culties about the changes introduced in South Africa and Australia, where the general prevalence of bronchitis is said to be low. The difficulties of introducing such changes in this country, as the Committee pointed out, would be very great indeed. It would be better to abolish the Industrial Injuries Act and to raise the pensions for the chronically sick under the National Health Insurance. If pensions were related to inability to work and not to aetiology the problem would be solved.

I have no desire to relive the battles of the 'thirties with Professor Gough, but I would like to say that I only hope that my surveys will stand the test of time, as well as those of Dr. Philip D'Arcy Hart and his colleagues.—I am, etc.,

Barry, Glamorgan. A. L. COCHRANE.

REFERENCE

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Lasers and Ultrasonics

SIR,—We read with interest Dr. J. Mellerio's cautionary remarks from the Department of Physiological Optics at the Institute of Ophthalmology (19 March, p. 719) concerning the generation of ultrasonics in the focal zone of a ruby laser beam. In our earlier work[1] we took into account the then known possible hazards of laser radiation, one of these being the possibility of undesirable effects from ultrasonic waves generated by the laser beam. It is evident from the published results and from our experience that in the clinical range of retinal photocoagulation therapy (0.05–0.5 joules) such effects may be disregarded. Experimentally neurological changes have been reported in rats treated with laser energy of the order of 100 joules.[2] In rabbits, because of the larger dispersion and attenuation when doses of this range are used, no neurological symptoms are produced. It is unlikely, therefore, that neurological changes could result in humans with the clinical laser dosage energy previously referred to. In two and a half years of clinical experience with instruments designed following these studies, no undesirable retinal or other pathological change has been seen.

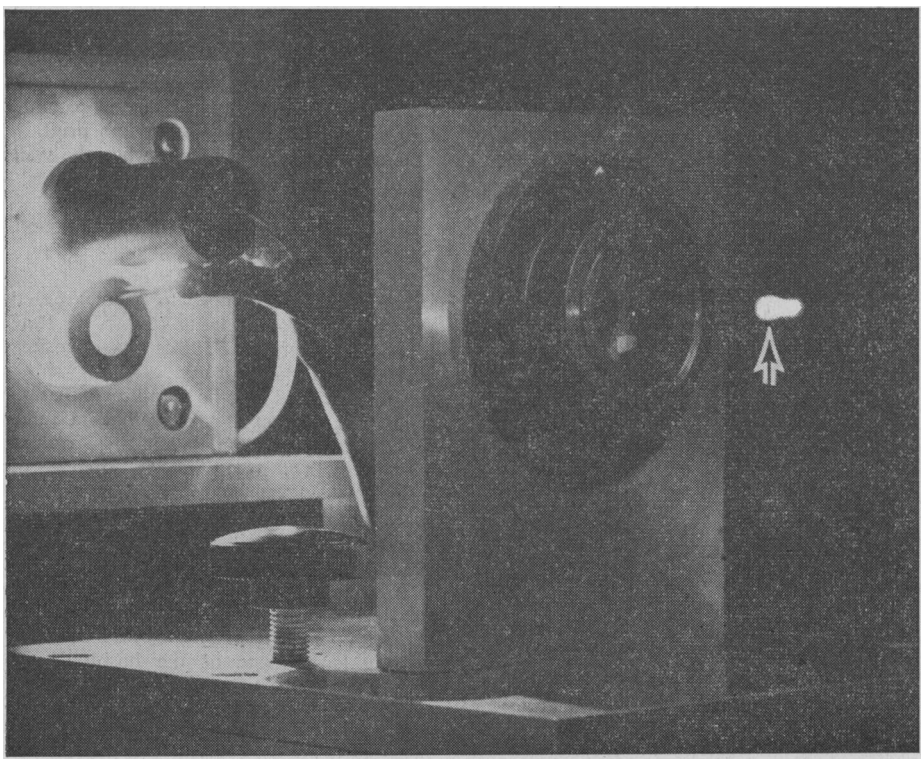
With high energy lasers in experimental situations retro-ocular changes and alterations in the clear media can be produced and have been reported.[3] These changes were induced by doses far in excess of the energy range available for retinal laser photography.

The fact that a laser will produce electromagnetic disruption of molecules is quite simply demonstrated with a high energy laser beam in air (Fig.), water, metals, ceramics, or indeed in any other sort of material, in particular in biological material. This is evident from the alterations induced in cell metabolism, which are quite different from those produced by mechanical or thermal damage. There do not appear to be unexpected deleterious phenomena, since from the laser-induced changes in the cell régime one can predict with remarkable accuracy the observed post-operative course of a laser lesion.

In view of our experience we feel it would be most unfortunate to dissuade anyone from taking advantage of this technique for prophylactic or other retinal work because of fears of side-effects of ultrasonics or electromagnetic phenomena. It is because a chorioretinal change is induced electromagnetically that the lesion can be so easily sited and limited in extent.

We look forward with interest to Dr. Mellerio's follow-up communication on the problems of laser hazards.—We are, etc.,

DESMOND SMART.
H. VERNON INGRAM.
NEIL MANSON.
Department of Ophthalmology,
University of Newcastle upon Tyne.



Electrical breakdown of air produced by a high-energy laser beam—where the beam is focused by the lens the electric field is approximatley 100,000 V/cm., and the arc that is formed in consequence of this can be seen to the right of the lens.

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Abortion Law Reform

SIR,—I am grateful to Lord Brain (19 March, p. 727) for putting the points in this matter so clearly. Since you ask for wide discussion I put my personal answers to the questions.

(1) *Should the Bourne judgement be made statutory?* It is at present possible to carry out all the abortions that seem on medical grounds to be needed without serious fear of legal action being taken against one. Therefore the law needs changing *for the benefit of the law* and not for the benefit of medicine.

(2) *Who should be permitted to terminate pregnancy?* Nobody below the status of registrar should be permitted to undertake the operation except in special local circumstances.

(3) *What provision should be made for emergencies?* I have not so far met any case where the necessity to terminate pregnancy could be classed as an extreme emergency.

(4) *Who should certify that the termination of pregnancy is necessary?* Surely it is not intended that special certificates are to be drawn up. The present practice appears to be that two doctors write down their agreement that termination of pregnancy is needed. They also state their reasons. This ought to be enough.

(5) *Should the termination of pregnancy be permitted on the ground that there is reason to suppose that the child, if born, may be abnormal?* As pointed out in Lord Brain's article prediction of abnormality has to be made on a statistical basis. It is not possible to lay down rules about this, but in general it seems to me that the problem is not one of the possible abnormality of the baby but of the *mother's reaction to the thought that she might be carrying an abnormal foetus.* Although the statistical prediction of abnormality should form an element in the decision about termination, the mother's reaction is more predictable.

(6) *Should the physical or mental inadequacy of the pregnant woman be a ground for termination of the pregnancy?* If it is accepted at all that there are psychiatric grounds for the termination of pregnancy, then it is artificial to think that social grounds can be separated from the psychological ones. The psychology of a patient cannot be separated from the socio-cultural background.

(7) *Should pregnancy occurring under the age of 16 be in itself a ground for termination?* No. Girls of 16 vary enormously in their physical and psychological maturity. Legislation cannot allow for this without being cumbersome.

(8) *Should the fact that a pregnancy is the result of rape be a ground for its legal termination?* No. The establishment of the fact of rape is often impossible. No one factor can be absolute in the decision for or against termination in a given patient.

(9) *Should mental subnormality be a ground for terminating a pregnancy?* No. Again one

factor is not enough on which to make a decision.

(10) *Where should the operation of termination of pregnancy be carried out?* In any place licensed for the purpose by the Ministry of Health.

(11) *Should the termination of pregnancy be notified?* Under no circumstances. If every other operation is notified then it may be reasonable but there can be no reasonable grounds to make this an exception. If statistics are needed about termination they may perhaps be obtained by a continuing hospital in-patient inquiry embracing all branches of hospital practice.

My answers to the questions are necessarily brief for the considerations of your space. A general comment would be that the law needs reform for the sake of the law and not medicine.

I have performed abortions for what I and my colleagues have considered to be good reasons. I do not like to perform the operation, and those who assist me like it even less. I can think of no comparable operation in which normal tissue is removed and that tissue is a potential new individual. Already the practice of obstetrics and gynaecology is hedged round with certification and State guidance—for example, in the length of stay of a woman in hospital after the birth of a baby and the length of time for which she needs care. These rules and guidance take no note of individual clinical circumstance and one is constantly having to fight authority to be reasonable.

The prolonged discussion about abortion law reform has, if anything, made me feel that the intrusion of the law into present practice will make that practice more difficult. I can see myself becoming so hedged about that I will come to refuse to perform the operation of termination at all. If many gynaecologists do this the patient will either have an illegal abortion or force other doctors, especially psychiatrists, to find adequate methods for the relief of her distress. In addition the social welfare services would have to be improved to help these women. It may be that we gynaecologists would in the end perform more of a service for our patients by making psychiatrists and social welfare workers take up their full responsibilities than in making abortion easier and so practice for ourselves more difficult.—I am, etc.,

PHILIP RHODES.

St. Thomas's Hospital Medical School, London S.E.1.

Medical Laboratory Technicians

SIR,—The qualifications of laboratory technicians are of current interest in Western Australia as well as in Britain. Both Mr. G. H. Spray (22 January, p. 236) and Dr. A. L. Woolf (12 February, p. 418) have made important points which can be synthesized into a system to allow mobility upwards between the different grades of technicians.

All who work in laboratories can recognize those assistants with the good qualities described by Mr. Spray; there will always be a place for them in the medical laboratory, and any attempt to exclude them by the creation of the "closed shop" should be resisted with the utmost vigour. Some of them may wish to become qualified, and means must be provided for them to study for an associateship or diploma on a part-time basis. The proposed institution of a full-time three-year diploma course in this State may pose a threat to this means of advancement which must be safeguarded.

Perhaps more important is the position of the qualified technologist who, were he a graduate, could work for a doctorate. In a few universities such as Oxford such gifted technologists can acquire a first degree by thesis and then proceed to a doctorate in philosophy. Should not all universities allow those with proved research abilities to submit published works or a thesis for a first degree? If they did then full mobility would be possible, and the occasional exceptionally talented junior could, in time, become a graduate scientist and realize his full potential as a medical laboratory staff member.—I am, etc.,

H. J. WOODLIFF.

Perth, Western Australia.

Follow-up

SIR,—As Mr. T. Rowntree (19 March, p. 738) has "trailed his coat," perhaps I could give one general practitioner's point of view on follow-up.

I don't think anyone could possibly object to a patient being reviewed by a consultant as often as he pleases; but surely he is, in fact, more often seen by a succession of junior housemen.

I always thought that the point of this was to give junior staff experience in writing letters over their own signature, which is splendid, but does it really help the patient or his general practitioner?

There is just one point about consultant reviewing over the years: it does tend to produce a "hospital addicted" attitude in the patient, so that the initial illness becomes the later hobby.

In this area, to which people often retire from the big cities, I get a number of patients who resent my refusal to transfer them for "follow up" of long past illness to already overloaded local outpatient clinics.—I am, etc.,

NORMAN WATFORD.

East Wittering, Sussex.

SIR,—Mr. T. Rowntree's suggestion (19 March, p. 738) that there should be a reduction in the number of patients instructed to attend hospital follow-up clinics is pertinent. It has a number of advantages besides the one cited of reducing the work load on hospital staff. These advantages include: (1) A reduction in the amount of time wasted by patients in waiting-rooms. (2) A lessening of the duplication within the medical services. This will include not only a reduction in the work done by hospital staff but paradoxically a reduction in the work done by family doctors. Patients who attend hospital outpatient clinics invariably visit their family doctors shortly afterwards to learn the contents of the hospital report. These visits are frequently repeated two or three times before a report is received. (3) A reduction in the work done by the ambulance and sitting-car service in conveying patients to hospital will be effected, particularly in rural areas where there is no public transport. This will not only reduce the cost of the service but will help to reduce the work of family doctors, who often arrange for patients to be transported to these clinics. (4) A more rapid return to work of patients who have received hospital treatment. Some people who have recovered sufficiently from their illness or operation to resume work quite genuinely consider that they cannot be fit for work while the hospital doctor still wishes to see them. They will often resist a suggestion that they should resume work by saying that they have an appointment with the hospital doctor in a few days' time or are waiting for a new appointment. Theoretically these arguments should carry no weight, but in practice they do, and I am becoming increasingly convinced that many of these follow-up clinics are fostering a considerable amount of iatrogenic neurosis.—I am, etc.,

W. DEWI REES.

Llanidloes, Mon.

SIR,—I should like to comment on the interesting letter from Mr. T. Rowntree (19 March, p. 738).

Most patients are attending hospital outpatients and their own family doctors simultaneously, and this serves little useful function except in a few specialized cases. The number of consultants who see all their own follow-ups must be very small, and the majority are seen by junior doctors, often a different one each time the patient attends. This leads to the patient receiving conflicting advice from the various people who see him, as few doctors (however newly qualified) can resist the temptation to advise in some way.

The other point which I think is important concerns "cures." Patients are told they are cured of such and such complaint and find it very puzzling that they still have to attend hospital at intervals "just to see everything is all right," which in my view is bound to lead to considerable anxiety and neurosis in some, if not many, cases.

I appreciate the need to keep statistics regarding various conditions, but not at the expense of creating unnecessary anxiety in the patients we are trying to help, just to satisfy the whim of an individual doctor accumulating a series of cases to burst into print.

I think the time has come when the system of follow-up should be radically altered.—I am, etc.,

D. JOHN WARREN.

Chillington, Devon.

SIR,—As a newcomer to general practice my comment to the letter of Mr. T. Rowntree (19 March, p. 738) is the opposite to what he expects.

I am amazed by the number of cases of mine seen over and over again at a follow-up clinic. The example—and there are many which spring to mind—is the chronic bronchitic who goes to the hospital every three months or so to be told, "Nice to see you looking so well," probably by a house-physician.

In the meantime I have treated him for two acute respiratory infections and have decided on long-term prophylactic therapy.

This is a waste of the hospital's time, patient's time, perhaps the ambulance service's time, and is a frustration to myself.

In a teaching hospital I think perhaps the situation is different, because of teaching purposes, research, statistics, etc.—I am, etc.,

I. A. D. JOLLIE.

Driffield, Yorks.