that the process is self-limiting. A great deal can be achieved by simple local therapy. When lagophthalmos is present regular instillations of ophthalmic solutions of methylcellulose or liquid paraffin, especially at night, avoids dryness and abrasion of the cornea. Additional protection can be effected by wind shields on the side arms of spectacles or the use of a carefully padded eye patch. Many of these patients have photophobia, and the provision of tinted lenses adds to their comfort. Symptoms are frequently worse in the morning, and elevation of the head and shoulders reduces dependent oedema during sleep. The addition of cold saline or magnesium sulphate compresses may help to reduce oedema, particularly in the lids.[7]

Progression of the infiltrative process and exposure of the cornea with subsequent epithelial changes demand prompt action. Tarsorrhaphy is a simple and effective treatment, but the most desperate cases with boggy oedema of the lids are sometimes unsuitable for suture. Surgical measures may be avoided by local adrenergic blockade using ophthalmic solutions of guanethidine and bethanidine in a methylcellulose vehicle; these have been shown to produce a pronounced ptotic effect with considerable functional and cosmetic improvement.[8-10] Systemic side-effects, such as hypotension, have not been reported. Similar therapy with 1% propranolol has not been shown to have a comparable effect.[11] In some cases of non-infiltrative ophthalmopathy long-term treatment by adrenergic blockade may be considered justifiable for cosmetic reasons.

Infiltrative ophthalmopathy may rapidly progress within 48 hours, and severe conjunctival oedema and exophthalmos may preclude any chance of corneal cover. The rationale for the use of systemic steroids in this situation stems from their anti-inflammatory effect in reducing oedema and the possibility that they act as immunosuppressive agents in a disease which is suspected of having an autoimmune basis. High-dose steroid regimens using intravenous A.C.T.H. and systemic steroids are effective in avoiding serious complications in the acute phase,[12-15] but doses as high as 140 mg. of prednisone daily may be necessary for control.[16] When the steroid dosage is eventually reduced there is usually an exacerbation of ophthalmopathy, and long-term maintenance therapy produces the complications of hypercorticism; but steroid treatment does allow a thorough assessment of the patient to be made. It may provide general anti-inflammatory cover for orbital decompression, and on occasion may even tide the patient over the acute episode.

Local steroid therapy has been advocated,[12] and the introduction of depot preparations such as 6 α-methyl prednisolone has made treatment by subconjunctival or retrobulbar injection a practical proposition. If preliminary reports[17 18] of success are confirmed this method could supersede systemic steroid therapy with its considerable disadvantages.

The postulate that L.A.T.S. is an antibody with a common antigenic stimulus from thyroid and orbital tissues inspired the hypothesis that destruction of all thyroid tissue by surgery or radioactive iodine would allow infiltrative ophthalmopathy to remit.[19 20] The method has been advocated as a useful measure in an emergency. Thyroid ablation is not, however, always easy to achieve, and in one series it was necessary to administer repeated doses of radioactive iodine to a total of over 300 millicuries in one patient.[20] The enthusiastic claims for the effectiveness of ablation therapy have not been confirmed,[21] and there is, furthermore, evidence that the presence of functioning thyroid tissue is not necessary for the persistence of L.A.T.S. in a patient's serum.[21 22]

Metronidazole, a proved antitrichomonal agent, has been reported to have produced appreciable reduction in exophthalmos in 13 euthyroid patients, and one patient also showed resolution of ophthalmoplegia.[23] Increase in exophthalmos occurred in 7 out of 10 patients once the drug was withdrawn. This is an interesting result, which remains to be confirmed.

The co-existence of hyperthyroidism and infiltrative ophthalmopathy complicates the management. The course of the ophthalmopathy in any one patient is totally unpredictable, and it seems prudent not to proceed with destructive forms of therapy for the hyperthyroidism until the eyes are quiescent. Antithyroid drugs provide a flexible and reversible form of treatment and allow therapy to be titrated against thyroid status. Maintenance therapy may be required for many years, but with careful control there should be no need for thyroxine or other thyroid analogues to prevent hypothyroidism. In the case of non-infiltrative ophthalmopathy associated with hyperthyroidism there is no evidence that any treatment will result in serious progression of the eye signs.

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Toxic Substances in Endotracheal Tubes

When endotracheal tubes are inserted skilfully, remarkably few complications result from the contact between the tube and the tissues of the respiratory tract. It is generally assumed that the material, rubber or plastic, from which these tubes are made is non-toxic to the tissues. This may be true of natural rubber, for a British Standard issued in 1962[1] required that "natural rubber compound shall not include in its composition any substance which is known to have a harmful effect on human tissues or to react with body fluids."

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In recent years the use of plastic, particularly polyvinyl chloride (P.V.C.) for endotracheal tubes as well as for tracheostomy tubes, has been increasing. A report[2] from the United States suggests that P.V.C. may not be as innocent as is generally assumed, and it warns the medical profession that damage to tissues may follow prolonged contact with the mucosa. The report describes experiments in which pieces of endotracheal tubes made of P.V.C. were placed in tissue culture media and in rabbit muscles. The toxic substance appears mainly to be an organic tin compound, but other plasticizers may also be responsible. This report is important, for it draws the attention of the profession to the possible toxic nature of substances in the plastics now coming into general use in medical practice. Clinical users, and perhaps the British Standards Institution, might ask more questions than they have in the past about the likely toxic nature of materials used for tubes in the respiratory tract. For example, an American Army specification for endotracheal tubes already requires P.V.C. to be non-toxic and free from tissue reaction when implanted in rabbit muscles. It seems possible that ulceration and subsequent scarring of the trachea, as well perhaps as the occurrence of granulomata, may be the result not so much of pressure of tube against the trachea as of toxic substances in the tube material.

Another consideration is whether toxic substances in the tube material are formed and released during sterilization of the tubes by one method or another. It seems that gamma-irradiation may produce hydrochloric acid,[3] while ethylene oxide often produces ethylene chlorhydrin, a very toxic substance. The latter was found after ethylene oxide sterilization of rubber, nylon, and polyethylene. It is recommended that plastics sterilized by ethylene oxide should be stored for at least one week before being used for procedures entailing prolonged contact with body tissues. In any case, it is safest to discard after one use only any P.V.C. that has been sterilized by gamma-irradiation and not to attempt to re-sterilize it with ethylene oxide.

There is no doubt that more attention should be paid to possible toxic substances in the material of endotracheal tubes, and particularly in relation to the method of sterilization. The immediate objective should be a clearer definition of what is to be considered non-toxic, and to aim at disposable endotracheal and tracheostomy tubes in order to remove the risks of resterilization.

General-practitioner Obstetric Units

A recent report[1] on obstetrics in general practice from the Royal College of General Practitioners brings welcome attention to the whole scene of obstetric practice and education. Without doubt general practitioners have played a major part in the development of this branch of medicine in the past, and it is now only too clear that they will have an equally important role in the planning and operating of obstetric services in the future.

The practice of obstetrics in Britain is moving rapidly into an institutional era. The report correctly recognizes that a doctor's standard of obstetrics is inevitably improved when he is practising in a general-practitioner maternity unit. This doctor is far better able to cope with an unexpected complication in a properly equipped unit provided with oxygen, suckers, transfusion sets, and anaesthetic apparatus than could ever be the case with the emergency improvisations which are always necessary when an obstetric crisis occurs in a patient's home. Nowadays women are equally entitled to the safer conditions for delivery which the general-practitioner maternity units can offer—and so it follows that every town, suburb, and large village should have its own general-practitioner unit, a small maternity home provided with a well-equipped delivery room and several bedrooms, sufficient to allow the patient to stay overnight prior to returning to her home within 24 hours of confinement. These units need not be expensive and could easily be converted from any four- or five-bedroomed house. Where geographically possible it would be sensible to place the general-practitioner unit adjacent to the specialist unit, but clearly this will be done only in a minority of cases, as most specialist units will be found in the large district hospitals that are to form the hospital service of the future. The specialist will provide the district obstetric specialist services, including a flying squad for the serious complications.

Attention is drawn in the report to the high proportion of normal obstetric care unnecessarily conducted in specialist departments today—an uneconomical use of expensively staffed and equipped units. Purists can argue that any apparently normal case is always a "potential" complication. This argument can be answered by drawing attention to the need for well-trained general-practitioner obstetricians, which can be met only by high standards of primary and continuing education. The Council of the R.C.G.P. emphasizes that the basic vocational training of a general-practitioner obstetrician must take place after graduation, and indicates that only those with an adequate residential training should be admitted to the obstetric list. Continuing education for the established doctor out in active general practice is equally important, and here residential courses can be invaluable: ideally every regional hospital board should establish a postgraduate obstetric teaching department centred in a busy specialist department in one of its district hospitals where there is an abundance of abnormal obstetrics. It is now B.M.A. policy that such a postgraduate institute should be established in each region. Furthermore, no one would disagree that such a busy teaching and clinical department is the correct place to train future consultants; senior registrars can learn not only the technique and practice of obstetrics, but also understand the role of the general-practitioner obstetrician and the value of working in close liaison and harmony with him.

[1] *Obstetrics in General Practice*, the report of a working party, the Royal College of General Practitioners, 1968, price 7s. 6d.

Life as a Haemophiliac

There are about 3,000 haemophiliacs in Britain. Two surveys have recently been published which will help doctors to understand some of the problems these patients have to face and their response to them. I. G. Bronks and E. Blackburn[1] found no gross social or psychiatric abnormalities in a group of 135 haemophiliacs who replied to a postal questionary. Only three had received treatment for illnesses (depression and anxiety) which might possibly have been a neurotic reaction to infirmity. The occupational history of those with only mild or moderate affliction was good, and 65% with