

## Project Orbis

Eoin Sherry

It is 0800 in May 1989 as I arrive at Beijing International Airport. I am not checking in for a flight, I am about to start work in a unique operating theatre—a DC8 jet, which houses the flying eye hospital known as Project Orbis. One week later the students, some of whom we had seen crowding outside our hotel, were gunned down in Tiananmen Square. This was a sad memory from a seven month job that was to take me to China, Mongolia, Hong Kong, Papua New Guinea, Bangladesh, the Philippines, Malaysia, and Thailand.

Every three weeks, and only at the invitation of the local doctors, the plane flies into a new country. For the past four years the Bristol anaesthetic rotation has sent a postfellowship registrar to Orbis. Orbis means "of the eye" in Latin and "around the world" in Greek. It was founded by Dr David Paton, an American ophthalmologist and is now led by Oliver Foot, son of Lord Caradon the diplomat, and nephew of Michael Foot MP.

Since 1982 Orbis has circled the globe three times, visiting more than 60 countries and implementing more than 100 three week programmes. Orbis has evolved into an educational organisation, which shares and transfers knowledge with the full spectrum of medical and technical personnel concerned in the delivery of eye care: ophthalmologists, nurses, anaesthetists, public health workers, and biomedical engineers. The aim of the project is to exchange skills and information between the doctors, nurses, and technicians who make up the crew of 20 and their counterparts in the host country. The permanent crew is drawn from many countries. England, Ireland, America, Canada, Singapore, Sweden, Yugoslavia, Thailand, the Philippines, India, and China were represented during my seven months. Each week two visiting consultant ophthalmologists join the crew and perform the surgery. The crew is backed up by a small staff of administrators and fund raisers in the New York office. The project operates on a small budget but

benefits thousands of patients through the educational ripple effect.

### Everyone is equal

The plane is flown by commercial pilots who give up their holidays to fly out to the plane and take us to our next destination. After a small welcoming committee the whole crew unpacks and sets up the operating theatre and recovery area, which acts as the baggage storage area during the flight. Everyone, irrespective of rank, is expected to muck in. So at the end of the list the anaesthetist may vacuum the plane, the surgeons scrub the floor, and the nurses damp dust. Everyone receives the same annual salary and this equality and team spirit is strongly fostered. In many countries anaesthetists and nurses have a subservient role and it is not unusual to see nurses who are forbidden to touch ophthalmic instruments or to find anaesthetists cowering at the end of the operating table.

The plane is divided into three. The front section is the former first class area and doubles as the classroom and passenger section for flights. The middle section becomes the operating theatre with its own instrument and sterilising rooms. The rear section is the recovery bay. Eleven video cameras and closed circuit televisions are placed throughout the plane and controlled from the audiovisual room the facilities of which rival any television studio. Operations are transmitted live to the classroom at the front of the plane and to a peripheral classroom set up nearby. On one occasion the classroom held 350 ophthalmologists. During each procedure host doctors watching live surgery communicate with the operating surgeons via two way microphones. All surgery is recorded and the videos are donated to the host country along with copies from the extensive library on board.

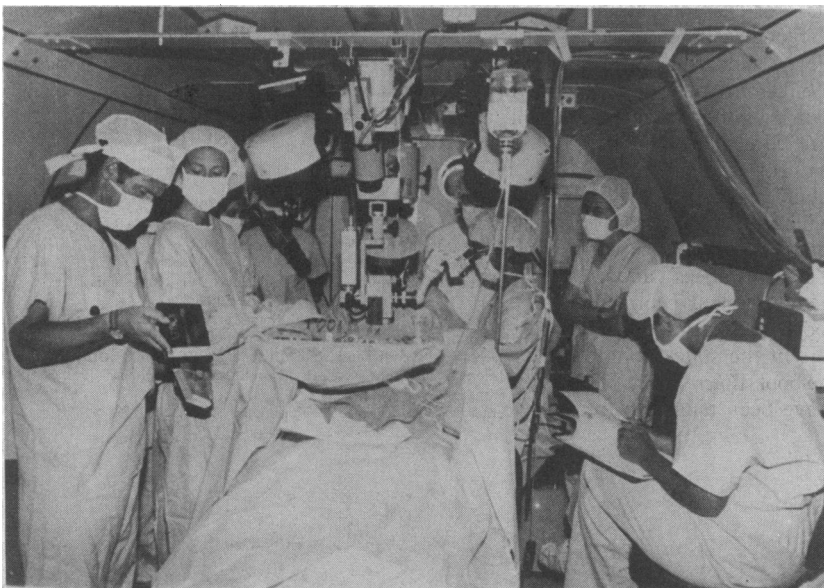
The anaesthetic team comprised me and an American nurse anaesthetist. Our working week was Monday to Friday. We screened patients selected for surgery in the eye clinic of the local hospital on Monday. Only patients of a certain level of fitness (ASA I and II status) above the age of 18 months were accepted for surgery on the plane. Patients outside these categories were operated on in the local hospital during the third week of the programme.

Three quarters of the patients were operated on under regional anaesthesia, the blocks being performed by one of the anaesthetic team. Initially we were using retrobulbar blocks with a Van Lint or O'Brian block but later we changed to peribulbar blocks. Our visiting American surgeons were used to performing all adult surgery under regional anaesthesia including vitrectomies and oculoplastic procedures, including dacryocystorhinostomies. They failed to understand the English preference for general anaesthesia. American practice is influenced by many factors—for example, different expectations of American patients or the obligation to carry out cataract extractions on a day care basis (Medicare will not pay for an overnight stay in hospital after a cataract extraction).

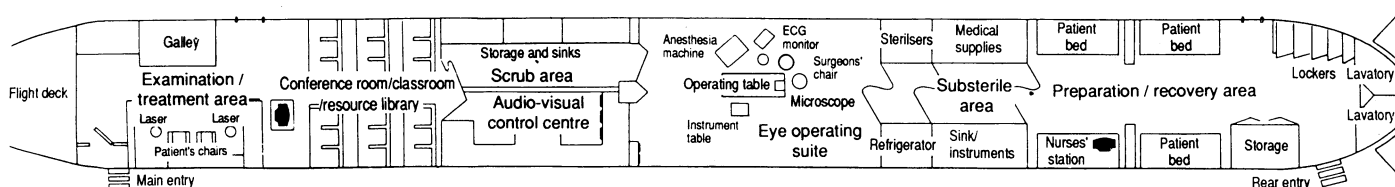
One American practice I refused to implement was sedation with methohexitone before the initiation of a retrobulbar block or during a field block for a

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*Br Med J* 1990;301:1444-5



*Operating and learning inside the DC8*



The plane is divided in three—classroom, operating theatre, and recovery bay

dacryocystorhinostomy. It seemed contrary to all I was taught in the United Kingdom. The American literature comments on the difficulty in reaching a satisfactory balance between effective sedation for the block and having a cooperative patient for surgery.

One American practice I do approve of is local standby—that is, the anaesthetist stays with the patient throughout a case conducted under local anaesthesia. The blood pressure, electrocardiographic changes, and pulse oximetry are monitored throughout the operation and intermittent doses of midazolam administered if required. Marked cultural differences were evident in patients' requirements for supplemental sedation. In China we rarely used any anxiolytics. The presence of an anaesthetist is a comfort to patients and accounts for the popularity of local anaesthesia for eye surgery in America. It is essential when performing vitrectomies under local anaesthesia. Tedium was relieved by the stimulus of teaching and the close circuit television.

### Reams of paperwork

As the plane is registered in America as a hospital it is run along the lines of an American hospital. This creates reams of paperwork for the nurses and in view of the constant scrutiny and publicity is run to exacting standards. All the anaesthetic drugs were American so we had no supplies of the intravenous anaesthetic propofol, nor were there any Venflons so needlestick injuries were a constant hazard. In addition to all our high tech American equipment we had the great stalwart of British anaesthesia to fall back on, the triservice apparatus. It usually sees service in countries where oxygen and nitrous oxide refills are unavailable. We did not use it routinely because of difficulty with scavenging. American theatre nurses are paranoid about theatre pollution from anaesthetic gases. Even the cryoprobes had scavenging devices.

Orbis does not aim to perform large volume surgery but rather to teach and pass on new information and skills. Although geared towards surgeons, the nursing and anaesthetic departments also run a teaching programme. Every day we would be joined by up to six anaesthetists in the operating theatre. The evenings were frequently spent lecturing in the local hospital or medical school. This gave me the opportunity to meet and see the working practices of fellow anaesthetists in seven countries. Among the more interesting visits was that in Cheng Du, capital of the Sichuan province, where I witnessed total intravenous anaesthesia with procaine, radical mastectomy under thoracic epidural anaesthesia, and in the pain clinic moxibustion, acupuncture, and cupping. In Mongolia I visited the hospital for civil servants and administrators, where the single rooms en suite, Western drugs, and East German anaesthetic equipment were in stark contrast to the people's hospital.

Orbis is not without its critics. Some have argued that it is inappropriate to bring this high tech form of health care to developing countries. Orbis doesn't argue that this is the best or the only way to deliver an ophthalmic or anaesthetic or nursing service. Rather it acts as a postgraduate forum to show and discuss techniques being used in other countries. In many developing countries doctors have no opportunity to travel overseas and many comment on the frustration

of reading about the latest techniques and developments which they will never see. Coming from a country with an excess of postgraduate meetings it was refreshing to see the enthusiasm of our hosts and their quest for knowledge.

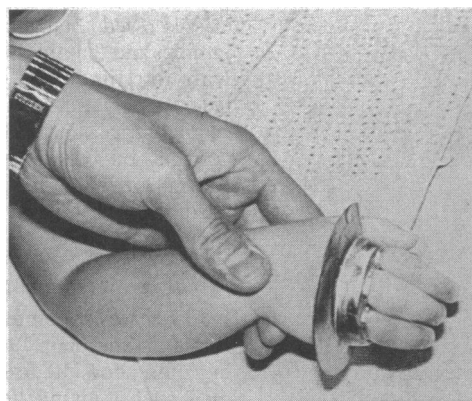
### No two programmes are alike

Months before the plane arrives a frontwork team meets the local ophthalmologists to find out how they would like the programme structured. As a result no two programmes are alike. In Bangladesh the local Lions club had bought two vitrectomy machines two years before at a cost of \$60 000 but they had never been used. Part of the programme in Bangladesh was therefore devoted to retinal surgery.

Several months after a programme a follow up team visits to review those patients operated on and assess the impact of the programme. Orbis acts as a catalyst; it ignites a spirit of cooperation and encourages positive action. In addition to providing medical exchanges it raises community awareness through extensive press and media coverage that the project receives.

Orbis afforded me the opportunity to be part of an international team; to live closely with 22 people of different cultures for seven months and without any discord; to experience and see at first hand the health care systems in our host countries; and to act as an ambassador for the anaesthetic profession in Bristol and the United Kingdom.

### Down the drain



Chasing disappearing bath water, a 2 year old boy got his fingers trapped in the plug hole. The bath had to be dismantled by the fire service and the metal ring cut away under general anaesthetic. The child suffered no injury. A similar device showed the holes with their everted lips were a perfect trap for a child's fingers. We are unaware of a similar case.—K C SAW, surgical registrar, Addenbrooke's Hospital, Cambridge CB2 2QQ, M OWEN-SMITH, consultant surgeon, Hinchingsbrooke Hospital, Huntingdon PE18 8NT