LETTERS TO THE EDITOR

Beam obstruction hazard on Q-switched Nd-YAG ophthalmic lasers: a safety device for the Nanolas laser

SIR,—Short pulsed neodymium-YAG lasers are now commonly employed for a wide range of outpatient ophthalmic procedures,[1] and some important safety aspects have been considered elsewhere.[2 3] We have recently identified a further potential hazard which applies to the Nanolas Ophthalmic Laser System manufactured by Biophysic Medical SA.

The problem is that the slit-lamp lighting system can be positioned by the operator in such a way that it partially obstructs the laser beam. As far as the operator is concerned this is manifested solely by a slight diminution in intensity of part of the aiming beam system, and it may not be noticed because the operator's attention is primarily directed towards focusing on the structure to receive treatment. When the laser is fired under these conditions, photo disruption may not occur and the operator is liable to increase the power level to produce the desired effect. Thereafter, should the operator move the slit-lamp illumination system so that it no longer obstructs the laser beam, excessive power levels may be delivered to the eye, with predictable adverse consequences.

To prevent this situation from arising we have developed a safety system which prevents the YAG laser from being fired if the slit-lamp is within the region where it could mask the laser beam.

SAFETY SYSTEM

The system which we have developed is illustrated in Figure 1. A housing has been fitted to the main column of the optical system. This contains a series of microswitches which are activated by a collar which is fitted round the barrel of the slit-lamp. As the lighting system is moved into the zone where it obstructs the laser beam, the collar depresses a trigger bar on the housing, which in turn operates one of the safety system microswitches. This prevents the laser from being operated. The safety switches are 'closed' under the 'no danger' condition. Hence any break in the additional wiring will cause the system to fail safe.

DISCUSSION

The safety system described does not interfere in any way with either the slit-lamp or the optical or delivery systems. It is very easily fitted and requires only a small amount of additional wiring. No engineering work is required on the actual machine apart from drilling a hole to take an electrical socket. One of the criteria which had to be met by this system was that it should not pose any restriction on the movement or position of the slit-lamp, so that the slit-lamp may be used independently of the laser, and that it should prevent the firing of the YAG laser only if the illumination system entered the exclusion zone. An alternative to a cut-out switch would be an alarm which could sound either when the slit-lamp is in the exclusion zone or when the 'fire' button is depressed. We believe that this hazard is not confined to the Nanolas system, and other YAG units in which the height of the slit lamp can be adjusted could have a similar problem.

We thank Mr I Smith of the Photographic Department at the Glasgow Eye Infirmary for the illustration and the staff of the Workshops at the Department of Clinical Physics and Bioengineering who manufactured and fitted the safety system.

H MOSELEY
W RICHARDSON
West of Scotland Health Boards, Department of Clinical Physics and Bioengineering, 11 West Graham Street, Glasgow G4 9LF
G N DUTTON
Department of Ophthalmology, University of Glasgow, Western Infirmary, 38 Church Street, Glasgow G11 6NT

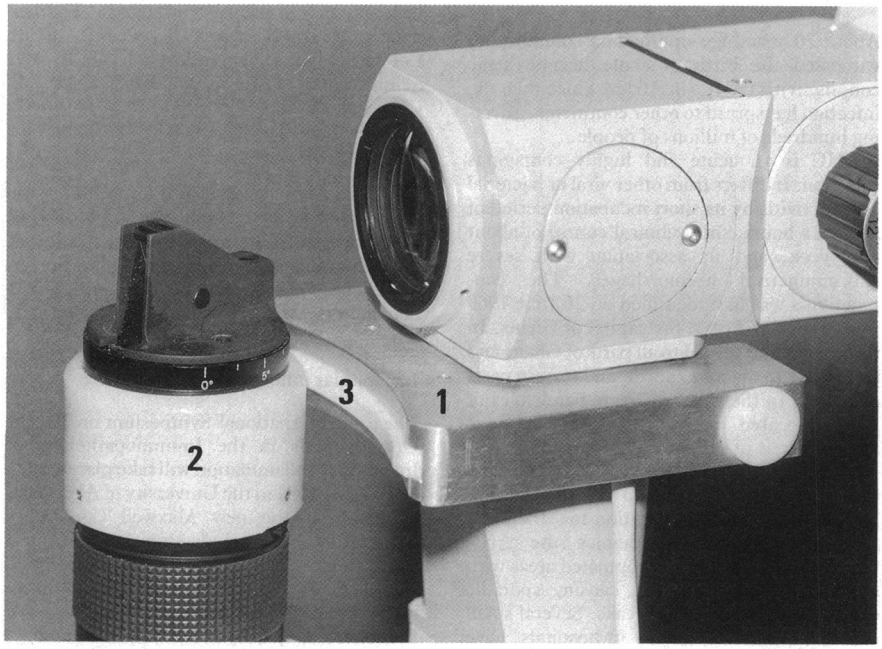

Figure 1 Safety system fitted to Nanolas ophthalmic laser. 1. Microswitch housing. 2. Collar on slit-lamp barrel. 3. Microswitch trigger bar.

1 Trokel SL, ed. *YAG laser ophthalmic microsurgery, Norwalk.* New York: Appleton-Century-Crofts, 1983.
2 Mainster MA, Sliney DH, Belcher CD, Buzney SM. Laser photodisruptors: damage mechanisms, instrument design and safety. *Ophthalmology* 1983; **90**: 973–91.
3 Moseley H, Allan D. Intensity of the flash associated with laser-induced plasma in the eye. *Phys Med Biol* 1987; **32**: 1159–66.

Practical hazards of photic sneezing

SIR,—Even trivial symptoms are more easily tolerated if you can put a name to them, even if that produces only an illusory understanding of their significance. I was therefore very pleased to come across the recent paper[1] and editorial[2] about photic sneezing, for I've suffered from this problem for over 20 years in ignorance of its label and believing that I was unique in my suffering. Your statement[2] that it occurs in 'normal people' is especially welcome.

Photic sneezing has two hazards not mentioned in either of these publications. The first is the potentially dangerous sneezing which can occur while driving a car on a sunny day. I find that sudden exposure to sunlight when emerging from a road tunnel of sufficient length is sure to induce a sneeze, with accompanying momentary blindness. Driving under motorway bridges is no problem, because I'm not in the gloom for long enough, but driving through sunlit gaps in otherwise dense forest or past blocks of buildings can bring on a sneeze. Even driving past those long roadside stands of poplars so characteristic of northern France can cause a sufficient change in the level of light.

The second hazard is more personal, being that paroxysmal hypertension induced when people who observe my photic sneezing make solicitous mutterings about my 'hay fever,' even on the kind of cold clear winter day when the air contains not a single pollen grain. That my problem has a different aetiology and a nice pithy label will simplify explanations wonderfully.

E W BENBOW
Department of Pathological Sciences, University of Manchester, M13 9PT

1 Katz B, Melles RB, Swenson MR, Schneider JA. Photic sneeze reflex in nephropathic cystinosis. *Br J Ophthalmol* 1990; **74**: 706–8.
2 Smith R. Photic sneezes. *Br J Ophthalmol* 1990; **74**: 705.

Genetic counselling in retinoblastoma

SIR,—In our recently published paper[1] we cited a risk to offspring in the 'Discussion' of 1 in 2. However, we have since been informed by our colleagues in clinical genetics that identification of spontaneously regressed tumours in the grandparents in this case would have given a prior risk of 1 in 2 for their offspring. In the presence of normal retinae their risk would drop to 1 in 11, if the general 90% penetrance figure is used. This, in turn, would mean a risk of close to 1 in 11 for their own child inheriting the mutation, given both parents were potentially 'non-penetrant' carriers. In fact the risk of 1 in 32 given previously was in relation to any recessive disorder (rather than specifically retinoblastoma) given they were first cousins.

JOHN K COWELL
Molecular Oncology Laboratories, Imperial Cancer Research Fund, London

1 Onadim Z, Hykin PG, Hungerford JL, Cowell JK. Genetic counselling in retinoblastoma: importance of ocular fundus examination of first degree relatives and linkage analysis. *Br J Ophthalmol* 1991; 75: 147–50.