



**THE
ANNALS
OF THE
SCOTTISH
SOCIETY OF
ANAESTHETISTS**

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Scottish Society of Anaesthetists

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Programme for 1992

Registrars Prize: Entries to be submitted to the Hon Secretary by 29th February, 1992

Annual General Meeting: Peebles Hydro Hotel, 24th - 26th April, 1992

Registrar's Meeting: Pain Symposium, Ninewells Hospital, Dundee, 29th May 1992.

Scientific Meeting and Gillies Memorial Lecture:

Joint Meeting with the South West Society of Anaesthetists at Bath 27th-28th November, 1992

Golf Outing: Ladybank Golf Club - Friday 12th June 1992

PRESIDENT'S NEWSLETTER



One of my fondest hopes is that some day soon the standing of anaesthesia in the eyes of the public will be as high as that of surgery; that it will reflect the skill and training of anaesthetists and the great advances in drugs, techniques and monitoring.

Alan Gilston¹ wrote in 1986 that anaesthetists 'have yet to dispel a widespread public view that they are merely technicians, or at best failed doctors, whose main task is to administer just an injection'. Numerous studies²⁻⁶ over the past twelve years confirm that the function of anaesthetists is poorly understood by the general public, and that only two thirds of patients realise that the anaesthetist is a doctor.

Even today the majority of patients who leave hospital after a successful operation are grateful to the surgeon, the nurses and the house surgeon who looked after them, but have little or no recollection of the anaesthetist. The reason for our poor image must surely be our failure to communicate adequately with our patients. There are grounds for optimism however. Pre-operative visits by the anaesthetist have now become routine and are regarded as essential. The value of such visits to both the patient and the anaesthetist is unquestioned. The introduction of the new consent forms is another step in confirming the patient's right to full information and we should welcome the opportunity this gives us to establish a closer relationship with the patient. Post-operative visits by anaesthetists are equally valuable. After operation many patients

suffer pain and nausea which at present are not adequately controlled. All hospitals should now be aiming to have a modern and effective pain relief policy, with regular assessment and recording of pain. The introduction of Acute Pain Services again provides the anaesthetist with the opportunity to befriend and help the patient. Anaesthetists are also ideally equipped to advise on the prevention of chest infection and deep venous thrombosis, and the control of diabetes. But merely by taking a kindly interest in the patient and in his well-being during the first two or three post-operative days, we can boost the patient's morale, improve our standing as anaesthetists, and at the same time increase our own job satisfaction. There can be no doubt that patients do appreciate the interest of the anaesthetist in their recovery. Let us hope that the days are gone for ever when only 5% of patients could recall speaking to their anaesthetist after the operation.^{4,5}

1991 has been a dramatic year in world politics with wars in the Gulf and in Yugoslavia and the demise of Communism. In our specialty, changes have been less traumatic and this has in fact been a year of steady progress for the Scottish Society of Anaesthetists. I shall always remember my year as President with pride and satisfaction. I would like to thank Dr Donald Miller who organised the successful Registrars' Meeting on Paediatric Anaesthesia in Glasgow, Dr Dermot McKeown who likewise masterminded the Scientific Meeting in Edinburgh, and all the Council, especially the Secretary, Treasurer and the Editor of the Annals for their support and friendship.

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5. Pleuvry BJ, Bradshaw EG The anaesthetist in the eyes of the public. *Anaesthesia*;1982;37:462-463
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This edition of the Annals sees a new team of office bearers and our thanks are due to Peter Wallace, Douglas McLaren and John Murray for their achievements over the past four years. I would like to record my personal thanks to John Murray for his help and guidance. He has achieved much developing the Annals and his will be a hard act to follow. The Annals will continue to reflect as widely as possible the activities of both the Society and of anaesthetists in Scotland and the Editor will be pleased to consider articles from members which are of interest.

The Society continues to evolve and recent developments include partly funding a lecturer to travel to the East Africa Society of Anaesthetists. Dr Iain Levack undertook this and his report is included in this issue of the Annals. It is hoped that the Society will continue to be in a position to support this sort of venture as benefits accrue to both parties.

The past year has seen changes in the NHS occur at a speed which is well beyond that which politicians and administrators were previously thought capable of. As highly trained individuals with a scientific background we should all wish to carefully assess the likely impact of proposed change on our patients as well as on our professional life, perhaps awaiting the result of a small trial, before giving a measured response. Unfortunately, politicians have now recognised that such a pattern develops its own inertia resulting in little change to the status quo. Therefore to bring about radical change, a technique of using a limited timetable with little deviation in response to criticism, however well reasoned, has been adopted. This inevitably leads to polarisation of opinions and a lack of meaningful debate on the issues involved. Discussions will have taken place in many departmental coffee rooms on the prospect of enforced changes to working patterns, the possibility of limited term consultant contracts, and the introduction of the staff grade. In the present climate it is understandable that individuals will be concerned about their own situation and the presumed power of management to alter this. Perhaps there are a some who have a cosy niche and would resent close inspection of exactly what they do. Most

anaesthetists, however, carry out duties well beyond what is contracted for and sensible managers will realise that there is far more to be gained by working with us rather than merely trying to tell us to anaesthetise more patients.

But even if fears about our individual circumstances may be exaggerated what of the future standing of the specialty? Will anaesthesia become purely service provision to be purchased at the most advantageous price? Could we end up with only a few consultants, most of the work carried out by the staff grade and little time for teaching or research? Some fear that management will inevitably wish to cover theatre sessions as cheaply as possible and will therefore introduce either additional theatre sessions to consultant contracts or make more use of a sub consultant grade. This could only come about with our acquiescence unless there are demonstrable anomalies in the terms of our job descriptions. Managers may certainly ask some searching questions. Are patients being seen pre and post operatively or is the time made available for this being used in another way? What happens when a list finishes unexpectedly, or even expectedly, early? Is this followed by a blanket refusal to undertake any other theatre work whatever the circumstances? Do we always insist on the same standards in our own clinical practice?

Our present working arrangements have evolved after many years of pressure and negotiation from the Association of Anaesthetists on contractual matters and the College has led the development of standards for training and accreditation. Much has been gained over the years by carefully prepared reasoned argument to those in central bodies. This may not be as effective in the new structure of the NHS where decision and policy making has been devolved. Ultimately, however, the standing of the specialty is no more and no less than the sum of the standing of its individual members and the future for the profession will depend not so much on contractual negotiations with management but on our own professional behaviour. If we each continue to maintain high clinical and professional standards of work the standing of the specialty will be assured.

PRESIDENTIAL ADDRESS

Let us now praise famous men (Ecclesiasticus 44:1)

In 1991 Dundee celebrates its Octocentenary. Traditionally, Dundee has been famous for Jute, Jam and Journalism but in the 19th century it was also famous for its whaling and shipbuilding industries. Whale oil was used as a lubricant for jute fibre. The Dundee whaling fleet had sailed further north than any other ships, and had also ventured into the Antarctic. The shipbuilding yards in Dundee specialised in building wooden whaling vessels which could spend one or two winters stuck in the ice and still reach home safely. And so it was natural that in 1901 the Committee of the National Antarctic Expedition chose a Dundee shipyard to build the Royal Research Ship DISCOVERY to carry Scott and Shackleton to the Antarctic.

This marked the beginning of the long connection between Dundee and what is known as the "Heroic Age of Antarctic Exploration". Many of the ships involved in the British expeditions were built in Dundee, the TERRA NOVA, the NIMROD, the MORNING and the AURORA. Shackleton was invalided home from the Discovery Expedition with scurvy and later became Secretary of the Scottish Geographical Society. He resigned from this to stand as a Parliamentary candidate in Dundee, but was not elected.

In 1907 he returned to the Antarctic and made a second attempt to reach the South Pole. This time he reached within 100 miles of the Pole before having to turn back. In spite of his failure, Shackleton received a hero's welcome and was knighted by the King. Scott and Shackleton both longed for the honour of being first to reach the South Pole. As we all know Scott reached the Pole in his 1911 expedition only to find the Norwegian explorer, Amundsen, had beaten him by a few weeks. On the return journey, Scott, Wilson, Bowers and Oates all perished.

This then was the situation in 1914 when Shackleton was planning his latest expedition to Antarctica. The South Pole had been conquered twice. Something more grandiose was now required. He decided he would cross the whole Antarctic Continent from the Weddell Sea to the Ross Sea by way of the Pole. Two parties and two ships would be required. The smaller party would sail in the AURORA from New Zealand to the Ross Sea, where they would land and lay down depots of food between the Ross Sea and the Pole - for the benefit of the main party who would land on the Weddell Sea side of the Continent and march across by way of the Pole. The main party would sail in the ENDURANCE.

Raising money for the expedition was a problem as usual, when suddenly, out of the blue, Shackleton received a cheque for £24,000 from Sir James Caird, a Dundee jute magnate. Sir James was a widower whose only child had died. He was a compulsive philanthropist. In his home city of Dundee he had donated the Caird Hall, Caird Park, and the Caird Pavilion of Dundee Royal Infirmary. His gift to Shackleton was made free of all conditions. Shackleton could now advertise for men to join his expedition and he received 5000 applications.

He appointed two medical officers to accompany him on the

DR STUART MCGOWAN

ENDURANCE. One was Dr Alexander Macklin, the subject of my Presidential Address.



Alec Macklin was born in Melrose in 1889, but he was brought up in the Scilly Isles where his father was in general practice; a practice which involved journeying round the islands. Alec had thus grown up with small boats. Between leaving school and going to university he worked as a deck hand on a Mediterranean boat. He graduated in Manchester in 1912 and spent two years working in hospital in Manchester and Blackburn before joining Shackleton's expedition.

The ENDURANCE sailed out of the Thames on August 1st, 1914 and put into Plymouth on August 4th. This was the very day that Britain declared war on Germany. Shackleton was plunged into a dilemma. How could he sail away to the Antarctic when his country was at war? On the other hand he had planned this expedition for over a year and raised the money. He telegraphed the Admiralty, offering to put his men, ship and provisions at their disposal. A few hours later the First Lord of the Admiralty, Winston Churchill, gave them permission to proceed.

Thus began one of the great adventures of all time. The ENDURANCE sailed first to South America and then to Grytviken, a whaling station in South Georgia, before entering the Weddell Sea. Today Antarctic explorers can phone home with excellent reception, but when the ENDURANCE left South Georgia on 15th December 1914, she sailed into limbo. There was no further communication between the two halves of the expedition nor with the outside world.

Within a few days they encountered pack ice. Gales and low temperatures were the order of the day. The ship dodged

about, pursuing a course due south whenever it could, steaming through what leads could be found and ramming hard against the young ice to force a passage.

On 10th January they sighted the coast of Antarctica and turning westward, sailed along the barrier edge, looking for a suitable landing place. They could have landed at Glacier Bay on the 15th of January but Shackleton decided to press on, hoping to reach Vahsel Bay 100 miles further on. As things turned out, the expedition had lost its only chance of landing on the Antarctic Continent.

Soon the ENDURANCE was brought to a halt. A gale from the north-east piled the pack ice behind and around her. The temperature dropped suddenly and on the 19th of January the ENDURANCE was beset in the ice. At first Shackleton was hopeful that the ship would break free again. Whenever a crack opened up in the floe, some attempt was made to break through. The men worked hard with chisels and ice-picks, but their efforts were in vain. Shackleton realised that they would have to spend the winter in the ice.

Dr Macklin was especially disappointed as he had been chosen as one of the six members of the expedition who would make the crossing of the Antarctic Continent. Shackleton made sure that each man on board should still have his work to do - the scientists, the photographer, the artist, the carpenter and so on. Each of the men chosen for the trans-continental party was put in charge of a team of dogs. It was his duty to get on terms with the animals, to feed and tend them, choose a leader, exercise the dogs when



conditions allowed and produce a workable team. The dogs were moved on to the ice and the men built shelters for them.

For the next eight months the men lived on the ship throughout the Antarctic winter. They were encouraged to get out and walk on the ice whenever it was possible, but were warned to look out for cracks. Lights were fixed on 25 foot poles at the port and starboard sides of the ship which lighted up a great deal of the floe.

The pack ice was never entirely stationary during the winter. Early in June there was a lot of pressure near the ship. The noise was described as very loud, like an enormous train with squeaky axles being shunted with much bumping and clattering. You could stand on the blocks of heavy, rafting ice and feel the irresistible forces of nature working under your feet as the Weddell Sea current exerted its slow but mighty force.

From July onwards the ice was increasingly disturbed. Cracks were appearing and, as the pressure increased, huge blocks of ice were piled up in confusion. The ENDURANCE began to list to port and the dogs' quarters were wrecked. In October the ship began to leak, and all hands manned the pumps. The immense pressure of the ice caused the ship to bend and strain, and finally Shackleton ordered the evacuation of the ship, and camp was set up on the ice floe nearby. Although the ENDURANCE was wrecked, she did not sink for another three to four weeks - on the 21st of November. During this period they managed to remove most of the ship's stores and take them to the camp. The three lifeboats were named after the main sponsors of the expedition - JAMES CAIRD, DUDLEY DOCKER and STANCOMB-WILLS. The largest was the JAMES CAIRD being 23 $\frac{1}{2}$ feet long, the smallest the STANCOMB-WILLS was 20 $\frac{1}{2}$ feet.

For five and a half months Shackleton and his 27 men camped on the ice in the middle of the Weddell Sea. Their ship had sunk. Their only shelter was a few tents. But all the time the ice was drifting in a north-westerly direction. In all they drifted 1600 miles away from the Antarctic Continent. They hoped that eventually they would be close enough to dry land to be able to walk across the ice to it, or just have a short boat trip. At first there was plenty of food which had been saved from the ENDURANCE, but as time passed they had to rely more on catching seals and penguins. The blubber from seals was used as fuel for cooking purposes and boiling water.

On the 2nd of April 1916 the last two teams of dogs had to be shot. The dogs had become a liability, now that it was obvious that they would soon have to take to the lifeboats. They used up valuable food in addition. Macklin's team of dogs was the last to be shot and he was very sad to have to carry out this act.

A week later, on the 9th of April the ice floes broke up beneath their feet. The northern front of the pack was being smashed by the autumn gales of the Southern Ocean. The three boats were quickly loaded and launched. Their position was 60 miles southeast of Elephant Island, a desolate ice-bound island in the South Shetland group.

On the first day they rowed about seven miles. As it was getting dark they found a large floe, so they pulled alongside,

hauled their boats up on to it and pitched their tents. After a good meal they were all in their sleeping bags by 8pm. Three hours later the ice floe cracked under one of the tents. A seaman finished up in the water, still in his sleeping bag. Shackleton leaned over and with one mighty heave pulled him out of the water onto the ice. A few seconds later the two halves of the floe swung together with tremendous force. The seaman was none the worse, but no-one slept again that night. They kept warm by tramping the floe and huddling round the blazing fire of seal blubber until dawn.

On the second day they launched the boats and rowed out through the ice till they reached open water. They set sail but the sea was too heavy for their deeply laden boats. They decided to return to the shelter of the pack and unloaded their boats on a floe-berg. There they abandoned one third of their food supplies, pitched their tents and after a hearty meal, slept for 12 hours.

When they awoke they saw a magnificent and beautiful sight. Great rolling hills of jostling ice sweeping past them in half-mile long waves. But it was a sight that they did not like, for the floes were thudding against their floe-berg with increasing violence. Fortunately a passage of open water appeared in the ice pack and they sailed out once more into the open sea.

It took them six days to reach Elephant Island. They were continuously cold and wet through on the journey with the temperature dropping to 25 degrees below zero. Nearly all were frost bitten to some extent. They were suffering from dehydration from lack of fresh water. Many had been seasick. It was thanks to the skilful navigation of Frank Worsley that they reached Elephant Island.

They landed on a low rocky beach, brought their stores ashore and hauled their boats out of the water. Some of the men reeled about the beach as if they were intoxicated. They were laughing uproariously, picking up stones and letting handfuls of pebbles trickle through their fingers. They were on dry land for the first time since leaving South Georgia 16 months before.

It soon became obvious, however, that there was little hope of rescue if they remained on Elephant Island. No search party would look for them there. If anywhere they would look in the southern part of the Weddell Sea. And Elephant Island was no place to spend the rest of your days. It was desolate, barren, uninhabited and devoid of vegetation. It consisted of rocks and glaciers. They could certainly live off seals and penguins, but they wanted to return to civilisation.

Plainly the thing to do was to take one boat to the nearest inhabited point, risking the lives of a few for the preservation of the party. And the only practical goal, as everyone knew by now, was South Georgia. Cape Horn and the Falkland Islands were much closer, but reaching either would require beating against the prevailing winds. South Georgia was 800 miles away but it was to leeward, directly in the path of the Westerlies that stormed round the globe at those latitudes. It would have been impossible to keep 28 men alive for that distance. The three boats could not have kept together and the smaller two would probably have foundered. They therefore concentrated their meagre resources on the largest boat, the JAMES CAIRD.

The carpenter, McNeish, a Dundee man, built up the sides by fifteen inches, constructed a whale-back at each end and fitted



a pump. He covered the space between the whale-backs with sledge runners, lids of boxes and old canvas. A ton of ballast was loaded on to the boat, mainly shingle sewn up in canvas bags.

Thirty days of food, water and oil and methylated spirits for the Primus were put on board as well as six sleeping bags and some spare clothing. The six men chosen to make the boat journey were Shackleton himself, Worsley to navigate, McNeish the carpenter and three seamen.

On the 24th of April 1916, nine days after they had reached Elephant Island, the JAMES CAIRD set out on her journey. The men who stayed behind made a pathetic little group on the beach, but they waved and gave three hearty cheers.

With all three sails set, the CAIRD made good progress. They navigated their way through the pack ice within a few hours and were out into the open sea.

Sixteen days later they landed at King Haakon Bay on the north-west coast of South Georgia. It was an incredible journey for such a small boat. In this part of the Southern Ocean the great westerly swells roll almost unchecked around the world in what are known as the 'roaring forties' and the 'stormy fifties'. They are the highest, broadest and longest swells in the world. Once again the success of their journey was due to Worsley's magnificent navigation under the most difficult conditions. The sun appeared on only a few occasions to allow him to use his sextant, chronometer and navigation books to work out their position. Without his accurate readings they could have missed South Georgia completely to the north or south and finished up in the Southern Atlantic Ocean with no chance of survival.

Shackleton and his five companions had reached the west coast of South Georgia, but all the whaling stations were on the east coast. They felt they could not reach them by boat. They might be carried away by the currents and westerly gales out into the Atlantic. Shackleton decided to cross the island on foot with the two fittest of his companions.

The crossing over mountains, glaciers and crevasses was very hazardous. They were inadequately dressed and equipped. Their clothing and footwear were thin and worn. They had one rope and a carpenter's adze to cut steps in the ice. And yet they did it and thirty six hours later they walked into the whaling station at Stromness.

They were greeted with incredulity. It was nearly two years since Shackleton had left Britain, and nothing had been heard of him since. He was presumed to have perished. In the whaling station every comfort was provided - the glorious luxury of a long bath, followed by a shave. New clothes were provided and a hearty dinner.

Worsley then boarded the whale catcher SAMSON for the trip to rescue the three men they had left behind at King Haakon Bay. At first the three castaways failed to recognise Worsley because his appearance had changed so much. They boarded the ship and the JAMES CAIRD was also taken aboard. On the following day the SAMSON returned to Stromness.

Shackleton's main concern now was to rescue the twenty two men on Elephant Island. Over the next three months he made four attempts in four different ships before he finally succeeded in reaching them. The first three attempts were defeated by the pack ice surrounding Elephant Island. Finally the Chilean sea-going tug YELCHO got through and they returned to Punta Arenas in the Straits of Magellan. All twenty eight men returned safely.

Dr Macklin was just twenty five years old when he sailed on the ENDURANCE, as one of the two expedition surgeons. As the Antarctic is free of germs of all kinds, and the men were fit, his duties were not onerous. They did involve the veterinary care of the sledge dogs, who frequently fought among themselves. Frostbite and snow blindness were common ailments. The prevention of scurvy was always uppermost in his thoughts. Scurvy had been a bugbear of previous expeditions. Its symptoms and signs were well known but the cause was not obvious. It was not until years later that Vitamin C was recognised as a nutritional entity. Both Shackleton and Dr Macklin took a deep interest in scurvy and realised that it could be prevented by eating seals and penguins. No member of the expedition suffered from scurvy during the two years in spite of a total lack of fresh fruit and vegetables.

They all suffered from frostbite to some degree, especially on the boat journeys. In one member of the party the frostbite progressed to gangrene of his toes, and this required an amputation. The operation took place on Elephant Island, in the hut they had built by constructing two walls four feet high, using stones from the beach, then placing the two remaining boats, upended, side by side. A tent was then stretched across the top.

To sterilise the instruments, the cooking pot was filled with ice which was melted into water and brought to the boil. For an operating table; they placed a number of packing cases side by side and covered them with blankets. The men were herded outside to wait until the operation was over. Hurley remained to stoke the fire, by piling penguin skins on to the blaze. Every available blubber lamp was lighted, and the dingy interior of the hut grew fairly light. When it was warm enough, Macklin and McIlroy (the other expedition surgeon)

stripped to their undershirts, the cleanest garments they had. The anaesthetic was chloroform and was administered by Macklin. He waited until the temperature had reached a sweltering 80 degrees before starting to pour a little of the chloroform onto a piece of surgical gauze. In a few moments the patient was unconscious and the operation began. It took fifty five minutes altogether. After it was over, Macklin and McIlroy used the hot water in the pot to wash themselves down to their waists.

Ten days after returning to Britain from his Antarctic adventure, Dr Macklin found himself in France as Medical Officer to a tank battalion. He later served in Italy before being transferred to North Russia. Here he had to deal with extensive outbreaks of scurvy, smallpox, influenza and typhus and typhoid fevers. During the North Russian Winter Campaign he was given the task of organising special methods for the care of the sick and wounded in extreme cold, and for their transport by reindeer, pony and dog sledge. He spent many days in the Russian forest, testing methods of transport that would enable severely injured men to survive the intense cold and be brought in alive.

By the time he was demobilised Major Macklin had been appointed O.B.E. and awarded the M.C. for bravery. He was awarded the Polar Medal - with its white ribbon - for exceptional service on Shackleton's expedition. In 1920 he proceeded M.D. with commendation for his thesis entitled 'The evacuation of sick and wounded from mobile columns'.

During the next five or six years Dr Macklin was continually on the move. He worked in hospital in general surgery, E.N.T., eyes and fevers. He went to China and Japan as ship's surgeon in the Blue Funnel line. He made a second trip with Shackleton to the Antarctic on the QUEST expedition. It was during this expedition that Shackleton died of a heart attack on South Georgia. Macklin had the gruesome duty of performing a post-mortem on his friend - 'one of the most unpleasant tasks I have ever had to undertake', as he said later.

Finally in 1925 he settled in Dundee in general practice. His main interest was in general medicine and he was anxious to secure an appointment in Dundee Royal Infirmary, which was then the teaching hospital of St. Andrew's University. Being a total stranger his chances seemed very remote, so he applied for the post of anaesthetist which fell vacant soon after his arrival. He was successful and was appointed to one of the major surgical units at an honorarium of £20 per year.

Dr. Macklin practised in the days before intravenous induction and before muscle relaxants. Ether, chloroform and nitrous oxide were the standard agents, and the early version of the Boyle machine was the standard equipment. Very soon he became dissatisfied with both chloroform and ether as routine agents. His chief objections to them were the unpleasant induction and the disagreeable after effects, namely headache, nausea and sometimes distressing vomiting. He regarded chloroform as too toxic for general use. Ether was safe 'on the table' but caused a high incidence of post-operative pulmonary complications.

And so he came to regard nitrous oxide as the ideal agent, with its easy pleasant induction, and amazingly short recovery period. He published a series of 553 cases anaesthetised with nitrous oxide and oxygen as the sole

agents. These included 61 upper abdominal cases, including gall bladders, and 175 lower abdominal operations. The first patient in his series was a woman of 72 years, admitted with acute intestinal obstruction due to carcinoma of the descending colon. The anaesthetic lasted 60 minutes and was a complete success.

Dr. Macklin compares anaesthesia using nitrous oxide/oxygen only with that using ether and chloroform. As far as induction and recovery go, gas/oxygen showed overwhelming advantages. During the operative period, relaxation could be a problem with difficulty in closing the peritoneum. In such cases it was necessary to resort to secondary saturation, which although remarkably effective, requires momentarily a very deep and probably dangerous asphyxiation. But even in the worst cases recovery was very rapid.

Ill effects from hypoxia were particularly looked for, but they were conspicuous by their absence. A number of cases in his series remained definitely cyanosed during the whole operation without showing the least sign of distress (the breathing being quiet and regular, the pulse full, steady and not unduly quickened) and made an instant trouble free recovery. In his series of 553 patients Dr Macklin personally had no deaths, nor did any patient cause him undue alarm. There were however three deaths at the hands of house surgeons, all three being classified as bad risks.

Another famous anaesthetist who favoured nitrous oxide and oxygen was Dr. Ross McKenzie of Aberdeen. He recalls in the 1960 Newsletter of this Society how a large contingent of anaesthetists from America and Canada came to Glasgow in 1926 for a joint meeting. After the papers and discussion the audience repaired to the Children's Hospital in Glasgow where two infants underwent operation for inguinal hernia and Dr. Ross McKenzie demonstrated his technique of gas/oxygen anaesthesia. Among the group of visiting anaesthetists was Dr. McKesson of Toledo, Ohio.

In 1930 a vacancy arose for the post of Assistant Physician in Dundee Royal Infirmary. Dr. Macklin applied for it and was successful. He later became Extra Physician and finally full Physician. He was given charge of the electro-cardiographic department. This became another great interest for him. In the days before mobile ECG carts, the cardiograph room in D.R.I. was connected by wire to all the wards, so that the tracing could be taken with the patient lying undisturbed in bed. It was also possible to connect with the operating tables and take records of the heart beat during surgical operations.

His work was interrupted by the Second World War for, being a Territorial, he was called up on the first day of the war and not released until March 1946. At first he commanded a Field Ambulance in the Highland Division in Perth and later Aberdeenshire. His seemingly unlimited energy was the cause of frequent, though good natured grouching, from his men. Long marches all over the countryside, night marches up and down mountains and living rough were the order of the day. They ate rough too - not the seals and penguins of his Antarctic days - but a hotch-potch of squirrels, rabbits, birds and their eggs. Later he was sent to Abyssinia and Kenya and finally was appointed Assistant Director of Medical Services to the East Africa Command which embraced a large part of Africa, Madagascar, Mauritius and the Seychelle Islands. He was

promoted to full Colonel with a plane at his disposal.

On returning to Dundee at the end of the war he married Jean, a nursing sister, and subsequently had two sons.

He was disappointed to find his department in D.R.I. 'in chaos' and worse still his records scattered. As he had only two years to go until retirement on age limit from the hospital he decided to seek a post which would permit a study of health. He applied successfully for the post of Physician in Charge of Student Health in the University of Aberdeen and started work there on January 1st, 1947.

Aberdeen University was the first to inaugurate a comprehensive full-time Student Health Service. The aim of the service was not merely the medical care of sick students, but also to investigate the factors which affect the well-being of the student body and to conduct routine health examinations of students.

Dr. Macklin soon gained the confidence of students and staff alike. He tried to imbue the student with that love of life - particularly life in the open air - which he enjoyed himself. He built up a 'University Practice' which extended beyond his consulting rooms, into student digs, into the University laboratories and on to the playing fields at Kings.

In addition to his own work, he was closely associated with the post-war development of student health services throughout Great Britain. He was elected President of the British Student Health Association in 1952, and on his retirement in 1960 (at the age of 70) was made an honorary life member of that association.

But still his youthful and energetic spirit would not let him rest, and during the next seven years up to his death he undertook locum duties all over the North-East of Scotland, both in general practice and in various hospital departments - casualty, geriatrics, E.N.T. and latterly orthopaedics. At the time of his death, at the age of 77, he was an orthopaedic house-surgeon in a busy ward, a post he carried out with his usual efficiency. One day he failed to turn up for work. Enquiry revealed that he had gone home complaining of chest pain. Next day he died of a myocardial infarction.

By any standards Dr. Macklin was a remarkable man. A man of outstanding character and integrity, modest and unassuming, with a rich sense of humour. A man of great vitality and zest for living. We could all benefit from the advice he gave to his students. "Remember", he wrote, "that the sins of omission are greater than the sins of commission, and that lost opportunities do not often recur. If in doubt, do!"

When I was offered the Presidency of this Society, I hesitated at first, but, following the advice of Dr. Macklin, I accepted the honour.

I would like to acknowledge my indebtedness to Dr. Iain Levaack for the great help he has given me in the preparation of this paper and also to Mrs Jean Macklin for kindness, hospitality and the sharing of her personal reminiscences.

I am grateful to the Scott Polar Research Institute in Cambridge and to Mr Headland, Archivist for permission to reproduce the photograph of Endurance at Midwinter 1915.



Ethics and Reproduction

Over the past fifteen years and particularly since the publication of the Warnock Report in 1984, ethical problems in reproduction have led to widespread discussion in the media and in the country. In November 1990 the recommendations of the Warnock Committee were incorporated into legislation by the enactment of The Human Fertilisation and Embryology Bill. I want to discuss some of these problems today.

Abortion and the Age of Viability

The first item is abortion but I don't want to say very much about this because it has been discussed now for some 25 years. In spite of the Abortion Act (1967) there has been constant harping about change since then and indeed seven bills have been brought to Parliament to try to change the Act. There has now been some change as a result of the new Act.

One of the main problems here has revolved round the age of viability and indeed what one means by viability. Originally, in the 1967 Act, the age of viability was 28 weeks and it was possible to carry out abortions up to that time. Very few were, in fact, done after 26 weeks and only a small number after 24 weeks. Because of the greatly improved expertise of the neonatal paediatricians it became obvious that 28 weeks was unrealistic and that many babies born below that gestation period would survive quite intact, so that over the last 5 years or so there has been a move to reduce the gestation period of abortion to 24 weeks. Some people, of course, wanted it reduced even further. The

Pro-Life organisation wanted it reduced to 18 weeks. That would have been unrealistic because some of the diagnostic tests that are available now, such as amniocentesis, require abortion to be possible later than 18 weeks. However, the gestation age of viability has been reduced to 24 weeks with some exceptions. These exceptions are quite interesting because it has, in fact, made abortion slightly more liberal than it was before! Now if there is severe abnormality it is possible to interrupt the pregnancy right up to term. This is somewhat unrealistic and I'm not sure that the parliamentarians understood what they were doing when they said this, because it is now theoretically possible in a case of Down's syndrome to terminate the pregnancy up to term. Nobody would do that because the child would be certain to survive after 32-34 weeks. The Act is rather unrealistic in this case but I think a major advance has been that the age of viability has been reduced to 24 weeks which seems very reasonable. I don't want to go into the pros and cons of abortion but will discuss some of the aspects of when life begins later in this talk.

Preconceptional Sex Selection

The next item that has become important recently is the question of sex selection and in particular sex selection for unwanted sex. This means that if the child was found to be of the sex that the parents did not wish, it could be aborted. This has now come to the fore particularly in certain ethnic groups where it is extremely important for them to have a male heir. The reasons for sex selection which are put forward are that in a national family planning programme a family with the desired sex composition would be achieved quickly and therefore effectively reduce the size of the family. The desire for sons or daughters has kept some families from stopping at two and we can all think of families where this has happened. Secondly, the prevention of the birth of affected children with sex linked diseases is a much more cogent reason for knowing the sex of a child. Therefore, I think that the use of preconceptional sex selection to avoid sex linked genetic disorders is an indication that is completely justifiable on medical grounds. This has been going on now for many years and is generally accepted. Preconceptional sex selection, on the other hand, must never be used as a toll for sex discrimination against either sex, particularly females and these are the two attitudes which certainly prevail in this country. Having said that, I think that it is conceivable that in exceptional cases it could be possible under the terms of the 1967 Abortion Act to abort a child of the "wrong" sex. Such a case would be in a particular ethnic culture in this country where a

family has say 4 or 5 girls and it was very important to have a male heir. If the wife became pregnant she would want to know the sex of the child and would not wish to have another girl. It would be possible from a psychological point of view to do sex selection and terminate the unwanted sex on psychiatric grounds but this would be very rare.

Antenatal Screening

Antenatal screening for foetal abnormality has gone on for many years, and at present antenatal screening for Down's syndrome is offered to women of 35 years and over as a routine; indeed if it is not offered it is possible for the patient to sue if a Down's Syndrome baby should be born, and that has happened. Screening for spina bifida is routine in Glasgow where there is a high incidence of foetal abnormality due to spina bifida or central nervous system defects.

There is a lot of discussion as to whether a person can judge the quality of life for somebody else. This is a major ethical difficulty because we all know of people with spina bifida who lead perfectly fulfilled lives and indeed we have such colleagues in the medical profession. It is difficult to decide this question but in general I think if abnormalities like spina bifida are discovered then it is justifiable to offer termination of pregnancy and leave it to the parents to decide. What is going to be much more difficult is when it is possible to diagnose other diseases which do not occur until middle life. A good example of this is Huntington's chorea. Is it therefore ethically justifiable to terminate a pregnancy in a foetus which is likely to develop Huntington's chorea if when that foetus is born it could be a perfectly normal person for say 40 years and perhaps make a good contribution to society and then die at the end of that time? I don't know the answer to this but it does seem a difficult problem that we have to anticipate. Of course, with modern technology it will be possible to diagnose conditions at the pre-embryo stage, before the embryo is 14 days old, and this may be the way forward in the future. Only embryos that are shown to be normal by embryo biopsy will be transferred. This is a possibility which I will mention later for diagnosis of Down's Syndrome at very early developmental stage. So antenatal screening is not an easy problem to solve.

Foetal Therapy

Another new development is foetal therapy where it is now possible if an abnormality is discovered such as ureteric obstruction, to operate during intrauterine life and relieve the obstruction until delivery when a more formal procedure can be performed. This has already been done. A newer development is to take a part of the foetus out, perform some particular procedure on it

and replace it in the uterus. One of the difficulties is we don't know yet whether this does any good or not and controlled trials are required. The question is, is it justifiable ethically to do controlled trials in such cases? I don't know the answer to this.

Resuscitation of Very Small Babies

In the neonatal field, there is the question of viability - when and when not to resuscitate very small and very sick babies when they are born. There is a school of thought that says that anything that has a heartbeat or breathes must be resuscitated but of course foetuses of 18 weeks can take a breath, blow bubbles and have a heartbeat, and not have a hope of ever surviving. Even at 22 weeks if one of these babies is resuscitated the incidence of very severe handicap is extremely high. The question therefore is, when do you and when do you not resuscitate? This has led to all kinds of problems with court cases, etc. The Pro-Life group maintain that if a foetus shows any signs of life it must be resuscitated but I think this is ridiculous and that the neonatal paediatricians in conjunction with the parents must decide on the basis of the evidence present at the time whether or not it is justified to resuscitate the small baby. It is important to remember that the very small baby is likely to occupy a neonatal intensive care cot for many weeks or even months and then perhaps be handicapped at the end of the day, so considerable judgement is required in these cases.

Another area of interest in this context is the controversy between micro and macro ethics. Very small babies that are unlikely to survive or who will survive very handicapped occupy beds in special care baby units for a long period of time. They may keep out larger babies that would have a much better chance of surviving without handicap. Is it justifiable?

Artificial Reproduction

The particular area which has caused much concern has been artificial reproduction. It is really since the birth of the first in vitro fertilisation baby, Louise Brown, in 1978 that ethical problems in reproduction have become of much more interest to the public. Artificial reproduction or assisted reproduction has given rise to much discussion over that last 10 years and has resulted in one Act of Parliament in 1985, The Surrogacy Act, and more recently in November last year the Human Fertilisation and Embryology Act. I want to say something about these because we have been involved in this since the beginning.

The Warnock Committee was set up in 1982 and produced its report in 1984. This committee was set up

because of the worry and unease that the public has about the new advances in technology which occurred in reproduction and particularly the creation of embryos in the laboratory. It has now become possible to create human embryos outside the human body. As a result, people began to say that all kinds of terrible things could be done with these embryos. They could be put into monkeys, they could be cloned; monsters, half human half animal could be created. Therefore, the government set up this committee which sat for 2 years and issued a report which I think was a very balanced report. I think that the fact that most of the recommendations made by the Warnock Committee have now been incorporated into and formed the basis of the Human Fertilisation and Embryology Act (1990) shows that it was a reasonable report and commanded a great deal of respect.

Artificial Insemination by Husband (AID)

Now I want to consider some of the areas that were discussed by Warnock. The first one was artificial insemination by the husband. This is not an area of particular controversy because the gametes are supplied by the husband and wife and indeed the only thing that is artificial about it is that the sperm have to be put into the wife's vagina by another person, or by the wife herself because autoinsemination is possible if the patient is taught how to do it herself. There is not any particular controversy with regard to this.

Donor Insemination

With regard to donor insemination there has been a lot of controversy. Many years ago there was a committee that sat with regard to this and recommended that the technique should not be encouraged but it should not be banned. In fact it has become very common nowadays and generally accepted by the public and the Bill has gone a long way to make it even easier for donor insemination to be undertaken. The problem that arose with donor insemination was the status of the child. Until the Bill was passed, the child created as a result of DI was illegitimate because it was not the child of the husband and wife. The Bill now states that if the husband agrees to the insemination of his wife by donor semen the child is legally the child of that husband and wife and is legitimate. Birth registration used to be a problem because if the husband, knowing the child was not his, registered himself as the father he was guilty of a criminal offence, that of falsifying a birth certificate. The correct procedure was to put 'father unknown' on the certificate and then adopt the child. This has now been corrected by the Bill and that is certainly in the interests of the child. Another question is that of anonymity of the donor because this contravenes the

idea that everybody should know about their origins. The anonymity of the donor, we think, is important because if donors could be traced it would result in a reduction in the number of donors. In Sweden it is now possible for the child to trace the donor. The result of this was that the donors disappeared for some years and there was no DI service. However, they are now coming back and it is a different kind of donor that is coming. Formerly, they used to be young unmarried men like students, now it is husbands of married women with children who are being donors. But there is still a shortage of them, so obviously if the donor is not anonymous it does diminish the number of donors. The new Bill says that it should be possible for the child to know the general characteristics of the donor without actually knowing who the individual is at a personal level and I think this is probably a reasonable compromise.

Then there was the question of what the child should be told. Many children in the past were not told about their origins, but the general feeling now among people who have been involved in family relationships is that children must know their origins. A difficulty is when and how to tell and that requires a fair amount of help but in general the view is now that children should be told at some time about their origins. One of the ethical questions that has not been resolved is what is the position of the donor. Here is a man who fathers children for whom he has no responsibility and to whom he will not be personally related in any way. He will not know who they are. The ethics of this have been questioned. The ethics of payment of donors have also been questioned and we have found in our own service that if we want to get donors then some form of payment even if it is expenses is necessary otherwise there are no donors. We decided many years ago to make some payment to donors in order to get the service going and it has been fairly successful. I think that some form of remuneration is necessary for donors although it should not be an excessive amount but the ethics of that have also been questioned because it might encourage donors to withhold full details of their medical history or lifestyle, for example, which are necessary before they can be accepted as donors. Therefore while donor insemination has been made easier by the new Bill, it has not dealt with all the ethical difficulties.

In Vitro Fertilisation

The main area in which ethical problems in reproduction arise is In Vitro Fertilisation (IVF). There are numerous varieties of this but the most common are in vitro fertilisation and GIFT (Gamete intra fallopian transfer). In Vitro Fertilisation is where the sperm and egg are put together in the laboratory and an embryo is formed. At

the 8 or 12 cell stage it is transferred into the uterus of a woman, usually the wife of the sperm donor. Then there is GIFT where the Fallopian tubes need to be patent. This makes it different from IVF because here the sperm and the egg are taken from the male and female, mixed in the laboratory - embryos are not formed - and the mixture of this sperm and egg is inserted into the Fallopian tube. GIFT does not apparently come under the Act and I think that is a great mistake because there are all sorts of problems with GIFT. In some cases it is being used when the Fallopian tubes are blocked and furthermore there is a high incidence of multiple pregnancies if more than three eggs are replaced. There is no doubt that GIFT centres should be carefully monitored and I hope that this can be introduced by the new Human Fertilisation and Embryology Authority that has been created in the Bill which is to monitor IVF centres.

Zygote intra fallopian transfer (ZIFT) is another development where the zygote is transferred to the fallopian tube but this is not as successful as IVF or GIFT.

There is not too much controversy with regard to these procedures provided the sperm and the egg come from the husband and wife. However, when it comes to the question of donation of sperm then the same kind of problems arise as in donor insemination. There has been considerable discussion as to whether the donor of eggs should be anonymous or not. Donating an egg is a much more major procedure than donating sperm and some rather unusual cases have arisen with regard to the donation of eggs. For example, daughters have donated eggs for their mothers and the ethical aspects of this have become complicated.

Perhaps the two most controversial aspects of this whole subject have been firstly embryo research and secondly surrogate motherhood. Embryo research has been controversial because it is said by some people that the embryo is a human being and therefore should not be the subject of research. The Warnock Committee considered that the pre-embryonic stage, i.e. up to 14 days from fertilisation before the formation of the primitive streak was different and that it would be reasonable to carry out research on embryos during that 14 day period. This would allow the use of the embryo for the improvement of IVF results, for the development of such areas as the diagnosis of genetic disease and new contraceptive methods. This view has been incorporated into the new Act but it is unlikely that the opponents of embryo research will agree because of deep religious views that are involved. Surrogate motherhood has also become a topic for discussion since it is now possible to use IVF in this context. This

means that a woman can now carry a baby to which she has made no genetic contribution, the sperm and the egg having come from another man and woman - usually a couple who are infertile because the wife has had her uterus removed. This has led to all kinds of problems and phrases like 'rent a womb' have been bandied about by the media. In the US, agencies for organising IVF surrogacy have been set up and an attempt was made to set up such an agency in the UK in 1985. Public opposition was such that in that year the Surrogacy Arrangements Act was hurriedly introduced. This prevents the establishment of such agencies in the UK. This type of surrogacy will, however, continue as it is the only way in which some couples will be able to have a child using their own gametes.

One of the interesting questions that have arisen as a result of IVF surrogacy where the wife of the commissioning couple contributes the egg is 'who is the mother of the child'. Is it the woman who carries and delivers the child (the carrying mother), or is it the woman who provides the egg? This problem has been partially resolved by the Act where it is stated that if the carrying mother agrees, the commissioning couple (the couple providing the gametes) can apply to the court to be designated the legal parents of the child. This illustrates one of the problems that have arisen in the realm of surrogacy and there are many others.

These new techniques have given rise to much discussion about the question, when does life begin and when does personhood begin? This has to be dealt with on philosophical and theological grounds and yet it must pay attention to scientific knowledge. Many people say that life begins at the moment of conception - many eminent people have said this. They are in fact wrong as there is no such thing as a moment of conception. It is a process that occurs over a period of time and in any case there are many times when life could be said to begin from the time when the generative cells in the female foetus in utero are formed - these cells when that foetus becomes a woman will be the cells that give rise to a future baby - right through all the other stages of development right up to at the other extreme a born and surviving child with full legal status. It is possible to defend 12 different times at which life could be said to begin. This is unlikely to be resolved because of all the different philosophical and theological aspects of the subject.

It will be evident therefore that many ethical problems have arisen as a result of the introduction of these new techniques in reproduction. They give rise to deep philosophical and religious feelings and discussion will continue for many years to come.



Electrocardiographic changes during caesarian section under regional anaesthesia

ST segment changes, suggestive of acute myocardial ischaemia, have been shown to occur during caesarian section delivery under regional anaesthesia (1). Palmer et al showed that over 37% of their patients developed such changes and suggested that the aetiology may be an imbalance of myocardial oxygen supply and demand at the time of delivery. The high incidence is out of keeping with the extremely low mortality from coronary insufficiency during pregnancy which was last put at 2.7 per million pregnancies (2). In view of this and the considerable clinical and emotive implications of diagnosing myocardial ischaemia in young mothers, we felt that the situation required clarification. The aims of this study were, therefore, to document the incidence of "ischaemic type" ST segment depression in our own patients and to determine whether myocardial ischaemia could be confirmed by echocardiography.

Patients and Methods

The study was approved by the ethical committee of the Queen Mother's Hospital and all patients gave their informed consent. The patients studied were all healthy mothers undergoing elective caesarian section under regional anaesthesia. Pre-operative treatment was 150mgs ranitidine by mouth on the evening before and on the morning of surgery. Prior to the institution of regional anaesthesia each patient was fitted with an ambulatory electrocardiogram (ECG) recorder (Oxford Medilog 4000 III two channel system) monitoring modified V1 and V5 leads. An intravenous infusion was then commenced and the patient preloaded with one litre of Ringer's Lactate solution.

Epidural or spinal anaesthesia was instituted with the patient in the sitting or lateral position and a block was induced to a minimum level of T6 bilaterally. Heart rate and blood pressure were recorded at one minute intervals using a 2200I Datascope. Hypotension (systolic pressure < 90mmHg) was treated by increasing the rate of maintenance infusion and by a 6mg bolus of ephedrine. Rate pressure products were calculated prior to anaesthesia, at skin incision, at delivery and at 5 minutes post delivery. All significant symptoms, anaesthetic and obstetric events and their times were recorded.

Echocardiography was carried out by a senior echocardiography technician. Prior to skin preparation, with the patient in the modified supine position, two dimensional precordial echocardiography was performed using a Vingmed 700 CFM. Detailed parasternal short-axis examination was carried out from base to apex. This allowed a continuous assessment of areas perfused by all three coronary arteries (3). Surgery then proceeded in the usual manner. Echocardiography was recommenced immediately after delivery and continued until there was normalisation of the ST segment and the patient was symptom free and haemodynamically stable.

Analysis of Data

Electrocardiogram: Ambulatory electrocardiogram tapes were decoded by the Oxford Medilog 4400 II analyser and a hard copy of the entire ECG tracing obtained for analysis.

For ST segment depression to be considered significant the following criteria had to be met:

1. ECG to have normal conduction at ST segment prior to the institution of regional anaesthesia
2. ST depression to be at least 0.1mV at 0.08 sec after the J point.
3. Changes to persist for at least one minute (4)

ST elevation, T wave changes and arrhythmias were not regarded as specific indicators of ischaemia.

The configuration of the depressed ST segment (ascending, horizontal or downsloping) was noted in each case.

Echocardiogram: Echocardiograms were reported by a cardiologist who was blinded to the patient and ECG data. The cross-sectional image at each level was assessed in detail. Normal systolic wall motion was defined as having occurred if a radius from the centre of the left

ventricle shortened by more than 30% with normal systolic wall thickening (5).

Statistical analysis

Statistical evaluation of the data was carried out using the Minitabs Release 7.1 statistical package. Data was analysed by Student's t-test, Chi squared and Mann-Whitney U test where appropriate. A p value of less than 0.05 was considered to be significant.

Results

Electrocardiography

Twenty five patients were studied. Significant ST segment depression occurred in 16 patients and was only seen in the modified V5 lead. In 3 cases the depressed ST segment was slowly ascending, in 7 horizontal and in 6 downsloping. Examples of the ECG changes are shown in figure 1.

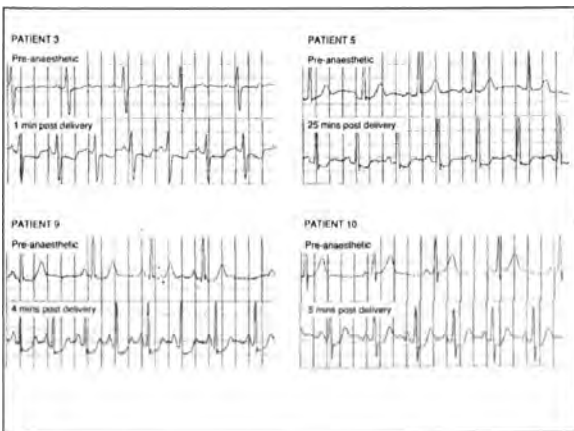


figure 1

In 5 patients ST depression began soon after the institution of regional anaesthesia, in 2 at the beginning of surgery and in 9 at the time of delivery (figure 2). In every case there was a marked temporal relationship between the tachycardia which accompanied delivery and an acute deviation of the ST segment (figure 3)

ST segment depression was always maximal between delivery and 1 minute after delivery. The duration of ST segment depression after delivery was variable ranging from 1 to 30 minutes with a mean of 7.5 minutes (figure 2). Figure 4 illustrates the haemodynamic data. In both groups the fastest heart rates occurred at delivery. Mean heart rates were higher in group with ST depression than in the group without, with the difference becoming statistically significant at delivery (128 bpm compared

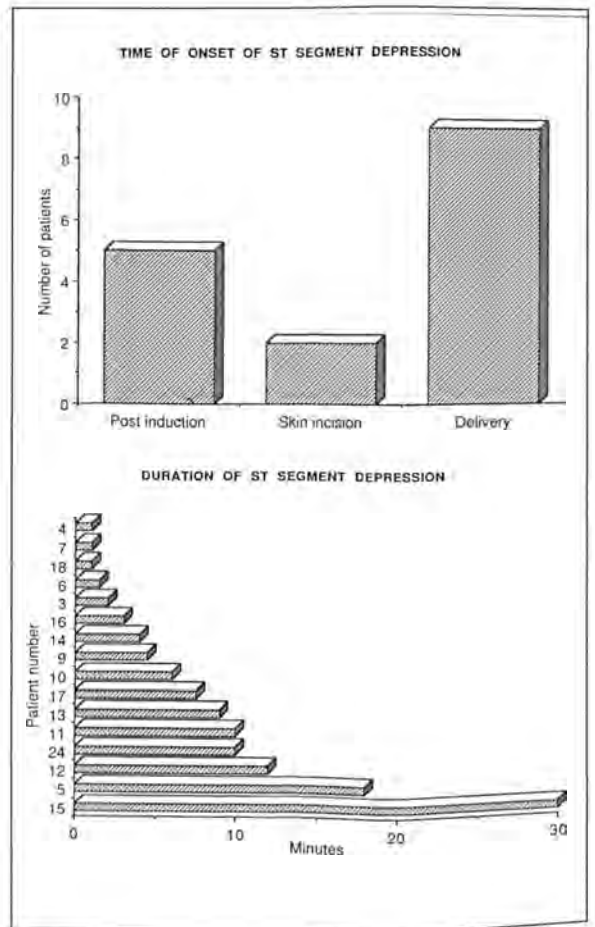


figure 2

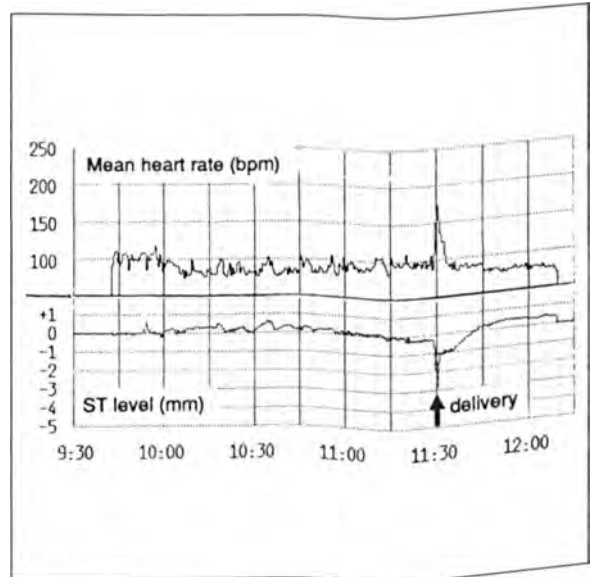


figure 3

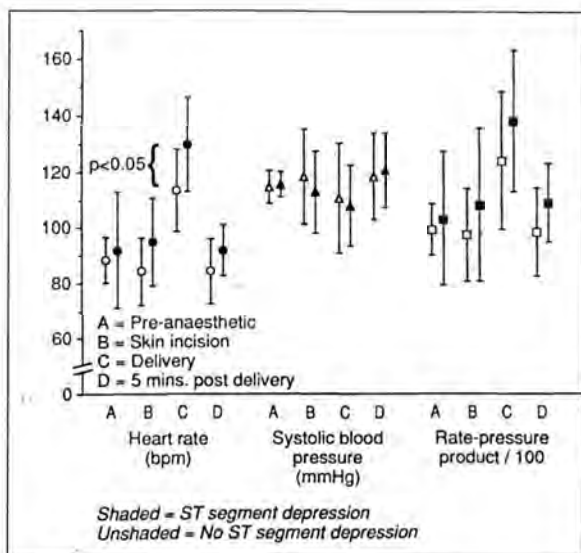


figure 4

with 111.7 bpm; $p < 0.05$). There was no significant difference in the mean systolic blood pressures between the two groups and in both they fell slightly at delivery. Mean rate-pressure product was greatest at delivery and although it was higher in the group with ECG changes, the difference did not reach statistical significance (13610 compared with 12210). Demographic data are presented in Table 1.

	No. of Patients	Mean age	Body Mass Index*
All patients	25	29.0 ± 4.7	37.2 ± 5.0
ST segment depression	16	29.8 ± 5.5	37.5 ± 4.8
No ST segment depression	9	27.9 ± 2.7	36.7 ± 5.8

Values are mean ± SD.
* Body mass index = weight (kg) divided by height (m)²

Table 1.

There was no significant difference in age or body mass index between the groups. Risk factors of ischaemic heart disease (family history, smoking, hypertension and previous oral contraceptive use) occurred in those with and without ECG changes but the differences were not significant. There was no significant difference in the

ability of spinal or epidural anaesthesia to produce ECG changes (4 out of 5 spinal and 12 out of 20 epidural anaesthetics resulted in ST depression). All patients received oxytocin immediately after delivery but it was not possible to separate the two events in retrospective analysis. Ephedrine was used in similar proportions in the two groups (13 out of 16 patients with ST depression and 6 out of 9 patients without ST depression). No patient complained of chest pain although two (one with and one without ST changes) described throat discomfort at the time of delivery and one (normal ST segments) had upper abdominal discomfort at peritoneal repair.

Echocardiography.

Echocardiograms were carried out on 13 patients, 8 of whom were subsequently found to have ST depression. In all patients the images were of excellent quality and all segments were fully visualised during the episodes of ST depression. In every case segmental wall motion was normal pre-operatively and remained completely normal throughout the intra-operative investigation. In 6 patients (3 with and 3 without ST changes) there was a trivial degree of mitral valve prolapse. An interesting additional feature was the presence of a small amount of haemodynamically insignificant pericardial fluid in 7 patients. Four of these patients had ST changes and three did not.

Discussion.

Our study confirms that "ischaemic type" ECG changes are a common feature in patients undergoing caesarian section under regional analgesia. In the detection of ST segment abnormality ambulatory electrocardiography proved to be an ideal system as it provided a continuous record whilst still allowing patient movement. By monitoring only two leads rather than twelve there is likely to have been some loss of sensitivity in the detection of abnormality. A fixed multi-lead system would, however, have reduced the freedom of movement, increased the chance of artifact from lead or electrode displacement and probably promoted patient apprehension. As it turned out the pick up of the two lead system was high and significant ECG changes were found to be present in 16 out of 25 patients.

Myocardial ischaemia is a rare cause of morbidity and mortality in pregnancy but is, nevertheless, well documented, and may occur in the absence of coronary artery disease (6). Because of this, and the classical nature of the ST segment depression, we felt that further investigation was justified. It is well established from animal and human studies that myocardial ischaemia is almost immediately followed by an alteration in wall motion and systolic thickening (7-9). These abnormalities begin earlier and persist longer than the

ECG changes of myocardial ischaemia and can be reliably detected by two-dimensional precordial echocardiography. It is now accepted that echocardiography is highly sensitive and specific in the detection of myocardial ischaemia and is superior to the ECG in this context (10-13). The sensitivity of the technique is, of course, very dependant on the production of high quality images of both ventricles and we were pleased that this could be achieved without difficulty. The results showed that the ECG changes were not associated with wall motion abnormalities and, therefore, were not due to myocardial ischaemia.

Ambulatory electrocardiographic studies of healthy patients have shown that intermittent ST segment depression is a common feature of the ECG in the normal population (14-16). It is more common in women than men and, during stress testing, frequently leads to false positive diagnoses of myocardial ischaemia (17). Quyyumi et al have also shown that ST depression in healthy patients often occurs in association with tachycardia (15). This would be consistent with the finding in our own study that those who developed ST depression had faster heart rates than those who did not. The relationship between ST depression and heart rate was particularly evident at delivery and may point towards a rate-related mechanism in the production of ECG changes. The mechanism of rate-related ST depression has yet to be established but is probably due to the development of potential differences between the short, steeply sloping repolarisation phase of ventricular action potentials during tachycardia (18).

Although there was a significant difference in mean heart rate at delivery between those with and without ST depression, the wide range of heart rates within each group suggests that other factors must have also been involved in the production of the ECG changes. Mitral valve prolapse was present in only three patients with ST segments and, therefore, was not a significant contributory factor. Similarly, as ST depression occurred during spinal as well as epidural anaesthesia, bupivacaine toxicity could not have been responsible for the ECG changes. There are, however, several physiological changes which may lead to ST depression in the normal patient. Of these, hyperventilation, alteration in posture and changes in autonomic tone, are commonplace during caesarian section under regional anaesthesia and may well have contributed to the production of the ST changes (14,19-22).

In summary, ST segment depression occurs in a large proportion of patients undergoing elective caesarian section under regional anaesthesia. The results of this study show that the ECG changes are not due to myocardial ischaemia and underline the view that ST depression is a non-specific finding in this population

group. We have not identified the cause of ECG changes but the relationship between ST depression and heart rate suggests that it may, at least in part, be a rate-related phenomenon.

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ACTIVITIES IN 1991



The Annual General Meeting of the Society took place in Peebles Hydro from 19th to 21st April and once again was very well attended with several lively debates at the AGM. Unfortunately the weather was not kind to those who took part in the golf but Dr Alick Reid and Dr Isobel Kirkwood coped with the elements best to take the first prizes.

The annual golf outing took place at Ladybank in June and the hospitality afforded by the club together with good weather and an excellent course resulted in a most enjoyable day for some 25 members. The morning competition was won by Dr Alastair Masson with the immediate past Honorary Secretary a very close second. Dr Wallace need not be reminded that office bearers will not be permitted to influence handicap allowance after they demit office! The afternoon session took the usual form with an East v West match although this year the team captains required motorised transport to make their way round after a bar lunch. The eventual outcome was a half with almost all of the ties being closely contested.

REGISTRARS' MEETING

ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW 31st May 1991

The Registrars' Meeting this year took place in the Kelvin Conference Centre and was ably organised by Dr D C Miller and his colleagues from the Royal Hospital for Sick Children in Glasgow. Following a welcome from the President of the society, a large and appreciative audience heard an interesting variety of presentations on paediatric topics which ranged from resuscitation of children and cerebral protection for ITU patients to the ethical dilemmas which arise in modern paediatric practice.

Use of PCA in Children

NS Morton, Consultant in Paediatric Anaesthesia & Intensive Care, Glasgow.

It has taken twenty two years for the idea of on demand analgesia to be applied to children. The principles of PCA are the same in children as in adults but some of the practical aspects are different. The selection of suitable patients, equipment and drugs are relatively straightforward. The level of monitoring needed to assess efficacy and adverse effects is still to be defined.

The protocol for PCA which we use is based on the Graseby PCA system and morphine at a concentration of 20 micrograms per kg per ml (1mg/kg in 50 mls). A bolus dose of 20 micrograms per kg (1ml) and a lockout interval of 5 - 10 minutes are usually used. A spiral extension and Cardiff one-way anti-syphon valve are used. The monitoring scheme is based on hourly recordings of respiratory rate, oxygen saturation, sedation score, pain score, demands made and residual volume. A high dependency level of nursing care is provided within the general ward. On the basis of these recordings, the pump settings are adjusted. We have also used more detailed oxygen saturation data logging as the basis for comparative studies.

Developments in this field include the use of a disposable non-electronic PCA infusor and the use of the subcutaneous and epidural routes for drug delivery.

PCA with morphine is a feasible, efficacious and safe in suitable school age children and will find an increasing place in paediatric practice.

Resuscitation of Children

Dr Pauline Cullen, Consultant Paediatric Anaesthetist, Glasgow

Legal and Ethical Problems in Paediatric Intensive Care.
N Pace, Senior Registrar in Anaesthetics, Western Infirmary, Glasgow

There are two specific areas which I would like to discuss. The first is the whole issue of 'consent' in paediatrics. Who is legally entitled to consent on a child's behalf? When is a child old enough to consent to medical treatment? What should doctors do in emergency cases? What happens when the parents, on religious grounds, refuse life saving medical treatment, as when Jehovah Witness parents refuse blood transfusion for their child? What should doctors do when there is conflict with the parents about the further medical management of a child? In particular the cases of *re B* and *R v Arthur* will be discussed.

The second part of the talk will deal with the legal and ethical issues regarding withholding and withdrawing of life supporting technology. Is turning off a ventilator an act that causes death and therefore a crime in the eyes of the law?

Propofol in Children

Dr G Johnston, Consultant in Paediatric Anaesthesia, Aberdeen.

Age-related physiological changes affect the distribution, metabolism and excretion of propofol. The dose of propofol (mg/kg) required to induce anaesthesia in children differs significantly from the adult dose and there are also differences with regard to pain on injection, respiratory effects, cardiovascular effects, involuntary movements and venous sequelae. In adults, propofol is associated with fast, high quality recovery and this is also the case in children. Attention needs to be paid to specialist applications such as its use in infants, the neurobehavioural effects in neonates following Caesarian section, use in paediatric cardiac anaesthesia, sedation for CT scanning and sedation in paediatric intensive care.

Propofol shows great promise as an agent for induction and maintenance of sedation and anaesthesia in children. The problem of pain on injection can be over come by pre-mixing an adequate amount of lignocaine with propofol immediately prior to injection. The excellent airway conditions, recovery characteristics and stable haemodynamics when given by titrated infusion are particular advantages of propofol for paediatric patients.

Inter-Hospital transfer of Critically Ill Children.

Dr H Robb, Consultant Anaesthetist, Glasgow Royal Infirmary

If a specific treatment is not available or cannot be provided on an on-going basis, inter-hospital transfer is required. A transfer should only be considered successful if no major intervention has to be taken (eg

intubation) and no significant preventable clinical deterioration occurs during transfer. This can only be accomplished if optimal resuscitation is attained and the airway and venous access ensured prior to departure. In addition adequate equipment for airway support, drug therapy and monitoring must be available.

The provision and benefits of such intensive care during inter-hospital transfer is well established in adult practice. Our experience in paediatric practice was that many children transferred by the referring unit for the provision of intensive care at RHSC arrived in poor condition. Typically they were transferred without adequate resuscitation and by junior staff who did not have the experience, equipment or ability to cope with the problems that occurred en-route. To improve management of these children a paediatric transfer service was established in 1987. We recently reviewed the work of the team using a questionnaire completed after each transfer. Management by the referring unit was also assessed and defined as adequate, inadequate or sub-optimal by criteria based on the adequacy of resuscitation.

For analysis, the children were divided into two main groups - those intubated and those not intubated on arrival of the team.

Over the study period (August 1989 - December 1990) 66 patients were transferred by the team to the paediatric Intensive Care Unit (PICU) at RHSC from hospitals throughout the West of Scotland. The mean age of these children was 2.85 years and they suffered predominantly from diseases of the central nervous and respiratory systems. The average PICU stay was 3.9 days and the mortality was 17%.

On average one transfer was undertaken each week and took around three hours to complete. However the range was vast and the workload therefore unpredictable. On average it took 76 minutes to prepare children for transfer, which was roughly twice the average return journey time.

A variety of therapeutic measures were undertaken with the majority of ventilated patients receiving muscle relaxants and sedation. Of the other drugs used only anti-convulsants and anti-microbial agents were used frequently. Volume resuscitation ie 10 or more mls/kg of plasma as a bolus or rapid transfusion was required in 14 cases with 9 also requiring inotropic support.

Of 33 patients not intubated on arrival of the team, 15 received no therapeutic intervention by the team. Of the other 18, 6 required intubation and ventilation as a clinical necessity, and 5 to ensure the airway during transfer. Of the 33 patients intubated by the referring unit, only 31 were ventilated. Ventilation was initiated by the team in these instances.

Of the 61 cases where a consultant was involved with

management at the base hospital, we identified 15 patients (25%) who were inappropriately managed. In 7 instances there was a failure to recognise the need for ventilation. Seven patients required additional circulatory support and of these three required the initiation of ventilation. Four patients received inotropes. In two patients already ventilated, ventilation was inadequate. In one case this was due to the use of an adult ventilator circuit.

No major problem has occurred with the transfers undertaken by the team. However, poorly resuscitated children continue to appear on the doorstep escorted by inexperienced medical (and occasionally nursing) staff. Although the responsibility for the initial resuscitation of these children lies with the referring unit, the responsibility for transfer lies with the receiving unit. In our review there was a failure to recognise the severity of illness in some cases. The introduction of general and specific illness severity scores might therefore be of benefit. Once the critically ill child is identified joint management by adult intensive care specialists and paediatricians may result in improved initial care. Early referral of these children is important, and may be crucial, but the speed of transfer is less important. Our experiences show the benefit of a dedicated paediatric transfer service and this should be used in all but genuine emergency cases (e.g. severe head injury).

Cerebral protection in infants and children

Dr D Hallworth, Consultant in Paediatric Anaesthesia and Intensive Care, Royal Hospital for Sick Children, Glasgow.

Aspects of monitoring cerebral function are described, including the cerebral function analysing monitor and the measurement of intracranial pressure and hence cerebral perfusion pressure. A technique of catheter insertion into the lateral ventricle (after McWilliam) was demonstrated on VTR.

Difficulties in interpretation of the findings due to the wide range of causative factors of cerebral hypoxia/ischaemia were discussed.

Previous and present management regimens to reduce CSF pressure include deliberate reduction of pCO₂, cooling, the use of barbiturates and the removal of CSF. The incidence of raised intracranial pressure and impaired cerebral perfusion pressure in sepsis is described in a small group of paediatric patients although the relevance of the findings are presently uncertain.

Future areas of research include the monitoring of cerebral blood flow and oxygen extraction. The use of ICP catheters in sepsis remains at present in the realms of research.

Until more is known about the pathological processes involved the main stay of treatment must be to ensure

adequate resuscitation in terms of systemic pressure and oxygenation and to control intracranial pressure, where appropriate, by means of thiopentone and possibly propofol, perhaps removal of CSF, but not by profound reduction of pCO₂. The widely different causative factors of cerebral insult must be considered, and it must be emphasised that many patients are damaged simply by hypoxia secondary to the initial problem.

Anaesthesia for Day Case Surgery in Children
DS Arthur, Consultant Paediatric Anaesthetist, Glasgow

Day care surgery is supremely appropriate for children. Firstly the majority of general surgical conditions do not require the entry into a body cavity, examples are hernia repair, circumcision, orchidopexy and minor ENT procedures such as myringotomy. Children may require anaesthesia for straightforward examination that would not require such in an adult - sigmoidoscopy and examination of the eyes.

Treatment on a day stay basis minimises parental separation in that the parent can be with the child right up to and during induction of anaesthesia. Post-operatively the parent can remain with the child and so greatly reduce the reliance placed on nursing staff - parents are normally used to looking after their child when unwell at home.

Experience shows that premedication is at best unreliable in children and is frequently unnecessary. EMLA cream applied as soon as the child arrives can ensure pain free induction in the vast majority of patients - experience with a modicum of skill and practice is required for successful venepuncture in the chubby 18 month old. Inhalation induction is an alternative particularly as halothane remains an acceptable agent in paediatric practice. The choice of intravenous agent is in my experience immaterial; propofol has little other than age and cost to offer over thiopentone which causes no pain on injection and fewer extraneous movements just as mum thinks her child is actually asleep. Intravenous ketamine does not unduly delay recovery unlike the intramuscular route and can be used as for instance in the measurement of intraocular pressure.

Children who require intubation with a tube smaller than 6mm are not usually considered suitable for day care because of potential post extubation problems such as oedema.

Spontaneous respiration has proved safe even in the very young if for a short period. The laryngeal mask has been a great boon to enable the single handed anaesthetist to perform local anaesthetic blocks for post-operative analgesia and to allow procedures around the face and eyes without the requirement to intubate.

There is little to choose between halothane or isoflurane in their anaesthetic or recovery qualities.

One of the main causes of admission following proposed day surgery is intractable pain. The majority of procedures lend themselves to the use of local block with bupivacaine which provides long acting analgesia which can be supplemented and followed by simple analgesics such as paracetamol. Opiates should be avoided if possible because of the high incidence of associated vomiting - another cause of post-operative admission. Dihydrocodeine as an elixir is suitable for more severe pain.

Post-operatively food and drink can be given as soon as the child wants it. Parents must be given clear instructions as to pre-operative preparation and a system whereby they can be contacted by telephone to make sure they are coming increases the turn up rate. Post-operatively clear instructions are again required with a named individual to contact in the hospital should any problem arise. A dedicated health visitor to visit the day following surgery can give many parents a feeling of security after what is to us a minor procedure but to them may be a major event.

Purpose built day units not only increase efficiency, clearly beloved of managers, but also increase safety and allow the anaesthetist to communicate with the parent before and after surgery. Patients added to the end of a morning list are frequently unseen before; those at the start of afternoon lists may depart before being visited post-operatively.



In August 1991 a lecturer, jointly funded by the Scottish Society of Anaesthetists and the Association of Anaesthetists of Great Britain and Ireland through its International Relations Committee, attended the Fifth Annual Refresher Course of the East African Society of Anaesthetists in Moshi, Tanzania. The course was sponsored by the World Federation of Societies of Anesthesiologists (WFSA), the Italian Project (which has interests in Tanzania) and the Higher Educational Corporation of Ireland (HEDCOI) which also supports the nearby Kiliminjaro Christian Medical Centre (KCMC). Dr Eugene Egan who heads the Anaesthetics Department at KCMC was the course organiser.

There were no formal lectures, the preferred, well-tested format of structured tutorials was used with case discussions on topics requested by the participants. Delegates were divided into groups and each group had a facilitator and a secretary. The groups were given specific topics to discuss and the secretary was required to minute the discussions and prepare a report for the organising committee. This worked well, allowing informality and guided discussion; it was sustained for the course duration of five days.

Those attending came from Uganda (14), Kenya (12), Malawi (3) and Tanzania (106), a total of 135. Of these there were five medically qualified doctors - the majority were anaesthetist officers who are not medically qualified but have undergone a training period and assessment in one of the recognised hospitals, e.g. the KCMC. The remainder were anaesthetist nurses and student anaesthetist officers.

There were seven facilitators/lecturers. Drs Matekere and Mwafongo from the University of Tanzania at Dar-es-Salaam; Dr Huma from the Kenyatta Hospital in Nairobi; Dr Bukwirwa from Kampala University, Uganda and from the UK: Dr Julia Munn, Bristol, Dr W Casey, Gloucester and Dr I Levack from Aberdeen.

The promotion of the specialty in Africa by British anaesthetists is long established and through the WFSA much has been achieved in creating links with departments especially in Britain and fostering the concept that education and leadership by example is more effective in the long term than simply working alone as a missionary anaesthetist; an analogy to this is 'Give a man a fish, feed him for a day, teach a man to fish, feed him for life.'

East Africa is underdeveloped and in particular Tanzania and Uganda where with few exceptions the provision of basic health care is limited. In Malawi there is one medically qualified anaesthetist per nine million population compared to Britain where the ratio is one to ten thousand. This difficulty is compounded in that some of the district hospitals particularly in Tanzania have not had delivery of oxygen in cylinders for periods of up to three years.

In a country that does not produce enough doctors recruitment of anaesthetists has problems similar to that obtained in Britain at the beginning of the 19th century. The image of the anaesthetist in these circumstances is of an operating room technician. Pre-operative investigations are necessarily restricted and post operative pain control limited because of lack of drugs and low expectations in a population due to cultural factors. The concept of intensive care is limited because of lack of equipment and

trained nursing staff both of which require funding which is not available.

Deficiencies of anaesthetists is tackled by the provision of non-medically qualified Anaesthetist Officers who receive a basic training at a teaching centre such as the KCMC. These individuals have previously been health care workers and their knowledge of the basic sciences is limited. Their level of competence can be compared to that of operating department assistants in Britain. Once trained these officers are posted to district hospitals and they are employed by the government at minimal rates. They work single handed in the smaller hospitals in isolated parts of the country with little prospect of access to textbooks or journals. An annual refresher course is an educational zenith in the year and is grasped with enthusiasm.

The supply logistics of medical gases and drugs is a function of government finance and communication; neither of these are predictable. The mainstay of anaesthesia is ether using the Epstein Macintosh Oxford (EMO) drawover vaporiser often without supplemental oxygen. If halothane is available the Oxford Miniature Vaporiser (OMV) is the standard apparatus for its administration. The supply of ether now comes from Germany and Italy.

A major difficulty arises in the servicing and repair of these vaporisers, especially when as is usually the case, there are no reserve vaporisers in the hospital and no personnel trained to maintain them.

Availability of drugs is variable and it is not unusual for many months delay in replenishment when supplies of these become exhausted. Commonly used drugs are thiopentone, ketamine, pethidine, atropine, suxamethonium, gallamine and lignocaine. Anaesthetic techniques are limited to recognised protocols which are necessarily dependent on the availability of the agents.

There are many possibilities for providing assistance in the provision of anaesthesia though the concept of what is best for developed countries is best for underdeveloped countries is flawed - the stark evidence of this being the often quoted anaesthetic apparatus graveyards of Africa. Expensive and inappropriate equipment has been donated in the past but resources, technology and trained personnel to use them are lacking. Financial help will only be effective with careful disbursement of funds. What is needed is a sustained programme of foreign assistance where mutual benefit is possible. For post-fellowship registrars and also consultants, anaesthesia in Africa is an adventure and perhaps an unusual opportunity to experience the history of the speciality.

In fifteen years little has changed in the provision of anaesthetic services in East Africa,¹ except that now there is a 20 per cent prevalence in the population of HIV. Continued sponsorship by the WFSA, AAGBI and the Scottish Society is assured and future lecturers will learn as much as they teach if they undertake, in addition to the week's course, a short locum in one of the hospitals.

1. Spence AA. Editorial Anaesthesia in Africa. *British Journal of Anaesthesia* 1977.

Editor's Note: It is likely that the Society will continue to underwrite part of this venture and any member who is interested in taking part should contact the Honorary Secretary.

ANNUAL SCIENTIFIC MEETING

EDINBURGH, NOVEMBER 1991

The Annual Scientific Meeting, organised by Dr Dermot McKeown, was held in the Royal College of Physicians of Edinburgh on the 15th of November. After members of the society were welcomed by Dr Calvin Hider, Dr David Littlewood chaired the morning session which covered aspects of intensive care and trauma. The afternoon session was chaired by the president when aspects of post-operative pain were discussed. The meeting concluded with the Gillies Memorial Lecture which was delivered by Dr Iain Davidson.

The History of ITU in Edinburgh

Dr LVH Martin, Consultant Anaesthetist, Royal Infirmary of Edinburgh.

Following the successful management of respiratory paralysis by IPPV in the 1952 poliomyelitis epidemic in Copenhagen, Avery, Morsch and Benson in Chicago demonstrated that the poor results previously obtained in severe chest injuries could be improved by IPPV.

In Edinburgh, Dr HWC Griffiths studied the problem of severe chest injuries in south-east Scotland and published a series of 38 of whom only 9 survived. He began treating these injuries with IPPV using a Newcastle Mark III ventilator with encouraging results. It became obvious that this could not be done efficiently in the general wards and therefore a special four bedded artificial ventilation unit opened in the Royal Infirmary of Edinburgh on 17th March 1961 in which staff, equipment and expertise could be concentrated. A survey of the first 64 chest injuries treated in the unit during 1961-65 showed a dramatic improvement in the results with only ten deaths in the series, the improvement being due to better management of the respiratory dysfunction caused by injury.

Once established the unit could treat respiratory failure from other causes and the yearly number of patients rose from 27 in the first year of operation to 263 in the 30th year, the increase being accommodated by a decrease in the length of stay. A simple classification of cases was introduced using the primary cause of admission to the unit. Most cases were either due to respiratory disease, followed trauma or were admitted post-operatively. The largest increase took place in the latter group occasioned by the increased complexity of surgery and the concentration of vascular surgery in the Royal Infirmary. Chest injuries continued to be treated and two series of 64 consecutive cases reviewed in 1977-81 and 1987-91 showed similar results to the 1961-65 group, thus demonstrating the effectiveness of the original concept.

During its 30 year history the AVU has not attempted to carry out all aspects of intensive care and, because of its limited size, not all patients who would have benefited from IPPV have been accommodated. Other units within the hospital and city have been required. Never-the-less it has attempted to respond to the ebb and flow of medical practice and has been central to the development of ITU in Edinburgh.

Severity of Illness in the Critically Ill

Dr I Armstrong, Consultant in Anaesthesia and Intensive Care, Western General Hospital, Edinburgh.

Severity of illness is a concept which cannot be measured directly. What we can measure is outcome and relate this retrospectively, to a number of easily measured parameters and other patient factors. In describing the severity of illness therefore we are making a prediction of outcome or risk.

In 1983 the American National Institute of Health Consensus stressed the need for research aimed at the use of Intensive Therapy facilities to maximise patient care. Inherent in this aim was the need for some method of identifying patients who would most benefit from ITU care. It was argued that this could be achieved by identifying patients with low risk of requiring the facilities offered by an ITU and those patients who were going to die regardless of the level of care. Both groups could then be denied ITU admission, releasing the facilities for other patients who might benefit. Initially, the degree of derangement of certain physiological parameters was seen as a method of identifying these patients.

Such an approach is flawed in a number of important respects. Denying admission to patients deemed at low risk on the basis of minimal derangement measured parameters assumes minimal risk of the development of complications and an appropriate level of care on the general ward. The level of care available on the ward varies considerably from hospital to hospital and even from ward to ward within the same hospital. Furthermore, an anaesthetist who has maintained normothermia, a good urine output and perfect cardiovascular stability in his patient throughout a lengthy operative procedure, may be denied admission for his patient. It is only later when the patient, cared for by the most junior member of a medical team and now oliguric and hypotensive, scores sufficient points to warrant ITU admission. Equally, to deny admission on the basis of certainty of death regardless of therapy is a self fulfilling prophecy and overlooks other aspects of ITU care.

The system of risk prediction most familiar to us all and which we use daily is the American Society of Anesthesiologists (ASA) scoring system based on physical status. This scoring system demonstrates two points. Firstly the poorer the physical rating, the greater the mortality. Secondly and more importantly, there is tremendous variation in the actual individual outcome particularly in ASA groups III and IV.

Within the field of Critical Care two approaches have been taken to the development of methods of predicting outcome. The first is the subjective approach. In this, a panel of experts define a set of parameters they perceive as important predictors and weigh these indices accordingly. A severity of illness index can then be arrived at by summing the scores. Finally the system is tested against a known patient database and adjustments made to the weighting in order to refine the model. This is the approach taken by Knauss and colleagues in the development of the Acute Physiology and Chronic Health Evaluation (APACHE) Scoring System. This system not only takes physiological derangement

into account but also age and chronic health. By weighting for the disease process and using a formula derived from multivariate analysis on the original database, it is possible to calculate a percentage risk of hospital mortality.

This subjective approach has the advantage of being quick to introduce and requiring a relatively small database to work from. The disadvantage is, that by testing against the original database, the weighting becomes self-fulfilling and more importantly is highly dependant on strict adherence to protocol by the individual clinician. Despite these problems it has been shown to correlate well with actual outcome for groups of patients.

The second approach to the development of a predictor outcome is the use of objective methods. This is the approach taken by Lemeshow and colleagues in the current development of Mortality Predictor Modelling (MDM). Here a database is acquired and formal statistical analysis applied to determine those indices most predictive of outcome. The model thus developed is then tested prospectively against a new database. This approach has the attraction of being mathematically more correct and less open to operator error in its application. Initial results show this method also has good correlation with actual outcome.

Of the many scoring systems applied to the critically ill patient, only APACHE and MPM have been formally developed to the stage of predicting outcome. The most widely used despite its problems is APACHE scoring. Results of some 500 Intensive Therapy Unit patients in Edinburgh are presented. These confirm that APACHE II, in our hands, is a poor predictor of individual patient outcome, and a moderate predictor of group outcome. It was an extremely useful method of two local Intensive Therapy Units' performance in managing similar clinical problems. The diagnostic weighting was identified as a major cause of poor prediction as this relied heavily on clinical management policies and local expertise.

ATLS for the anaesthetist

Dr DW McKeown

Consultant in Anaesthesia and Intensive Care, Royal Infirmary of Edinburgh.

Advanced Trauma Life Support (ATLS) Courses were developed in the United States by the American College of Surgeons to teach a method of trauma care and practical life saving skills. The stimulus to start these courses came from the less populated areas of the United States, especially Nebraska. The courses were designed for doctors not only in Casualty and Surgical departments, but also for those practitioners who see trauma relatively infrequently, and whose requirements are to save life simply, stabilise and transfer to a higher care facility.

ATLS course in this country are overseen by the Royal College of Surgeons of England and the standards set in the United States are maintained and audited by this body. Courses consist of a three day course of lectures, tuition in practical skills, and testing of knowledge and include a high content of criticism and positive feedback. Those who perform well on all aspects of these course may be chosen to undergo training to be ATLS instructors. The Instructor Course is again of three days duration and includes a large component of 'teaching how to teach'.

Anaesthetists in this country have a high profile within the ATLS system. We have one of the largest proportions of consultants trained in the system, and this should be maintained because of our interest in trauma and intensive care. Airway management as taught in the ATLS programme does not conflict with good basic anaesthetic practice. This applies also to the management of other systems during the 'golden hour'.

Techniques which may be of value to anaesthetists training junior staff which feature in the ATLS programme include strong emphasis on preparation and appropriate teaching methods, positive feedback and encouragement as a method of enhanced learning, and the use of simulated patient scenarios to allow training in the management of critical incidents.

Anaesthesia in the Gulf

Dr GMR Bowler

Consultant Anaesthetist, City Hospital, Edinburgh

The resuscitation and trauma life support role of anaesthetists in the Gulf War was described. The speaker had been Officer Commanding a Field Surgical Team (FST) attached to the 1st Armoured Field Ambulance supporting 7th Armoured Brigade (the Desert Rats) and the UK Artillery Group. The paired FSTs comprised two anaesthetists (consultant and SR), two surgeons (SRs), five operating theatre technicians, four combat medical technicians and a laboratory technician. They were independently mobile with two lorries and a trailer to carry all personnel and equipment, a generator, an operating table, surgical instruments, the Tri-Service anaesthetic apparatus, an operating theatre impermeable to chemical and biological agents, cross matching equipment and a small supply of blood. However, the principal role of the FSTs was to resuscitate battle casualties using the British Army Life Support (BATLS) system which was adapted from the Advanced Trauma Life Support (ATLS) system. Operations, such as formal tracheostomy, laparotomy, external fixation of fractures, amputation and decompression craniotomy (burr holes) were only to be performed if absolutely necessary; for example if casualty evacuation to hospital was delayed by enemy action.

The mobility of the Armoured Field Ambulance and the basic living conditions were described. During the forty days spent in the desert from late January to early March, the longest time spent in a single location was four nights and during the ground war was 14 hours. 10 of the nights were spent in vehicles and the rest under canvas. The canvas Dressing Station could be erected by day or night and all equipment installed in under thirty minutes reflecting the intensive training of the Field Ambulance personnel who had been in the desert since the previous November. Prior to the land battle, the FTSS were engaged in teaching BATLS, military training, exercising for the forthcoming Ground War, and providing cover for the artillery raids.

By the end of the 300km advance through Iraq into Kuwait, the nearest Field Hospital to the front line troops was over 250 miles away, the equivalent of Edinburgh to Sheffield, across a featureless, roadless and mined terrain over which ambulance convoys could easily have become lost and battle casualties perished in transit. Fortunately the tactical situation permitted the use of support helicopters for casualty evacuation. The

Dressing Station, supported by the FTSs, continued the trauma life support resuscitation started by general practitioners at the Regimental Aid Posts. Approximately 70 was casualties, mostly Iraqi, were treated during the 100 hour ground war.

Clinical slides were shown to illustrate examples of casualties resuscitated following the BATLS/ATLS primary survey and resuscitation ABCDE system. They included: nasal endotracheal intubation, needle and surgical cricothyroidotomy, formal tracheostomy, cervical spine control with rigid collar, sandbags and strapping across the forehead, the Ground Role Resuscitator artificial ventilator equipment, grade 3 hypovolaemic shock, external haemorrhage controlled with pressure and splinting (plaster of Paris and the Thomas splint), burr hole for extradural haematoma, and shrapnel wounds to buttock to illustrate the importance of log rolling.

The echelonised casualty evacuation system and some of the differences between ATLS and BATLS were described. For example, the unavailability of blood until 2nd echelon (Field Ambulance with FSTs); the policy of deferring urinary catheterisation and complete undressing of casualties until 3rd echelon (Field Hospital); specialist surgical help e.g. neurosurgical, burns, maxillo-facial unavailable before 4th echelon (General Hospitals).

As well as the four FST anaesthetists with 7th and 4th Armoured Brigades, the Resuscitation Departments of the two 200 bedded Field Hospitals and the two 600 bedded General Hospitals were each commanded by a consultant anaesthetist. One of the General Hospitals was at Riyadh airport and based on the 205 (Scottish) General Hospital of the Territorial Army, in which the other Scottish anaesthetists, Bertie Dundas and Colin Rodgers from Aberdeen, and Jane Risdall, David Watson and Tim Winning from Edinburgh served.

The majority of the casualties were Iraqis who were treated alongside British soldiers, the sole determinants for priority of treatment being clinical. A slide was shown of an Iraqi Army doctor whose position had been overrun. He was wearing the Geneva Convention red cross armband and he lived, ate and worked with the Dressing Station staff treating both Iraqi and British casualties.

The Joint Colleges Report on Pain

Mr GC Davies, Senior Lecturer in Surgery, University of Edinburgh

Epidural Infusions for Post-operative Pain

Dr A Lee, Department of Anaesthesia, Royal Infirmary, Edinburgh.

Continuation of epidural analgesia into the post-operative period was made possible by the introduction of suitable catheters in the 1940's, and the epidural infusion of lignocaine after abdominal surgery was described in 1956 by Massey Dawkins. Justifiable concern about systemic toxicity and hypotension precluded widespread adoption of this technique. These concerns have

gradually been addressed and the development of epidural services for women in labour have given further prominence to this method pain relief. Bupivacaine can safely be administered for several days in doses that will provide good analgesia, and the development of reliable infusion pumps and fail safe methods of drug delivery have also lessened the risk of toxicity. The recent introduction of epidural opioids has permitted a reduction in the dose of bupivacaine required when these drugs are given in combination. By this means the incidence of hypotension and impaired post-operative mobility secondary to leg weakness has been reduced. An increased understanding of the dose requirements and pharmacokinetics of opioids in the epidural space has led to refinements in their use. Much smaller doses are now used. Lipophilic opioids are preferred and the use of a continuous infusion rather than bolus dosing may have implications for safety. The combination of local anaesthetic and opioid in the epidural space secures the advantages of each drug while limiting the side effects.

Monitoring

Dr A Nimmo, Department of Anaesthesia, Royal Infirmary, Edinburgh

The Colleges' report on Pain After Surgery concluded that monitoring of patients to detect undesirable side effects of analgesic regimens is a major need. There is particular concern amongst anaesthetists about the occurrence of severe respiratory complications, in particular opioid-induced respiratory arrest. The techniques available for the continuous monitoring of respiration in postoperative patients were described. Examples were shown of the use of many of these methods in a study of respiratory disturbance in patients receiving patient controlled analgesia or epidural infusions.



The pulse oximeter is a convenient and useful, but indirect, monitor of respiration. In patients receiving oxygen, episodes of airway obstruction, central apnoeas, or very low respiratory rates may be present without the patient being hypoxaemic. Monitors which rely on the detection of chest and/or abdominal movement are very susceptible to artefact caused by patient movement and do not detect airway obstruction reliably. Monitors which detect gas flow at the nose avoid these problems and are useful provided the patient breathes at least partly through the nose. Changes in

temperature, pressure or carbon dioxide occurring with each breath may be detected. A minority of patients breathe only through the mouth for periods when asleep postoperatively. Reliable continuous detection of the presence of airway gas flow in such patients is very difficult.

In most patients the combination of pulse oximetry and a monitor which detects nasal gas flow will enable hypoxaemia, apnoea, airway obstruction and abnormal respiratory rates to be detected. A monitor which could detect the presence of airway gas flow in patients breathing only through the mouth and which did not give rise to frequent false alarms would be very useful but no such device is available at present.



Peebles 1991



Golf outing



GILLIES MEMORIAL LECTURE DR IAIN A DAVIDSON

TRESPASS WITH CARE



My earliest memories of John Gillies date from the time when I was a student and he lectured to us on anaesthetics. Later as a houseman I was aware of his reputation in the hospital and before departing on National Service I went to ask his advice regarding a career in anaesthesia and the possibility of a job in Edinburgh. He recommended that I try to obtain a post in the RAF Medical Service and sit my primary fellowship during this time. I have to confess that I did not take his advice in either respect and by the time I returned to Edinburgh he had retired. However, when I was Editor of the Scottish Society's Newsletter I invited him to write a review of his time in anaesthesia which was published in the 1972 Newsletter as "Retrospect" and of which he was justifiably proud. It gives a vivid insight into the development of anaesthesia over one man's lifetime and is a salutary reminder of how we have progressed as a specialty. I would recommend it to all who have not read it.

John Gillies graduated in medicine from the University of Edinburgh in 1922 his studies having been interrupted by the first world war in which he served as a combatant with the Highland Light Infantry and was awarded the MC. After a hospital post in Cumberland he joined a general practice in the West Riding of Yorkshire, during which time he did not only what would now be regarded as general practice but also some surgery and anaesthetics. After 8 years of general practice he decided to specialise and spent some time in London obtaining training in anaesthesia at the feet of, among others, Ivan Magill. He then returned to a post as anaesthetist in the Royal Infirmary and the Sick Children's Hospital. While money values have changed it is salutary that for this he was paid an honorarium of £50 which was augmented by a further £150 for undertaking three twenty four hour waiting day stints. It should be recognised that these figures are not sessional

fees but the annual salary! He rapidly established a reputation for his skill and care so that he was in great demand. Shortly after the end of the 1939-45 war he was appointed Lecturer in Anaesthetics in the University of Edinburgh and later Reader. He held many high offices in the specialty. He was President of the Association of Anaesthetists in 1948 during the crucial time when the National Health Service was established. He was Vice Dean of the Faculty of Anaesthetists when it was founded, and he was joint editor of the then standard British text on anaesthesia.

These were times of great importance not only for medicine as a whole but especially for the developing specialty of anaesthesia. One has to remember that at that time most of the anaesthetics were given by the surgical houseman or by students and the position of anaesthesia as an established and recognised specialty had still to be secured.

The difference between 1948, when the Health Service was established, and now can be judged in many ways but I will give two examples. Reports of the Council of the Association of Anaesthetists record that names were drawn for members to receive food parcels donated by Australian anaesthetists - and this 3 years after the cessation of hostilities. When the anaesthetic staffing for the new health service in Edinburgh was being drawn up the original proposal was for only 4 consultants - the influence of John Gillies raised this to 12 - still a far cry from the numbers today.

The end of the war saw the return from the Services of a large number of trained anaesthetists eager to work in the new NHS. One of these was Harold Griffiths who died within the last year. He described arriving on his first day at the Royal Infirmary and asking for Dr Gillies' office to be directed to the changing room of 7/8 theatre - the only office he had! The combination of these two individuals was to prove a significant one in the development of anaesthesia. In the limpid prose of Hale Enderby, up until that time all anaesthetists and surgeons were united in demanding a stable blood pressure during surgery. Peace, tranquillity and a sense of safety in the operating theatre were the direct outcome of a blood pressure rigidly maintained or artificially elevated to its highest level. It was into this relatively peaceful lake that the first stone of heresy was dropped by Griffiths and Gillies with their report of induced hypotension by high spinal analgesia. An advance which with others John Gillies in his Presidential Address to the Royal Society of Medicine in 1951 was to call 'Physiological Trespass in Anaesthesia'.

It is of interest to look at John Gillies' examples of

physiological trespass in 1951. He took three physiological derangements namely apnoea, muscle relaxation, and induced hypotension.

In the early years of abdominal surgery muscle relaxation had been obtained by deep general anaesthesia. This had proved satisfactory provided the operation was of short duration and the patient was not initially ill. However its use to provide satisfactory operating conditions frequently resulted in an increased incidence of pulmonary and cardiac complications and even in hepatic and renal damage given the relatively toxic agents of the time. This led Crile as long ago as 1914 to advocate the use of local anaesthesia combined with basal narcosis. In some American centres local techniques were employed partly because of their effectiveness in providing relaxation and partly because of the unavailability of satisfactory general anaesthesia. It was also favoured because of the longer operating times of some schools of American surgeons which were not well suited to the use of the relatively toxic anaesthetic agents then available. In continental Europe local anaesthesia was also favoured for similar reasons. Three developments changed this, the emergence of specialist anaesthetists, the introduction of effective agents such as cyclopropane and the development of suitable methods for their administration. These combined to provide operating conditions which allowed the production of muscular relaxation and the control of breathing which together aided further developments in surgery and in particular in thoracic surgery. This in its turn stimulated further developments in anaesthetic practice.

The production of apnoea had been a matter of some concern in early anaesthetic practice as tidal volume had been an important guide to depth of anaesthesia. However the introduction by Waters and others of controlled ventilation for thoracic surgery using closed circuit apparatus with carbon dioxide absorption showed that this could be achieved safely. In addition there was concern that positive pressure ventilation would affect the venous return and cardiac output to such an extent as to lead to significant circulatory depression and, given the cardiovascular effects of the agents in use, this was quite justified. For anaesthetists of John Gillies generation circulatory depression during surgery was a major concern - the requirement for fluid replacement was not properly understood, loss was underestimated, replacement was long delayed and often inadequate. The introduction of muscle relaxants meant that apnoea could be produced without the requirement of high dosage of volatile agents.

The use of less depressant anaesthetic agents combined with muscle relaxants led, however, to increased bleeding which could be of great importance both in operations which resulted in significant blood loss such as pelvic exenteration and where small quantities of blood could obscure the surgical field as in the fenestration procedure.

The methods available for induced hypotension were arteriotomy which produced ischaemia and was difficult to control so that it had only a brief vogue mainly in neurosurgical practice. Deep general anaesthesia, although it was reasonably controllable and reversible, required an excessive use of volatile agents. Total sympathetic blockade produced in addition analgesia and muscular relaxation but was unnecessarily complicated for routine use. Ganglionic blockade however proved to be of more general application and has stood the test of time.

To John Gillies these methods of production of hypotension were a logical sequel to the other liberties which had been taken with physiological processes such as controlled respiration and muscle relaxation and represented a well developed trend in anaesthetic practice in which anaesthesia itself was relegated to a relatively minor role while physiological deviations not so long before regarded as incompatible with life had been applied to advantage.

The trend to further physiological trespasses was to continue largely driven by the demands of the developing specialty of cardiac surgery.

In 1938 Gross had closed the patent ductus. Although not strictly a cardiac procedure it is usually considered to mark the start of modern cardiac surgery.

John Gillies had been involved with Sir John Fraser in the early surgery in Britain for patent ductus arteriosus. In 1945 he was able to report to the RSM on the anaesthetic management of 21 cases. What is particularly notable to modern anaesthetists is the apparently grudging acceptance by a surgeon in the audience of the requirement of a drip for the procedure!

However more complicated cardiac problems required solution, especially mitral valve disease and the congenital defects of the atrial and ventricular septa. Pressures for the treatment of these resulted during the decade of the fifties in a further succession of trespasses of which I have chosen four; hypothermia, haemodilution, cardiopulmonary bypass and cardiac arrest.

How did these come about? It had been recognised that entry to the interior of the heart required arrest of the circulation during hypothermia or some method of provision of an artificial circulation. Both methods had their advocates and in the early fifties it was by no means clear which would ultimately win the day. Straightforward surface cooling of the anaesthetised and paralysed patient, usually in a tub of ice water, was simple and required little additional apparatus. Importantly, it was not associated with many of the technical difficulties associated with bypass of which bleeding was a particular problem. It was however difficult to control and

monitoring of the cold patient was a problem. One cannot but be impressed at the clinical skill of anaesthetists at that time who anaesthetised patients with cardiac defects who were then immersed in a bath of ice cold water with sub-minimal monitoring. Blood pressures were difficult to obtain and palpating hands were affected by the cold. Despite these problems a significant number of patients had closure of the atrial septal defect successfully carried out using this technique, which gave up to eight minutes of safe circulatory arrest. The role of hypothermia, however is now relegated to that of an important adjunct to cardiopulmonary bypass.

For many years physiologists had known that an animal heart-lung preparation could be kept alive for a period of time in a suitable medium and also that an isolated lung could be used as an oxygenator. With this knowledge several groups of investigators had, during the forties and early fifties, been looking at ways of extending the scope of cardiac surgery from closed to open heart procedures. One group under John Gibbon in Philadelphia had worked to produce a machine which would oxygenate an amount of blood equivalent to the cardiac output. Other groups especially those under Lilliehei in Minneapolis had recognised that physiologists had demonstrated that dogs who had had both cavae tied off were able to survive for 30 minutes or more on the flow through the azygous vein. This represented a flow equivalent to less than one fifth of the cardiac output. It was recognised that the provision of this small flow for a limited period of time would allow a significant extension to the type of cardiac surgery being performed and might be achieved much more simply than could the full cardiac output. A number of different methods were tried.

The first major success was with cross circulation which involved taking arterial blood from an anaesthetised donor, usually a parent of the patient, and pumping it into the patient's arterial system while venous blood was returned from the patient and pumped into the donor's venous system. This must have been an exceedingly stressful procedure with two anaesthetised patients linked by tubing, with one about to have a new or rarely performed operation. It became evident that in many instances the amount of blood transferred from donor to patient and vice versa was small and a means was sought to provide the small volume of arterial blood more simply. This was done by obtaining the expected volume of perfusate from donors as arterialised venous blood and perfusing this in to the patients' arterial system; a technique known as reservoir perfusion. Another method which was applied was to use a dog's lung, carefully washed free of blood, as the oxygenator. Finally with De Waal joining the group a workable bubble oxygenator was devised. This produced bubble free, oxygenated blood by defoaming, settling and filtration which are the methods still used today. Of all these methods only the bubble oxygenator has survived in clinical use but the other methods demonstrate the effort and logical process that

went on to try to produce a solution. It also gives some indication of the effort which was required to develop what today we take very much for granted.

In the meantime Gibbon persisted with his machine which could produce high flows but such were the problems that after only a handful of clinical cases he gave up its use. However, others particularly Kirklin at the Mayo clinic persisted with the Gibbon principle and developed a successful clinical programme.

This type of equipment required significant priming volumes and this presented its own problems. Initially freshly drawn blood was used and there was the problem of getting in sufficient donors to the hospital on the morning of the operation which could not start until the donations had been completed. In addition it was discovered that the mixing of donor blood prior to bypass in the heart lung machine produced difficulties with venous pooling in the patient. This was overcome by the use of non-blood primes which although producing significant haemodilution worked well in practice. There was then pressure to develop circuits with smaller priming volumes.

It did not require many open heart procedures to be done before the importance of removing air from the left side of the heart was appreciated. If during the closure of a septal defect the heart were allowed to beat, air in the left side could be pumped in to the systemic circulation. This could be prevented by stopping the heart by the application of a small alternating current to its surface, producing elective electrical fibrillation. This could be corrected by defibrillation and it did not take long to recognise that the AC defibrillators in use at the time were damaging the myocardium if used repeatedly. Happily DC defibrillation became available and this was not only more effective but was also less damaging to the heart. Nowadays the heart is not commonly fibrillated but instead is locally cooled by a potassium and magnesium rich ice cold Hartmann's solution which renders the heart asystolic.

The trespasses instanced above allow procedures to be carried out now with bypass, cooling of the patient, haemodilution and the arrest not only of the heart but also of the circulation for periods of half an hour or more.

It might be imagined that given the developments with which John Gillies was associated that he was a scientific rather than caring physician. Nothing could be further from the truth:- "...the bright array of apparatus today with its attendant mechanic-anaesthetist and their mystic methods of remote control administration" was written by John Gillies in 1938.

We should not forget that he had spent 7 years as a general practitioner before taking up anaesthesia and as Keith Sykes noted in his Gillies' lecture his grandmother

spoke for many years after of the kindness and care which she had received from John Gillies when he was her general practitioner in the West Riding.

In "Retrospect" he stressed the importance that he attached to experience in general practice and noted with some regret that it was only in South Africa that a period of time in general practice was a mandatory component of anaesthetic training.

Describing ways in which, before the NHS an anaesthetist could succeed, he stated that "...in private practice an anaesthetist could in time build up an independent reputation among the profession generally and the laity".

While it is likely that a reputation within the profession could be based on expertise and efficiency a reputation among the lay public was only likely to be earned by care, concern and human kindness.

We should perhaps pause to consider that these are some of the values which are currently being advanced within the health service.

It is easy to brush these off as sops to the public from politicians and managers who know nothing about medicine. After all "putting patients first" - what have we been doing all our professional lives!

Instead of being defensive I suggest that we should review our practices and see if they do live up to these consumer conscious days. There is at times concern expressed that modern medicine with its scientific advances and greater specialisation has developed at the expense of poorer clinical care - while this may be a generalisation which like all such has exceptions it does have a wide credence which we should be aware of and respond to. We should be aware that in marketing circles it is recognised that air line passengers assume that the pilot can do his job and what they look for is the welcoming smile, the comfort of the seats, the quality of the food, the attention paid by the cabin staff and last but by no means least the communication with them. There is surely a message for us all here. While it is essential that we in anaesthesia ensure that our technical standards are beyond reproach it is equally important that we treat our patients with the care and dignity that they deserve.

Is this so different from the aims of the Patient's Charter of treating the patient as a person not a case, giving understandable explanations, allowing access to information held about the patient, involving the patient in the decision making process and treating the patient as one would oneself wish to be treated?

We should recognise too that many of these changes do not emanate solely from the current UK Government but are part of a much wider change in attitudes to health care

provision affecting all countries from Scandinavia to New Zealand.

We are in the process of seeing the introduction from the US of two further processes - total quality management and continuous quality improvement. These are proven techniques from large industrial organisations and while one can be justifiably sceptical of the transferability of some such programmes it is difficult to argue that the encouragement of a continuous effort on the part of all members of an organisation to meet the needs and expectations of patients will not bring benefits for patient care; or that leadership within the hospital must make quality improvement a priority and that this will be a sterile exercise unless both clinicians and managers together make a positive commitment to it.

For example one of the developments of the White Paper is the purchaser - provider separation. The purchasers have to be educated in what to expect in terms of quality of care and it is to our advantage to do so. One purchaser has already inserted in to its agreement with provider units that the patient is to be seen by their anaesthetist preoperatively and that the same individual will anaesthetise the patient. If this is written into the agreement there is a clear implication that time will be required for this activity. Perhaps instead of being defensive we should look to such mechanisms to improve the quality of care that we can give.

It will involve the writing of standards but can this be such a bad thing? Managers acknowledge that one of the greatest benefits of the contracting out initiative was having to sit down and define what had to be achieved. In educational terms we are aware that one should not plan a course by producing a list of lecture titles but rather start by defining one's aims and objectives. This is logically followed by deciding how these are to be achieved and finally how the outcome is to be assessed. Can the application of the same principles to patient care be inappropriate?

In "Retrospect" John Gillies concluded that he had been gratified at the "realisation of a long cherished ambition, namely, to see the integration of training in basic sciences, clinical medicine and surgery with the theory and practice of anaesthetic administration and its important ancillary patient care".

I would submit that we must continue to trespass but if we can do so with care we will have been true to the memory of John Gillies.

EARLY ANAESTHESIA AT ABERDEEN ROYAL INFIRMARY

DR IAIN D LEVACK

In the early months of 1847 initial enthusiasm for ether anaesthesia was evident at Aberdeen Royal Infirmary as it was throughout Britain following successful early reports. Aberdeen's first recipient was a 15 year old boy undergoing amputation of a scrofulous leg. The newspaper report of this procedure regarded it as a triumphant success, recording in particular how the patient had slept peacefully throughout. In Aberdeen chloroform, as with ether, was also seized upon after its discovery; this was 10 days after Simpson described it to the Edinburgh Medico-Chirurgical Society in September 1847. By this time the difficulties encountered in the use of ether had become well known and the potency and rapidity of action of chloroform were boldly welcomed. William Pirrie (Professor of surgery at Marischal College) was the first to use it in Aberdeen when he excised a breast tumour - graphically described in the local press.¹

Because of the difficulties associated with the administration of ether and reports of occasional unexpected deaths in healthy individuals during induction with chloroform, controversy continued in Aberdeen, as elsewhere, over whether anaesthesia really was of any practical advantage. William Keith (senior surgeon) who had been the first in the city to use ether still preferred, fifteen years later, to have his patients bound to the table after a glass of whisky and a prayer.² His antagonism towards the technique was a significant setback in the small community because of his seniority, influence and national reputation as a lithotomist. However, the manifest benefits of general anaesthesia were probably behind an attempt in 1856 to nominate a person to administer chloroform and be responsible for patients³ but the proposal was rejected by the surgeons' committee which maintained that no incident with chloroform had occurred in Aberdeen and that it was the operating surgeon's responsibility to delegate its administration to an assistant under his immediate supervision. In 1871 such an incident did take place and resulted in death.⁴ The hospital committee then formally recognised the post of staff chloroformist and nominated Alexander Dyce Davidson to the post. His deputy was Alexander Ogston destined later to become regius professor of surgery. Dyce Davidson moved on to become professor of materia medica in 1875 and was replaced by Patrick Blaikie Smith who remained in post for 11 years.

By now the position of assistant anaesthetist had become an important first step towards subsequent promotion as an assistant physician or surgeon in the Royal Infirmary. In 1895 the term anaesthetist was substituted for chloroformist, co-incident with the

appointment of JJJ Dalgarno to the combined post of anaesthetist and medical electrician. This combined post lasted for only one year when they were separated and the two disciplines went their separate ways. Dalgarno, who used ether almost exclusively except in obstetrics, was senior anaesthetist until his sudden death in 1910 when he had travelled to Tain with a surgical colleague to operate on a private patient.

General Practitioners

In 1910 James Robertson and John Johnston were both appointed assistant anaesthetists and two years later Alexander Ogston (known as Daddy Ogston and not related to his namesake professor of surgery) became senior anaesthetist at the Royal Infirmary having previously been on the staff at the Children's Hospital. They were general practitioners who held honorary appointments at the Royal Infirmary and were founder members of the Scottish Society of Anaesthetists in 1914. Early in his career Johnston anaesthetised HRH Prince Albert (the future King George VI) in 1914 for an appendectomy.⁵ The Prince had been taken ashore from HMS Collingwood while serving in the fleet in the North Sea. Johnston was later to become, in 1929, a founder Board member of the British Journal of Anaesthesia and in the same year succeeded Ogston as senior anaesthetist in Aberdeen.

Ogston was a protagonist of ether, having been taught to use it by Dalgarno. An Aberdeen tradition in favour of ether emanated from Blaikie Smith who described a novel inhaler⁶ along with his antagonistic views on chloroform at a time when the chloroform doctrine was dominant in Scotland, particularly in Edinburgh. John A MacWilliam had just arrived in Aberdeen as professor of physiology and made an important series of observations including the first description of ventricular fibrillation⁷ and also its association with chloroform inhalation in various animals.⁸ This was contrary to the popular view of chloroform at the time in Scotland and also to the findings of the Hyderabad commissions. More recently MacWilliam has also been credited with providing the original concept and experiments on cardiac pacing.⁹

Ogston's cogent devotion to ether anaesthesia was largely due to the success of his eponymous wire frame mask which, because of partial re-breathing, achieved both a higher inspired concentration and considerable economy because of less wastage by downward displacement of the heavy vapour.¹⁰ When he retired in 1928 he was granted consultant status by the Royal Infirmary and thereafter the medical committee decreed that the senior - but only the



Dr Alexander Ogston - President Scottish Society of Anaesthetists 1922 and 1927. The first consulting anaesthetist to Aberdeen Royal Infirmary seen here in 1929 holding his Shipway warm ether/chloroform apparatus.

senior - anaesthetist should have the same status as surgeons and physicians. In this, as in other fields, the surgeons were intent on maintaining their controlling influence; a cynic might remark that they were the source and controlling factor of income from private practice. Change was soon to come as the skills of anaesthesia advanced. Soon after Ogston retired, Ross MacKenzie (another general practitioner) took what was a bold decision to relinquish his general practice and concentrate solely on anaesthesia and an honorary hospital appointment. He was one of the first in Scotland to work full-time as an anaesthetist and appropriately he was co-opted in 1931 as one of the twelve founder members on the Council of the Association of Anaesthetists of Great Britain and Ireland. He persuaded the governors of the day at the Royal Infirmary to appoint a full-time resident whose responsibilities were to anaesthetise all emergencies and help out in elective operating lists in the mornings which were still normally undertaken by general practitioners with honorary appointments. The first to be appointed were Drs Rosalind Milne followed by AB Christie (subsequently consultant anaesthetist at the Victoria Infirmary, Glasgow) who was followed by AW Raffan. Ross MacKenzie further contributed to the

speciality with the publication of a textbook.¹¹

The National Health Service

During the first year of the NHS, consultant establishments of all departments around the country were reviewed and anaesthesia in Aberdeen fared rather badly being restricted to four appointments - TO Robson, TJC MacDonald, HB Wilson and Rosalind Milne. In 1951 the complement was increased by the promotion of JWL Bain and AW Raffan (both subsequently Presidents of the Scottish Society) from senior hospital medical officer to consultant. Wilson, who had largely created the organisation of anaesthesia into a speciality in Aberdeen after his appointment as regional director in 1954, died unexpectedly in 1958 in status asthmaticus and was succeeded by Norman Rollason. With the help of his colleagues he set about acquiring the increasingly technical anaesthetic equipment and also set up workshop and laboratory space in a small area adjacent to the department. He strove with the support of a neurosurgeon (WM Nichols) and the medical superintendent of the day (AM Michie) for a respiratory unit against considerable opposition from various clinicians and administrators.

The Department has expanded steadily in Aberdeen and is now, in terms of medical staff, the biggest in the Infirmary albeit that it provides a service far beyond the walls of that institution. It is fitting that the Scottish Society of Anaesthetists has Dr Raffan as an honorary and one of its most senior members.

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REPORT OF THE SCOTTISH STANDING COMMITTEE OF THE COLLEGE OF ANAESTHETISTS

The Committee has met twice since the last edition of the Newsletter. At the last election in December 1990 Dr J L Jenkinson was re-elected and Dr J P Vance was elected to the Committee which now consists of the President (ex officio), Professor A A Spence, Member of Council resident in Scotland, Dr W R Macrae, elected members Drs D S Arthur (Secretary), I A Davidson (Convenor), J L Jenkinson, J P Vance and P G M Wallace.

The Committee was impressed at the success of the Paisley meeting and agreed to encourage further meetings outside of the teaching centres. A meeting in Falkirk on 29th May is planned.

The number of career registrar posts proposed by SHHD have been approved by ACME. The committee is concerned at the qualification required for entry to the grade and the prolonged time to consultancy if a fixed term is set on the grade.

The College charter is thought to be imminent. College accounts and examinations are already separate from the Royal College of Surgeons. A lay fund raising committee had been established. It is important that Fellows are seen to be giving financial support to the College. A special fund raising committee is being established for Scotland with an emphasis on personal contact with Fellows to obtain a commitment to deeds of covenant.

Assistance for the anaesthetist still presents problems although Glasgow has appointed a number of nurses and a sister.

Anaesthetic and surgical mortality reviews are continuing in Lothian and Greater Glasgow. Dr H Maule and Dr J L Jenkinson were nominated to the latter to fill two vacancies.

The College is developing plans for an ITU diploma while awaiting the outcome of discussions with the

Royal Colleges of Physicians and Surgeons on the institution of a joint diploma.

Staff grade posts are being filled in some areas of the country and the College view is that the possession of the Fellowship is desirable for such posts.

Drs Neil Mackenzie and Howard Spencely were appointed REAs in Dundee and Inverness respectively.

Representation of under represented areas has been discussed but no suitable solution was found which did not disadvantage REAs from other areas.

The Committee was pleased to note that a Review of Chronic Pain Services is to be undertaken by a working party set up by NMAC.

It has been decided to promote courses in local anaesthesia for general practitioners in association with the Royal College of General Practitioners in view of the increase in surgical procedures in general practice as a result of the White Paper initiatives.

The annual REAs and Tutors meeting was held in the Victoria Infirmary, Glasgow on the theme of resuscitation.

In the course of the year the Committee has discussed the implication of waiting list initiatives, training in chronic pain management and the Poswillo report. It has also commented to the Department on the following documents Access to Health Records, Post Graduate Medical Education, and Registration of Nursing Homes.

Iain A Davidson
Convenor

NEWS FROM THE REGIONS

GRAMPIAN REGION

With the good ship Foresterhill Hospitals Trust now cast adrift in uncharted waters by Captain Lang and his cabin boy Forsyth (or is it the other way round?) we can but batten down the hatches and hope for the best. The promised increases in staff and resources may well require increased space for this report in subsequent years. Time will tell.

Meanwhile life goes on and in June Dr Graham Johnston was appointed consultant with an interest in paediatric anaesthesia. That seasoned old campaigner Dr Bertie Dundas has returned to the Department via retirement and the Gulf as part-time consultant. Despite our pleas to her to stay Dr Jane Burns was appointed consultant in Hairmyres in June and congratulations are also due to Dr Colin Rodgers who takes up a consultant post in Carlisle in February.

At senior registrar level, Dr Rona Patey took up a twelve month post in July at the Trauma Center in Baltimore and will be followed next year by Dr Paul Martin. Meanwhile Dr Sally Crofts has joined us from Dundee. Dr Kathleen Ferguson leaves in January to sample the delights of the Tuohy needle from the sharp end and hopes to complete her MD thesis between feeds. Amongst the registrars Chris Taylor joined the army in March and in the latter half of the year Alan Cyna and Sandy Hunter left to gain post-fellowship experience in Australia. Elizabeth Smith left to have a baby and Ed Doyle, after a brief sojourn in the North East has taken up a post in the ITU at Yorkhill. We welcomed John Barr and Ken Robertson to the Department.

The large exodus of experienced staff plus the traditional intake of new SHO's produced a brief staffing crisis in September and October. This was highlighted in an article in the Glasgow Herald which criticised the cancellation of 41 sessions over the course of a year by our Department. If cancellations are inevitable then we inform the surgical firm at least three weeks in advance to minimise inconvenience to patients. The article failed to mention the 51 sessions, covered by our Department, which were cancelled by surgical firms with less than 24 hours notice. C'est la vie.

Work on the proposed theatre extension to include two cardiac theatres and a new ITU is due to commence early in 1992. This will bring more of the outlying theatres including maxillofacial into the main theatre suite and closer to ITU facilities. For the duration of the building the existing ITU is moving up three floors to a temporary site where twelve beds will be opened including four cardiac beds.

The audit system designed by Dr Ramayya is now up and running in the main theatre suite and all grades of staff are becoming adept at data entry. This is easier than it seems as the skills required are similar to that of a supermarket check-out girl. Early fears of distraction or time consumption have proved groundless. The information gathered is valuable because recent experience in Aberdeen has shown that the ability to produce hard facts quickly and concisely are essential when negotiating with management on various issues.

HIGHLAND REGION

There have been no major changes in the various Anaesthetic Departments in the North in 1991 and, in particular, no epidural service in Inverness yet in spite of considerable political pressures.

Dr Howard Spenceley has succeeded Dr James Muir as Regional Educational Advisor and Dr Bryony McEvedy continues as College Tutor. Dr Ankie Moesker resigned in August and has been replaced by Dr Keith Kelly who has a career registrar appointment rotating between Highland and Grampian. Dr Christopher Trotter has also been appointed to a career registrar post on the same scheme and will leave us in the New Year to join the Aberdeen Department. Dr Hamish Stewart is at present locum consultant coping with Day Case surgery. It is hoped that the Raigmore Unit will find funds shortly for a new permanent consultant post.

In Fort William Dr Jacqueline Howes resigned from her clinical assistant sessions and these are now undertaken by Dr Sheila Winship. The Surgical Unit in Golspie continues to be reprieved and is being run by a locum surgeon and anaesthetist for another year.

In Wick all good wishes go to Dr Antonios for renewed health after his recent illness. Dr Isobel McKenzie is to join the Anaesthetic Department in Inverness on Dr James Muir's retiral in 1992.

SOUTH EAST REGION

1991 was a year which will be remembered for better or worse, by four of our anaesthetic colleagues in South-East Scotland. Geoff Bowler (City Hospital), Tim Winning (Eastern General), David Watson (Senior Registrar) and Jane Risdall (Registrar) as members of 205 Scottish Field Hospital, found themselves in the Gulf. Thankfully there was little call on their anaesthetic skills and we are grateful for their safe return. Their experience has left them in a unique position to argue with estate agents as to what constitutes a luxury bathroom.

During the last year hotels throughout Scotland have become favoured retreats for consultants in need of respite care. This form of care normally reserved for elderly patients, allowing caring relatives a break from their excessive demands, is thoughtfully being applied by Health Boards to Anaesthetic Departments within the area. As a result, a new breed of consultant is being shaped, the Clinical Director (in old terms, Consultant with even more Administrative Responsibility). Fife, as always, is ahead of the field and within Lothian it is rumoured that some departments are even holding hustings for this post.

There is little doubt that the greatest changes in the South-East have occurred in Lothian. In the Board's continuing struggle for economies, the Deaconess and Longmore Hospitals have closed. Services have been centralised with all urology and breast work concentrated at the Western General, all A & E services including acute orthopaedics concentrated at the Royal Infirmary, all paediatric in-patient services concentrated at the Royal Hospital for Sick Children (have you donated?) and obstetric services within Edinburgh concentrated at the Eastern General and Simpsons, Royal Infirmary. As well as re-shuffling services, new developments have occurred. The Royal Infirmary has seen the long overdue opening of a purpose built (or at least modified Nightingale ward) modern 10 bedded Intensive Therapy Unit together with a 10 bedded High Dependency Unit. St John's in Livingston anticipates the imminent opening of a new four bedded Intensive Therapy Unit together with the opening of Phase II. With this will occur the transfer of the Burns Unit from Bangour, heralding the final closure of this World War II hospital.

At the last count some twenty five consultant anaesthetists were involved in changes in work pattern and location. Despite the uncertainty of its future role, Dr Nick Gordon, as chairman of the Lothian Division of Anaesthetics has had his skills as a juggler tested to the full in re-arranging work patterns and addressing the necessary changes in training schedules. Flexibility and a sense of humour are the order of the day, which will hopefully eventually carry even the most intransigent of us through.

Within this sea of political and economic change, people who provide the care also change. Dr Alan Grace retired this year from St John's, Livingston. He may reflect on the old road through the farm to Bangour compared to the motorway access to St John's or upon how to cut the grass within the confines of the new hospital. Access for wheelbarrow and lawnmower can only be along the main corridor! In either event we wish him well. Help is at hand, however, with the appointment of Dr Ken Stewart (previously Senior Registrar, South-East Scotland) as Consultant Anaesthetist at St John's. The Indian restaurant at the top of the road will cater well for his Far East experience.

Dr Tim Winning moved this year from the Eastern General Hospital to take up a new post at Inverclyde Hospital. We wish him success in his new post and appreciate his experiences in the Gulf have left him with a desire for wetter climes. The sewage works over the road from the Eastern I am sure played no role in his move. This is obviously the case as we welcome the appointments of Drs Lynda Rutledge and Glynis Jones (both previously senior registrar, South-East Scotland) as consultants at the Eastern General Hospital. This is not as may appear to the more chauvinistic amongst you, the replacement of one man by two women. Rather it is a result of present re-organisation, explanation of which is well beyond the scope of this newsletter and indeed my understanding.

Equality and an appreciation of armed services commitment are reinforced within the region with the appointment of Dr Jane Montgomery to consultant anaesthetist at the Borders General Hospital. Trained in London, and latterly from Berlin, the large car park will serve well as an anaesthetic training ground and for a gift shop welling pieces of rock. Two all, at the Borders!

As well as welcoming new colleagues, we have seen the departure of others. Dr Mark Worsley has obviously viewed the challenge of climbing the rock to Stirling Castle greater than that to Edinburgh Castle and taken up an appointment at Stirling Royal Infirmary. We wish you well Mark and hope your crampons never get cramp. Dr Anne David, after all too brief a stay, has been lured by Dudley to take up a consultant post in which we wish her well for the future. Dr Simon Rowbottom, preferring warmer climes, has gone to Hong Kong once more, having returned to Edinburgh sufficiently long to gain his accreditation.

The University Department of Anaesthesia have not been left out of the changes. Cardiff has no rock but does have a castle. This has obviously been sufficient to lure Dr Ian Power (lecturer, University Department of Anaesthesia, Edinburgh) to his appointment as senior lecturer in Cardiff. We may play better rugby, but on this occasion the Welsh won. We wish Ian and his family well for the future and trust he supports the right side at the internationals! Dr Nick Scott, well placed to advise him on these matters, has moved from a senior registrar post in Edinburgh to a lecturer post in Glasgow. Following his example, Dr Patrick Armstrong (previously senior registrar in Edinburgh) has been appointed lecturer in the University Department and in a move obviously designed to bring some form of order to the lecturer's room in the Royal Infirmary Department, Dr Nikki Maran (previously registrar, Edinburgh) has also been appointed as a lecturer.

Our new appointments to senior registrar this year include Drs Margaret Cullen, Magnus Garrioch, David Watson, Gordon Wardall and David Ramage. They are all a well travelled bunch coming from all points of the globe.

David Watson returned from Adelaide, diverting for a brief spell in the Gulf and Magnus (ATLS) Garrioch from Regina, Saskatchewan, Canada. David Ramage, preferring Association Football to Aussie Rules, has found his way back from Fremantle, Western Australia. Margaret has been with us for some time and Gordon Wardall made the most hazardous journey of all, from Glasgow. Continuing the Senior Registrar spirit of adventure, Dr David Ray has left for a year in Christchurch, New Zealand and we anticipate with trepidation the return of Dr Mike Brockway from Perth, Western Australia.

Our more established colleagues have not been without their achievements this year. In particular our congratulations go to Professor Alastair Spence on his election to President of the College of Anaesthetists, to Dr William Macrae on his election to President Elect of the Association of Anaesthetists and to Dr Sally Edwards on her election to President of the Edinburgh and East of Scotland Society of Anaesthetists.

All in all, a year of considerable change.

TAYSIDE REGION

The Dundee General Unit is now formed into Directorates and Anaesthesia is in its own Directorate with Dr Iain Gray the inaugural Director. The Chronic Pain Service has joined with the Directorate of Neurosciences, though the anaesthetic sessions of the two consultants involved remain with the Anaesthesia Directorate. An Acute Pain Service has been established and is being developed. It is consultant based, with a named consultant available on a 24 hour basis, largely separate from the general on call pool. PCA machines have been purchased and the service will gradually extend to all surgical specialities in the area. Approval has been received from the Health Board to appoint nursing staff to assist with the running of the service.

Two additional consultant posts have been approved and filled to run the above service, and Dr John Colvin and Dr Jonathon Bannister have secured these posts. Both were senior registrars in Tayside. Dr Stuart McGowan, the current President of the Scottish Society of Anaesthetists, has retired after many years of distinguished service to the community of Tayside. His clinical skills, sense of humour and quiet thoughtful manner will be greatly missed. His position has been filled by Dr Eddie Wilson, another ex-Tayside senior registrar. These machinations created three senior registrar posts and these went to Dr Praveen Manthri and Dr Ian Skipsey previously registrars in Tayside and we welcomed Dr Duncan Forbes from Glasgow to the remaining post.

WESTERN REGION

In spite of the threatened upheaval subsequent to the Strategy Reviews of the Greater Glasgow Health Board, life goes on virtually unchanged for most of the Glasgow Anaesthetists. Those changes which have taken place have gone ahead fairly smoothly and without causing too many ructions in our Divisions. In the last year the Consultant Job Plan has been introduced, again without too many problems, and some of our more senior colleagues are seeking early retirement, though to date no decisions have been made on this front. The Glasgow hospitals are actively trying to find a solution to the assistance problem, with some degree of success. The main clinical developments are the upsurge of purpose built Day Care Units in each of our hospitals, along with developments commensurate with the Strategy Reviews. The news of personnel changes at each of our hospitals is as follows:

GLASGOW

At Glasgow Royal Infirmary the past year has seen a lesser number of staff changes than for some time. The only consultant appointment has been that of Dr Henry Robb who commenced as Consultant Cardiothoracic Anaesthetist on 1st December. This appointment was necessitated by the imminent commencement of cardiac transplantation within the hospital. It is with sadness that we intimate the retiral due to ill health of Dr EMW Bradford and, needless to say, we sincerely hope that her health continues to improve and that she will soon once again be attending Hilton Park Golf Course with her usual relish.

On the senior registrar front, there have been a number of changes. Dr Tony Laycock has returned from Michigan and Dr Peter Andrews has departed for one year to Kentucky to study cerebral function and protection in pre-eclampsia. During 1991, three new senior registrars have joined the Division, Dr Stephen Hickey and Dr Alison Kilpatrick, both from the Western Infirmary and Dr W McFadzean who has joined us from HM Forces for a period of one year in order to complete his Higher Specialist Training. In addition, Dr Nick Scott, previously a senior registrar in Edinburgh has returned to Glasgow as lecturer/senior registrar in the University Department of Anaesthesia.

At the Victoria Infirmary, Dr David Dutton resigned to take up an appointment in Bradford. David made an immense contribution to the Division, particularly in obstetrics, and will be sorely missed. Subsequent to the moves of gynaecology out of the Royal Samaritan Hospital, Dr Helen Howie has moved half of her sessions to the Western Infirmary. We are awaiting a replacement for Dr Dutton and are hopeful of approval to replace Dr Howie once she transfers her remaining sessions to the Western Infirmary. Two of our senior registrars, Dr

Kenneth Lamb and Dr John Sinclair have returned from spells abroad and indeed congratulations are due to Dr Sinclair on his recent appointment at Glasgow Royal Infirmary.

There have been significant clinical developments within the last year at the Victoria which will consolidate our position in the years ahead. We have recently opened a Day Care Unit and a High Dependency Unit to complement our ICU and are soon to have a CT scanner commissioned.

Lastly it is with regret that we intimate the deaths of two of our retired senior staff, Dr James Hutchison and Dr Douglas Simpson.

At Stobhill there have been no senior staff changes in the last year. A new Day Care Unit is due to open in April but this has been offset by the proposed closure of the Maternity Unit in the same month.

The Division of Anaesthesia at the Western Infirmary continues to enlarge as a consequence of the Greater Glasgow Health Board's Strategy Reviews. Following the transfer of ENT services from Glasgow Royal Infirmary to Gartnavel General Hospital, an additional consultant post has been created and this has been filled by Dr A D MacLeod. The transfer of two consultant gynaecologists from the Royal Samaritan Hospital to the Western Infirmary has resulted in the transfer of four consultant anaesthetic sessions. Dr Helen Howie has thus joined the Division for these sessions and it is envisaged that in the New Year she will transfer the remainder of her sessions from the Victoria to the Western. A new consultant post has been created as a result of expansion of Day Care Surgery. It is anticipated that this appointment will be made early in the New Year. Dr J Borthwick who held a split consultant post between the Western and the Institute of Neurological Sciences has transferred full time to the Institute. As a result Dr Gordon Todd who held a similar split post is now working full time at the Western Infirmary.

Dr Hilary Aitken has been appointed to a consultant post in Redditch. Drs Alistair Macfie, William Reeve, Brian Kennedy and Alan McLintic have been appointed to Senior Registrar posts based initially at the Western Infirmary. Dr Nick Pace, senior registrar, is spending one year in Dallas. Dr Anne Moffat is spending one year in Adelaide on an exchange with Dr Michael Abbott who is currently making the most of one year based at the Western under the supervision of the HST Subcommittee.

Two new consultant appointments have been made at the Southern General Hospital; Dr Collette Clark replaced Dr Freda Fleming and Dr John McDonald replaced Dr John McDonald. No, not an own locum situation - just another John McDonald!

Three new developments are about to come on stream in the next few months; a Day Care Unit, a new Intensive Care Unit and the National Spinal Injuries Unit.

LANARKSHIRE

Best wishes go to Tom Frazer from Law Hospital who, unfortunately, has been forced to retire through ill health. His replacement, who has just been appointed is Dr Nadia Hodsman. She will welcome the announcement of the new replacement hospital at Wishaw and the new maternity unit on the Law site.

Jane Burns has been appointed new consultant at Hairmyres Hospital, where the announcement has finally been made to build a new DGH on the existing site.

AYRSHIRE

There have been no staff changes in Ayrshire this year but the main news is the granting of Trust Status to Unit 2 despite overwhelming opposition from all parties regarding the fragmentation of medical services throughout Ayrshire. We will keep you informed of any developments that occur.

In Unit 1, Clinical Directorates have been formed, with John Hildebrand being the first Director in Anaesthesia.

PAISLEY

There is little to report from Renfrewshire apart from the creation of Clinical Directorates at Paisley encompassing the Theatres, Intensive Care and Anaesthesia, under the Directorship of Sheila Madson.

There is little to report from Monklands and Dumfries except, in common with other hospitals in the area, the appointment of Career Registrars in Anaesthesia to the West of Scotland Rotation Scheme is well under way.

Edinburgh and East of Scotland Society of Anaesthetists

Oct 1

Dr B McLelland, Royal Infirmary, Edinburgh. Hazards of Blood Transfusion - Prevention and Risk Management.

Nov 1

Combined meeting with Glasgow and West of Scotland Society of Anaesthetists. Professor A W Duggan, Preclinical Veterinary Sciences, University of Edinburgh. Blocking Pain Impulses at the Level of the Spinal Cord - Physiological and Pharmacological Mechanisms.

Dec 10

Dr M E Tunstall, Aberdeen Royal Infirmary and Maternity Hospital. Analgesia.

Jan 7

Dr A Redmond, North Staffordshire Royal Infirmary, Stoke on Trent. Medical Response to Disasters.

Feb 4

Presidential Address: Dr Sally Edwards.

Mar 2

Members Night.

Mar 14

Annual Dinner.

May 5

Annual General Meeting.

North East of Scotland Society of Anaesthetists

Oct 17

Dr C T Currie, City Hospital, Edinburgh. Medicine, a hobby for authors.

Nov 21

Dr N M Deardon, Western General Hospital, Edinburgh. Early management and transport of head injuries.

Mar 19

Dr J B Liban, St George's Hospital, London. Aspects of difficult intubation.

May 23

Whole day meeting at Craigendarroch Country Club, Ballater AGM; Registrars' Papers; Presidential Address.

Glasgow and West of Scotland Society of Anaesthetists

Nov 1

Combined Meeting at the Edinburgh and East of Scotland Society of Anaesthetists.

Dec 12

Professor Pierre Foex 'Silent myocardial ischaemia: a serious threat in surgical patients.

Jan 16

Members' Night.

Presented by the Division of Anaesthesia, Glasgow Royal Infirmary.

Feb 11

Dr J C Stoddart, Royal Victoria Infirmary, Newcastle. Specialist Training, Diplomas and the FCAnaes.

Mar 17

Presidential Address. Dr J P Vance.

Apr 30

Annual General Meeting.

May 20

Annual Golf Outing - Lanark Golf Club.

REGISTRAR'S PRIZE

The Society annually awards a prize of £250 for the best original essay submitted by a trainee anaesthetist in Scotland. A second and third prize may also be awarded for papers of particular merit at the discretion of the assessors. It is not necessary that entrants be members of the Society.

The conditions attaching to the award are as follows:

The paper or essay should be original i.e. it should not have been read previously at any meeting or published in any journal.

It is desirable that entries show evidence of personal work, but surveys of the literature are eligible for consideration. The Council of the Society wishes to stress that intending contenders should not be discouraged through fear of their efforts being judged elementary. It is fully realised that trainees in some

peripheral hospitals may not have opportunities to deal with special types of cases or employ advanced anaesthetic techniques.

Four Copies of each entry **MUST** reach the Hon Secretary by the end of February.

The Hon Secretary places all entries in the hands of the Awards Committee which consists of the President, Vice-President and Past-President. These individuals wish to adjudicate without knowing the name or the hospital of the entrant; it is therefore requested that these details be submitted on a separate covering page and that the essay itself give no indication of its source. Acknowledgements to named colleagues should not be included.

The winner of the prize will be required to give a digest of the paper at the Annual General Meeting of the Society in April. His/her expenses for the meeting and those of a partner will be met by the Society.

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