduate educational programme in Norfolk. We are in the middle of this experimental series. A teach-in is a form of group discussion; but the term would seem to describe something more, and certainly from its origin this is so.

Norfolk and Norwich
Hospital,
Norwich.

A. BATTY SHAW.

REFERENCE

- ¹ *Listener*, 1965, 74, 1898.

SIR,—I should like to point out, with respect, that the contrast between the indignation of Sir Arthur Porritt and the equally dedicated assessment of Dr. Brian Livesley (26 March, p. 798) could not exemplify better the problem that today besets the hospital service. In short, politicians and the public must appreciate that for too many years there has been in the medical profession a schism between the management and the workers: between one generation and another. The problem resolves further into the recognition that, though there must be undergraduate teaching hospitals, equanimity in the Health Service will only be attained by removing the distinction at postgraduate level.

The public has been badly served by concentration of the most able clinicians in one closed community, in which same atmosphere a chosen few of each succession of new doctors are given opportunities that the less fortunate can only dream of. Even if the process of selection were faultless (and it is not) it is not justifiable to neglect the training of those who may need even more guidance. In effect there is too little respect for the patient's point of view.

The undergraduate teaching hospital remains the best institution for the concentration of those engaged in research, but as far as routine patient-care is concerned decentralization of the better clinicians is long overdue. I think we should look forward to the time when the professor will teach in the peripheral hospital. Even more pressing is the need for those who sit on the central committees to take a proper look at the peripheral hospitals, wherein the majority of the sick people of this country are cared for.—I am, etc.,

Manchester 20.

E. N. WARDLE.

Causes of Illegitimacy

SIR,—Dr. A. White Franklin's article on illegitimacy (26 March, p. 789) draws attention to a most important factor brought to light by the work of Leontine Young—namely, a girl's compulsive wish to be pregnant, but not necessarily to take on the responsibilities of motherhood.

This is not entirely irrelevant to the problems of induced abortion, which has received so much publicity recently. Gynaecologists are well aware that many pregnant adolescent girls are brought by their parents seeking abortion, even though the young girl may appear indifferent or actually prefers to continue with the pregnancy. The girl may not want the baby, but termination of the pregnancy, apart from its physical dangers, can cause psychological trauma to an adolescent already in need of guidance or psychiatric treatment because of parental tensions. The request for termination by the parents may have to be refused in such cases, even if the girl is under 16.

Dr. Franklin says that it is unlikely that these illegitimate births would have been avoided by sex education, contraceptive teaching, or the legalization of abortion. He illustrates the change in society's outlook by citing three novels which explore the problems of sex. Is it too much to hope that novelists, women's magazines, and the authors of television plays will take up this theme in such a way that adolescent girls can recognize this ambivalent attitude to pregnancy and avoid its consequences?—I am, etc.,

London W.1.

HUMPHREY ARTHURE.

Epidermoid Cholesteatoma

SIR,—We read with great interest your leading article on this recurrent problem of the pathology of chronic otitis media (12 March, p. 629). The so-called cholesteatoma of the ear has been the subject of much argument and discussion as an important and irreversible complication of chronic otitis media, often requiring surgical intervention.

In considering the histogenesis of epidermoid cholesteatoma it cannot be emphasized too strongly that the epidermoid cholesteatoma of the ear is a non-neoplastic epithelial structure produced by a hyperkeratotic stratified squamous epithelium.¹⁻³ It is the origin of the "ectopic" squamous epithelium that has been treated as something of a mystery. Various suggestions have been put forward to explain how squamous epithelium can be present in the middle ear cleft. They are (a) congenital origin, (b) epithelial immigration, (c) implantation, and (d) metaplasia. The congenital theory has been revived recently.⁴

It has been claimed by clinical observers that cholesteatoma formation is due to the activation of embryonic cell nests. In common with Rüedi,⁶ we have been unable to identify such "cell nests" in nearly 500 temporal bones sectioned serially.

The immigration theory, advanced by Habermann,⁷ postulated that cholesteatomas were produced by the ingrowth of keratinizing epidermis from the external auditory meatus into the tympanic cavity through a perforation in the tympanic membrane. The

theory has been challenged by the finding of cholesteatoma in patients with apparently intact drumheads. In view of the clinical difficulty of assessing the integrity of the tympanic membrane this argument is obviously suspect (even traumatic rupture of the tympanic membrane can heal without a trace).

Using guinea-pigs, we have been able to reproduce epidermoid cholesteatoma by intra-aural infection and to demonstrate the migration of epithelium from the tympanic membrane and external auditory meatus.⁸⁻⁹ Rüedi¹⁰ produced a cholesteatoma in the middle ear of a guinea-pig by application of an irritant to the inner surface of the tympanic membrane. He demonstrated the migration of basal cells into the middle ear from the intact tympanic membrane. Fernandez and Lindsay,¹¹ also working with guinea-pigs, concluded that epithelium from the external auditory meatus or from the tympanic membrane itself can migrate through marginal or central perforation and that basal cells of the epithelium of an intact tympanic membrane are capable of migrating inwards if the membrana propria and/or corium are damaged. So-called congenital or primary cholesteatomas may develop in this way.

An apparently intact tympanic membrane is not therefore an entirely reliable basis for argument.

The disease index of our department lists 1,157 microscopically confirmed cases of epidermoid cholesteatoma complicating chronic otitis media during the period from 1948 to 1964. With the exception of a single patient³ there was no suggestion of congenital origin in the patients of this comparatively large series. It would appear, therefore, that in the vast majority of cases aural cholesteatoma is the result of ingrowth of epithelium into the middle ear.^{1-3 11 12} The role of squamous metaplasia, for which experimental evidence is lacking, merits further study in view of its importance in the lower respiratory tract but congenital cholesteatoma of the ear is an extremely rare condition.¹²⁻¹⁴—We are, etc.

I. FRIEDMANN.

D. A. OSBORN.

Institute of Laryngology and
Otolaryngology,
London W.C.1.

REFERENCES

- ¹ Friedmann, I., *J. clin. Path.*, 1956, 9, 229.
- ² — *Lancet*, 1957, 1, 639.
- ³ — *Ann. Otol. (St. Louis)*, 1959, 68, 57.
- ⁴ Cawthorne, T., and Pickard, B., *J. Laryng.*, 1965, 79, 945.
- ⁵ Derlacki, E. L., and Clemis, J. D., *Ann. Otol. (St. Louis)*, 1965, 74, 706.
- ⁶ Rüedi, L., *J. Laryng.*, 1958, 72, 593.
- ⁷ Habermann, J., *Arch. Ohr-, Nas-, u. Kehlk.-Heilk.*, 1888, 27, 42.
- ⁸ Friedmann, I., *J. Laryng.*, 1955, 69, 588.
- ⁹ — in press.
- ¹⁰ Rüedi, L., *Acta oto-laryng. (Stockh.)*, 1959, 50, 233.
- ¹¹ Fernandez, C., and Lindsay, J. R., *Laryngoscope (St. Louis)*, 1960, 70, 1119.
- ¹² Rüedi, L., *Arch. Otolaryng.*, 1963, 78, 252.
- ¹³ Juers, A. L., *ibid.*, 1965, 81, 5.
- ¹⁴ Nager, F. R., *Ann. Otol. (St. Louis)*, 1925, 34, 1249.

Diabetogenic Action of Frusemide

SIR.—In your article, "Today's Drugs: Frusemide"¹ (26 December 1964, p. 1640), you state concerning the side-effects of frusemide: "There have so far been no reports of diabetogenic activity, but this uncommon effect of benzothiadiazines was not

generally recognized until they had been in use for several years." In their large series of cases Stokes and Nunn² do not report the effects on carbohydrate metabolism. So far, we have found no mention of unfavourable effects on carbohydrate metabolism in the literature.

In our study³ we noted that one of the patients experienced a diabetogenic effect during treatment with frusemide.

We treated with frusemide (0.08 g./day) for four weeks a 61-year-old female patient who had sclerotic congestive heart failure. The patient was also taking digoxin 0.25 mg./day. She had no family history of diabetes and was not obese, being 155 cm. tall and weighing 45 kg. Before the treatment with frusemide there was a normal oral glucose tolerance test (Fig. 1). After four weeks'

FIG. 1.—Results of glucose tolerance test of the patient on frusemide medication, before medication (continuous line), after 4 weeks' medication (broken line), and 2 months after discontinuation of medication (dotted line). ● = Occurrence of glucosuria.

administration of frusemide we noted a clearly pathological change in the glucose tolerance test and the occurrence of glycosuria. During the glucose tolerance test of 3½ hours there was glucose in the urine continuously; the total glucose excretion was 1.8 g. No hypokalaemia was noted. The value of serum potassium was 4.3 mEq/l. before and 4.4 mEq/l. after the treatment with frusemide.

To be sure about the diabetogenic effect of frusemide we repeated the glucose tolerance test two months after discontinuing the administration of the drug. We now observed that the glucose tolerance test was normal and the glycosuria had disappeared (Fig. 1).

According to the literature, frusemide probably belongs to a different group of diuretics than benzothiadiazine. However, in the article in the *B.M.J.*¹ attention was drawn to a basic similarity of the structures by comparing frusemide and hydrochlorothiazide with each other (Fig. 2). We think that our

HYDROCHLOROTHIAZINE

FRUSEMIDE

Fig. 2.—Hydrochlorothiazine (Frusemide).

primary observation concerning the diabetogenic effect of frusemide indicates that frusemide is an analogue of benzothiadiazines on this basis. However, the diabetogenic effect of frusemide seems to be weaker than that of benzothiadiazines.—We are, etc.,

SEPPO TOIVONEN.

OLLI MUSTALA.

Second Department of
Medicine,
University of Helsinki.

REFERENCES

- ¹ *Brit. med. J.*, 1964, 2, 1640.
- ² Stokes, W., and Nunn, L. C. A., *ibid.*, 2, 910.
- ³ Mustala, O., and Toivonen, S. I., *Ann. Med. Fenn.*, 1965, 54, 75.

Coproporphyrin and Oral Contraceptives

SIR,—Dr. P. Koskela and others (12 March, p. 652) found no increase in total urinary coproporphyrin excretion in patients on oral contraceptives. They regarded an increased proportion of coproporphyrin I in the urine with a normal total urinary coproporphyrin excretion as a sign of relatively mild liver functional impairment. Lead also interferes with urinary coproporphyrin excretion, causing an increased output of coproporphyrin III and total coproporphyrin.

I have recently published¹ a study of the use of a urine coproporphyrin screening test in general practice. This was employed in the antenatal care of maternity patients exposed to an abnormal intake of lead because of the attack of soft-water supplies on lead water pipes. The simple test was described by Donath² and Zelhuys³ and compares the extracted coproporphyrin with a fluorescent colour scale under ultra-violet light. A number of variations of this test have been used in industry.⁴ More complicated methods giving increased sensitivity have been described⁵ but the comment has been made that increasing the complexity of the test destroys much of its value for large-scale screening.⁶

Nesbitt and Snell⁷ gave the following correlations between increased urine coproporphyrin and degrees of hepatic damage: mild, between 100 and 200 µg. coproporphyrin per 24 hours; moderate, between 200 and 300 µg./24 hours; severe, between 300 and 600 µg./24 hours.

The Donath coproporphyrin test has been used for over a year to screen patients in this practice who were taking oral contraceptives in an attempt to detect early evidence of hepatic dysfunction. In one case there was a rise in urinary coproporphyrin excretion to a level on the Donath scale corresponding to the coproporphyrin range 800–1,600 µg./l. This patient, aged 24, had been taking Anovlar for one year, and when this was discontinued her urinary coproporphyrin excretion fell to the 50–100 µg./l. range. She had a previous history of a marked urticarial reaction following a bereavement and had pruritus vulvae while taking Anovlar. There was no history of over-indulgence in alcohol. Urine contained neither glucose nor protein. The liver-function tests which were done showed no abnormality: thymol turbidity 1 unit, zinc sulphate turbidity 1 unit, bilirubin 0.2 mg./100 ml., alkaline phosphatase 3.5 K.A. units/100 ml., transaminases S.G.O.T. 12 i.u./l., S.G.P.T. 11 i.u./l. Haemoglobin 13.4 g./100 ml., E.S.R. 3 mm. in 1 hour

(Westergren). No punctate basophilia present. The highest urinary coproporphyrin result recorded in her previous pregnancy was in the 50–100 µg./l. range.

An increase in the total urinary coproporphyrin excretion does not differentiate between hepatic dysfunction, porphyria, and lead toxicity or any combination of these. A marked abnormality in this, however, developing in a patient taking oral contraceptives, appears to warrant the discontinuing of that drug.—I am, etc.,

Innerleithen,
Peeblesshire.

ALLEN T. WILSON.

REFERENCES

- ¹ Wilson, A. T., *Scot. med. J.*, 1966, 11, 73.
- ² Donath, W. F., *Ahr. Hig. Rada.*, 1956, 7, 77.
- ³ Zelhuys, R. L., *Brit. J. industr. Med.*, 1961, 18, 58.
- ⁴ Wyllic, J., *Arch. industr. Hlth.*, 1955, 12, 396.
- ⁵ Benson, P. F., and Chisolm, J. J., *Pediat.*, 1960, 58, 759.
- ⁶ Harrold, G. C., Meek, S. F., and Padden, D. A., *Arch. industr. Hyg.*, 1952, 6, 24.
- ⁷ Nesbitt, S., and Snell, A. M., *Arch. intern. Med.*, 1942, 69, 573.

Reaction to Insect-bites

SIR,—We are interested to read the article of Drs. G. Sharan, R. K. Anand, and K. P. Sinha (12 March, p. 656), reminding us of the varieties of vascular reactions in the skin which may follow insect bites—a situation in which a number of potentially sensitizing physiological and pharmacological substances enter the body. We have seen¹ a case of erythema multiforme in a woman aged 51 that had developed following non-infected insect bites, but, unlike Dr. Sharan's case, while under observation she developed an acute nephritis.

We feel that whatever the cause of an abnormal vascular reaction in the skin, whether it be from drugs, infections, or other agents, it may be important to anticipate the possibility of a concurrent vasculitis affecting the kidneys.—We are, etc.,

P. W. MONCKTON COPEMAN.

R. SUMMERLY.

Westminster Hospital,
London S.W.1.

REFERENCE

- ¹ Summerly, R., and Monckton Copeman, P. W., *Brit. med. J.*, 1964, 2, 1369.

SIR,—The interesting report by Dr. G. Sharan and others of a case of Schönlein-Henoch syndrome following an insect-bite (12 March, p. 656) and its alleged rarity prompts me to report a similar case. In this instance there was renal involvement.

An 11-year-old girl was bitten by an unidentified insect on the left leg 2 in. above the internal malleolus on 20 September 1965. There was no history of sore throat or any other infection in the girl or her family.

Three days later the left ankle began to swell, and by the next day the foot and ankle were very swollen, and the mother records seeing a group of tiny red spots on both shins. When I saw her the following day the ankle swelling had practically subsided but she was vomiting repeatedly. The punctum of the bite was sealed by a hard blood clot and there was a narrow collar of surrounding erythema. The area was neither hot nor tender to pressure. She vomited off and on for two nights and a day and then seemed to recover completely.

Eleven days after the bite crops of petechiae appeared on both legs and the next day both