

position and appearance are precisely as in the St. Catherine's Thorpe specimen, and it is almost certain that we need look no further for a diagnosis. After the onset of the condition increased stresses are thrown on the medial and lateral extensions of the quadriceps tendon of insertion, with roughening of the bone, as found here. No osteoarthritis, which might suggest a chronic functional disturbance, is present in the hips, knees, or feet of this man, so it seems likely that he suffered little interference with locomotion.

The frequency of Osgood-Schlatter disease in the Saxon period is unknown. In the course of examining about 2,000 tibiae this is the first case I have seen that looks at all convincing.

My thanks are due to Mr. F. W. Cheetham, Director, City of Norwich Museums, for permission to publish this case.

—I am, etc.,

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CALVIN WELLS.

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Ocular Damage due to Paraquat and Diquat

SIR,—In their article (27 April, p. 224) Mr. J. S. Cant and Dr. D. R. H. Lewis comment that the ocular burn in their case "was similar to that produced by an alkali, which becomes bound to the tissues of the eye, but, unlike alkali burns, the effect was very slow and there was no immediate damage." Lest this should give the impression that eye splashes from the bipyridyls (paraquat and diquat) have all the features of alkali burns, I should like to stress the important differences, not least in prognosis, between bipyridyl and alkali burns, based on experimental study of both types of burn and on following up, with colleagues who have consulted us, the progress of several patients with eye splashes from paraquat or diquat.

The essential difference is in the depth of tissue damage. With alkali, penetration of the eye tissue is extremely rapid, and with all but the smallest splashes deep injury to the cornea is invariably caused, with the attendant danger of permanent interference with vision from subsequent formation of scar tissue. With the bipyridyls the damage, though it may be extensive, is mainly superficial, and, given prompt and adequate treatment to control infection and prevent the formation of adhesions between denuded bulbar and palpebral surfaces, the prospects for full and complete recovery are excellent.

Dr. David Sturman, senior eye registrar at the Wellington Hospital, Wellington, New Zealand, sent us in June 1966 a very full description of the treatment and course of a female patient splashed in both eyes with "Preglone" Extra. Here the injuries were more severe than in the case of Mr. Cant and Dr. Lewis. The patient was kept in hospital for a total of 23 days, and at first on discharge suffered from some loss of visual acuity in one eye owing to corneal oedema and from epiphora owing to stenosis of both lower puncta and obstruction in the canaliculi. The epiphora was cured by

springing of the lacrimal ducts, and the corneal oedema gradually cleared to give full recovery of vision.

Dr. Sturman's report first alerted us to the fact that the bipyridyls produce more effect in the human eye than our experimental investigations suggested, and it has been the basis of our recommendations in several subsequent cases which have been treated successfully.

It should be added that the labels on all liquid formulations of the bipyridyls carry the warnings: "Wear rubber gloves and face shield when handling the concentrate. Wash concentrate from skin or eyes immediately." —I am, etc.,

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Teratogens and the Abortion Act

SIR,—In the post-thalidomide era much attention has been directed to the problems of congenital abnormalities produced by external agents of an artificial kind, thus giving impetus to investigations in the field of experimental teratology. With reference to the memorandum from the Medical Defence Union (23 March, p. 759), attention is directed here to the particular circumstance of possible foetal damage as a consequence of some exogenous factor.

Cases of human congenital abnormalities have been reported in association with Asian influenza, carbon-monoxide poisoning, hypoxia, progesterone, insulin, antithyroid substances, maternal diabetes, immunological reactions, hyperemesis gravidarum, etc. Few exogenous factors (radiations, rubella, aminoterin, toxoplasmosis, and thalidomide) have been proved, with some degree of certainty, to be teratogenic in man. In these circumstances, where the extrinsic factors are known to be teratogenic in man, termination of pregnancy seems justified.

However, the teratogenicity of a large number of exogenous agents has been demonstrated in various laboratory animals. This suggests possible teratogenicity for humans, and with this a "substantial risk that if the child were born it would suffer from such physical or mental abnormalities as to be seriously handicapped." To what extent can one correlate the results of animal experiments with teratogenicity in the human foetus? The existing animal tests have poor predictive value for human teratogenicity. Because of the limitations experienced with animal testing and the varying conditions under which these experiments are carried out every effort should be made to standardize methods and define clearly objectives in experimental teratology. Taking these into consideration, animal experiments would continue to provide useful information on the ability of exogenous factors to induce developmental deviations.

Because of the problems involved in allowing an objective assessment from animal experiments, the possibility of a harmful effect on the human foetus must be considered when a decision has to be taken with respect to the termination of pregnancy. The systematic collection and analysis of all reports on human teratogenicity, followed by experimen-

tal testing of the suspected teratogens in several species of laboratory animals, appear to be useful for the present in guiding such a decision.—I am, etc.,

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Explosion Fractures of Heels

SIR,—Fractures of the calcaneus are usually the result of falls, as from scaffolds or ladders. During time of war heel injuries may be sustained by sailors when a torpedo or bomb explosion below decks causes a sudden upward lifting of a ship's plates. A mine exploding under a land vehicle can have the same effect.^{1,2}

Injuries of this kind occurred among a group of civilian workers on a barge in the Hudson River, near Albany, New York, in September 1967. The men were engaged in placing the last of some dynamite charges in 10 m. of water to enlarge a navigation channel. A passing ship failed to slow sufficiently and generated a large wake at the work site.

One of the dynamite loads became fouled in the drilling equipment beneath the barge and exploded, setting off all the other charges. The vessel was lifted 1 or 2 m., throwing the five men on board into the air. Two of the crew fell back on the barge, while the other three were flung into the water. The men were rescued almost immediately, while the barge sank slowly.

Three of the five workers sustained bilateral comminuted fractures of the calcanei. A fourth had fractures of the lower shafts of the tibia and fibula on one side, with a fracture of the neck of the radius on the opposite side, in addition. The fifth man had small fractures of the talus and the navicular bone of one foot and a small compression fracture of the first lumbar vertebra.

One of the victims knowledgeably remarked that it was fortunate that all the charges had gone off together. If an underwater explosion had occurred while any of the men were in the water, they would almost certainly have been killed.³

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Drugs and Hyperthyroidism

SIR,—In their interesting article (27 April, p. 217) describing the effects of hyperthyroidism on the toxicity of depressant and antidepressant drugs in mice Dr. A. Ashford and Miss Janet W. Ross draw attention to the possible hazards in the use of these drugs in hyperthyroid patients. From the results of our own experiments in rats, in which we have measured the effects of treatment with thyroxine or 3,5,3'-triiodothyronine (2–5 mg./kg./9–15 days s.c.) on sensitivity to a wide range of drugs, we would not only support their warning but also extend it to cover central stimulants and other classes of drugs as well.

A particularly striking case in point is the influence of thyroid treatment on the effects of amphetamine. Both the stimulant action and the toxicity of this drug in the rat are increased by the treatment with thyroid hormones, the latter by as much as 20 times. It is important here to distinguish between the effects of hormones on activity of drugs and on toxicity. Thus corticosteroids are known to potentiate pressor responses to catecholamines but to inhibit their toxicity. If the theory of Spencer and West¹ is right, that thyroxine induces a deficiency of glucocorticoids, then thyroxine should inhibit the pressor responses to catecholamines but raise their toxicity. In our experience in rats both the former and the latter are in fact true. In this context a detailed study of the effects of thyroxine on drug action in adrenalectomized animals would be most interesting.

We have confirmed the well-known observations that hyperthyroidism increases the sensitivity of cardiac muscle to catecholamines, and found that it increases the sensitivity of the uterus to catecholamines as well. These effects of thyroxine are not, however, specific for catecholamines, because we find that sensitivity to other naturally occurring mediators, such as histamine, 5-hydroxytryptamine, and acetylcholine, is likewise increased, and so is sensitivity to calcium ions.^{2,3} Possibly an underlying influence on membrane permeability accounts for all these effects, but whatever the cause the fact remains that hyperthyroidism modifies sensitivity to a wide range of centrally and peripherally acting drugs. Particular caution in the choice of dosage in hyperthyroid patients would seem, therefore, to be appropriate.—We are, etc.,

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Affective Arousal During E.C.T.

SIR,—In your leading article "Electric Convulsion Therapy" (25 May, p. 448) you raise the key question of what is the therapeutic mechanism of convulsion therapy, and you refer to the controversial issue of what produces post-E.C.T. memory loss.

In 1937, in my outpatient department at the Cornelia Hospital, Poole, during two parallel series of treatments using leptazol and intravenous picrotoxin it was observed that picrotoxin possessed an advantage as a convulsant agent. This was the intense affective arousal, which was consistently greater with picrotoxin than with other convulsants, and this may explain why chemically induced convulsions are sometimes more effective than E.C.T.

Your suggestion that memory changes are related less to the actual fit and more to the amount of current passed through certain parts of the brain is debatable, for there is extensive evidence that memory loss increases with the number of fits regardless of how they are induced. In the early years of convulsion therapy it was common practice to give outpatient treatments twice weekly, but

when treatments were reduced to one per week it was observed that memory defects were less severe.—I am, etc.,

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Equipment for Chest Aspiration

SIR,—In many thoracic units the equipment used for chest aspiration and intrathoracic pressure adjustment has remained unaltered for many years in spite of great improvement in available materials. Glass and metal syringes, often with ill-fitting pistons, taps which may be difficult to turn or else leak freely, and needles that become blocked or may lacerate an underlying lung are still the standard components of many "chest aspiration sets." Similarly, for pressure adjustments a Maxwell box is commonly used, and, excellent though this equipment was in its day, its limitations in terms of infection are obvious. Other equipment needs to be dismantled, sterilized, and reassembled each time it is used.

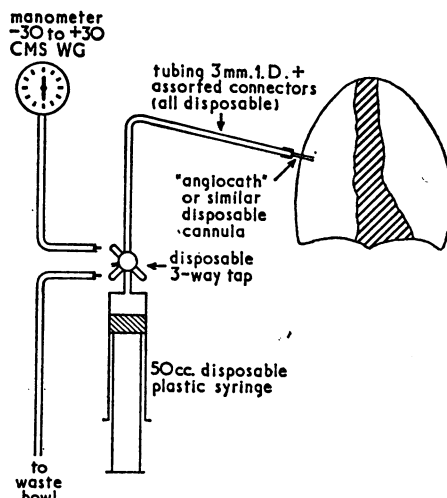


FIG. 1

For the past one and a half years we have used disposable plastic equipment for these purposes, and this has proved to be very convenient in use. No complications have occurred, and the results have been entirely satisfactory. With the exception of the manometer, the components are totally disposable, sterile, and pyrogen-free. The syringes and taps work easily and do not leak, while the fittings are always reliable. Plastic cannulae cannot tear a mobile lung, and tend to become blocked very much less readily than their metal counterparts owing to the nature of the material and its better surface finish.

The assembly is clearly shown in the diagram (Fig. 1). It consists of a disposable 50-ml. plastic syringe, a plastic three-way tap connected to a large-bore plastic cannula by 3-mm. internal diameter tube, and fittings.

A waste tube may be connected to the third outlet for aspiration, or a manometer for pressure adjustment as shown. The intervening manometric tubing is also disposable. All these components are readily available.

Chest aspiration is demonstrated in Fig. 2. The cannula is inserted into the pleural cavity and aspiration performed, using the tap to aspirate alternately from the chest and empty the syringe via the waste tube. The syringes are so leak-proof that accurate measurement of both air and fluid is possible.

A similar arrangement is used for pressure adjustment, a manometer with a range of -30 cm. to +30 cm. w.g. being connected to the tap outlet. In order to expel aspirated air from the syringe or to draw air into the syringe for insertion into the chest, the tap is moved to the closed position and the syringe temporarily disconnected from it.

We would like to thank Mr. T. F. Dee for the photographs shown here.

—We are, etc.,

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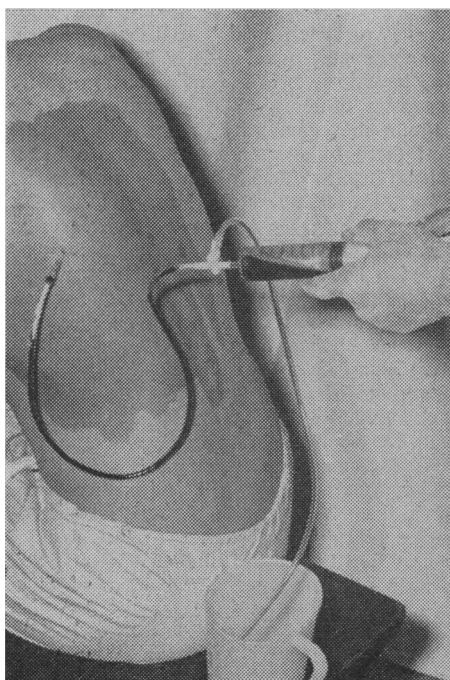


FIG. 2

Postnatal Consultation

SIR,—I would like to discuss the postnatal visit of the nursing mother and child to the doctor's consulting-room—be it in hospital, private practice, or general practice.

It is my custom in our rural practice of three partners to ask the nursing mother and child to attend our own maternity-baby clinic (also attended by our local district midwives and nurses) about eight weeks after confinement, regardless of whether they were confined in hospital, general practice maternity unit, or patient's home. I will assume that most doctors agree that this consultation is desirable, but opinions differ considerably about what should be done or offered at this consultation.

May I outline my own routine (leaving aside the infant whose immunization schedule starts at this visit) and pertinent comments in the hope that this will stimulate further discussion.

(1) I ask the patient if there is any backache, vaginal discharge, dyspareunia, and whether the lochia has dried up. If the answers to these questions are satisfactory and if the past history and confinement were normal I do not as a routine carry out an internal pelvic examination.

My reluctance to perform this ritual pelvic examination is based on the belief that this