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THE ULSTER MEDICAL JOURNAL

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THE ULSTER MEDICAL JOURNAL

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THE ULSTER MEDICAL SOCIETY

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THE
ULSTER MEDICAL JOURNAL

PUBLISHED ON BEHALF OF THE ULSTER MEDICAL SOCIETY

VOLUME 51 1982 No. 1

THROUGH THE ARTIST'S EYES

by

TERENCE FULTON, MD, FRCP, FRCPI

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PRESIDENTIAL ADDRESS TO THE ULSTER MEDICAL SOCIETY IN THE SESSION 1981-82

TWENTY-FIVE years ago last month Mr Ernest Morrison FRCS kindly asked me to look after a man whose character and courage I came greatly to admire and whose close friendship I was privileged to enjoy during the remaining five years of his life.

Zoltan Lewinter-Frankl was born in Hungary in 1894 and the family later moved to Vienna. Such was his love of paintings that by the age of 16 he had already started a personal collection. In the First World War he served with a German Hussar regiment and was awarded the Iron Cross. In 1938, because of the pogroms and the gathering clouds of war he, his wife Anny and his sisters-in-law left Vienna en route for Canberra. When they reached London, however, they were persuaded to come to Ulster and start a knit-wear factory, Anny Lewinter Ltd, in Newtownards, then a depressed area with skills in handweaving and embroidery.

Immediately after his arrival in Ulster in April 1938, Zoltan Lewinter-Frankl began to take a keen interest in the painting and sculpture of his country of adoption and before long he had met many of its artists. He became an admirer, patron and personal friend of Jack B. Yeats, William Conor, Paul Nietsche who painted a portrait of him in 1944, Daniel O'Neill, Colin Middleton and John Hunter. On the wider scene he got to know Charoux, Epstein, Topolski, Stanley Spencer and F.E. McWilliam and owned important works by them.

Paintings from his personal collection were shown in 1944 in the CEMA Gallery in Belfast and in the 1950's in exhibitions of Contemporary Ulster Paintings in Edinburgh and Sheffield. In 1958 he was honoured by a special exhibition of the

Lewinter-Frankl Collection at the Belfast Museum and Art Gallery. In a foreword to the catalogue Mr Frederick Allen, Teacher of Art at Stranmillis Training College, wrote: "In the past, works of art have always been the normal offspring of the happy marriage between art and patronage and to maintain this process Zoltan Lewinter-Frankl sets a most praiseworthy example. It is certain that Ulster has never before possessed such a patron of art. We are grateful to him for his generous sharing of his treasures and to Belfast Corporation for providing galleries for their display, which exceeds anything that has been shown before in Ulster".

This was the man, with his consuming interest in and infectious enthusiasm for art, whom through medicine I had the great good fortune to know. I shall always be grateful to him because he opened for me a magic window through which life acquired an entirely new pespective.

The artist is often considered to be man's most sensitive interpreter of the pageant of life, with its joys and sorrows, its successes and failures. Many of the world's greatest artists have been attracted to subjects that are familiar to medicine, from studies of anatomy to the portrayal of the infirm, the insane, the crippled and the blind.

In selecting for this address paintings and drawings of medical interest the principal constraint has inevitably been the limited time at my disposal tonight and I am very conscious of having deliberately or unwittingly omitted famous works which others might well have chosen to include. Nor have I attempted to cover all the different aspects of medicine and its specialties. My approach has been governed primarily by artistic considerations, so that many of the paintings and drawings are major works by great artists, and are not merely interesting illustrations of medical topics irrespective of the stature of the artist.

LEONARDO DA VINCI (1452-1519)

Leonardo, the illegitimate son of Caterina, a peasant girl, and Ser Piero da Vinci, a Florentine notary, is acknowledged to be one of the greatest geniuses of the Italian Renaissance. To say that he was a unique genetic mutation is to put into modern scientific language Vasari's 16th Century verdict that "his genius was the gift of God". He was endowed with remarkable intellectual power and physical strength and skill. Others may have matched him as an artist but no one else possessed, in such a high degree, that curiosity about the physical world which is the foundation of modern science combined with mastery of the arts of drawing, painting, sculpture and architecture. Throughout his life his writing and drawing were accomplished with his left hand.

Leonardo's studies of human anatomy, based on careful dissection, display knowledge which exceeded that of his contemporaries in the medical profession who were also quite unprepared for his application of physical laws to human anatomy in his conception of the mechanical forces operating at the joints. In Dr Kenneth D. Keele's arresting words: "thus in anatomy, as in so many other aspects of his life's work, Leonardo was a man who awoke too early in the dawn of the scientific Renaissance whilst others still slept". To his remarkable knowledge was added his unique skill in recording his discoveries on paper, making them not only important scientific diagrams but also superb works of art.

In the course of his dissection of the skull and brain, Leonardo made several discoveries which were unknown before his time, for example, the maxillary and frontal sinuses. Concerning *Two Views of the Skull Dissected to Show the Cavities of the Orbit and Maxillary Sinuses* (1489), he noted that removing the "bone armour of the cheek" showed the "bony cavity of the orbit in which the instrument of vision is hidden". The cavity below is the maxillary antrum which "contains the humour which nourished the roots of the teeth. The hole 'n' is the place from which the tears rise up from the heart to the eye, passing through the canal to the nose". Until 1901, when these drawings were first thoroughly studied, it was believed that the maxillary antrum was discovered by Nathaniel Highmore in 1651.

Leonardo showed great interest in vision and was probably the first to draw the optic chiasma and to demonstrate the path of vision from the back of the eyeball to the base of the brain as in *The Optic Chiasma and Cranial Nerves* (1506-8). It was he, not Rembrandt, who described the eye as "the window of the soul".

For every abdominal surgeon *The Stomach and Intestines* (1506-8) should surely be a hallowed drawing because it is the first known illustration of the appendix.

Dr Bernard Schlesinger referred to Leonardo's studies of *The Infant in the Womb* (1510-12) (Fig. 1) in the Dawson Williams Lecture given in Belfast in 1962 at the 130th Annual Meeting of the British Medical Association presided over by Sir Ian Fraser. "This profound philosopher states his ideas on heredity and physiology in his commentary, in mirror writing, on the dissection: 'In the case of his child the heart does not beat and it does not breathe, because it lies continually in water. And if it were to breathe it would be drowned, and breathing is not necessary to it, because it receives life and is nourished from the life and food of the mother . . . . And a single soul governs these two bodies and the desires and fears and pains are common to this creature . . . . And from this proceeds that a thing desired by the mother is often found engraved upon those parts of the child which the mother keeps in herself at the time of such desire'. How singularly near the mark are these ideas in some respects but how far wide in others, the truth about the circulation having to await William Harvey's pronouncements over a century later".

The studies of the skeleton and muscles completed between 1508 and 1510 are among Leonardo's most impressive and beautiful drawings and illustrate perfectly his contention that good draughtsmanship will tell more than a thousand words. In his drawing *The Spine* (1508-10) the articulated vertebral column is shown in the beauty of its natural curves and with the vertebrae of each part correctly numbered, the first time this had been achieved. His drawing *Superficial Muscles and Veins of the Arms* shows also the superficial veins of the chest and abdomen.

When one reflects on the circumstances in which Leonardo carried out his anatomical studies and recorded so beautifully what he found, his achievement is all the more remarkable. There is good reason to believe that using the hours of daylight and darkness he dissected more than thirty bodies, many of which were the mortal remains of those who had been executed as criminals, "quartered and flayed, and horrible to behold".

Perhaps the most significant legacy of Leonardo the anatomist and scientist are his thoughts on the place of research in the scheme of things. "Consumed as he was by curiosity and a passion for investigation, he was never one who believed in

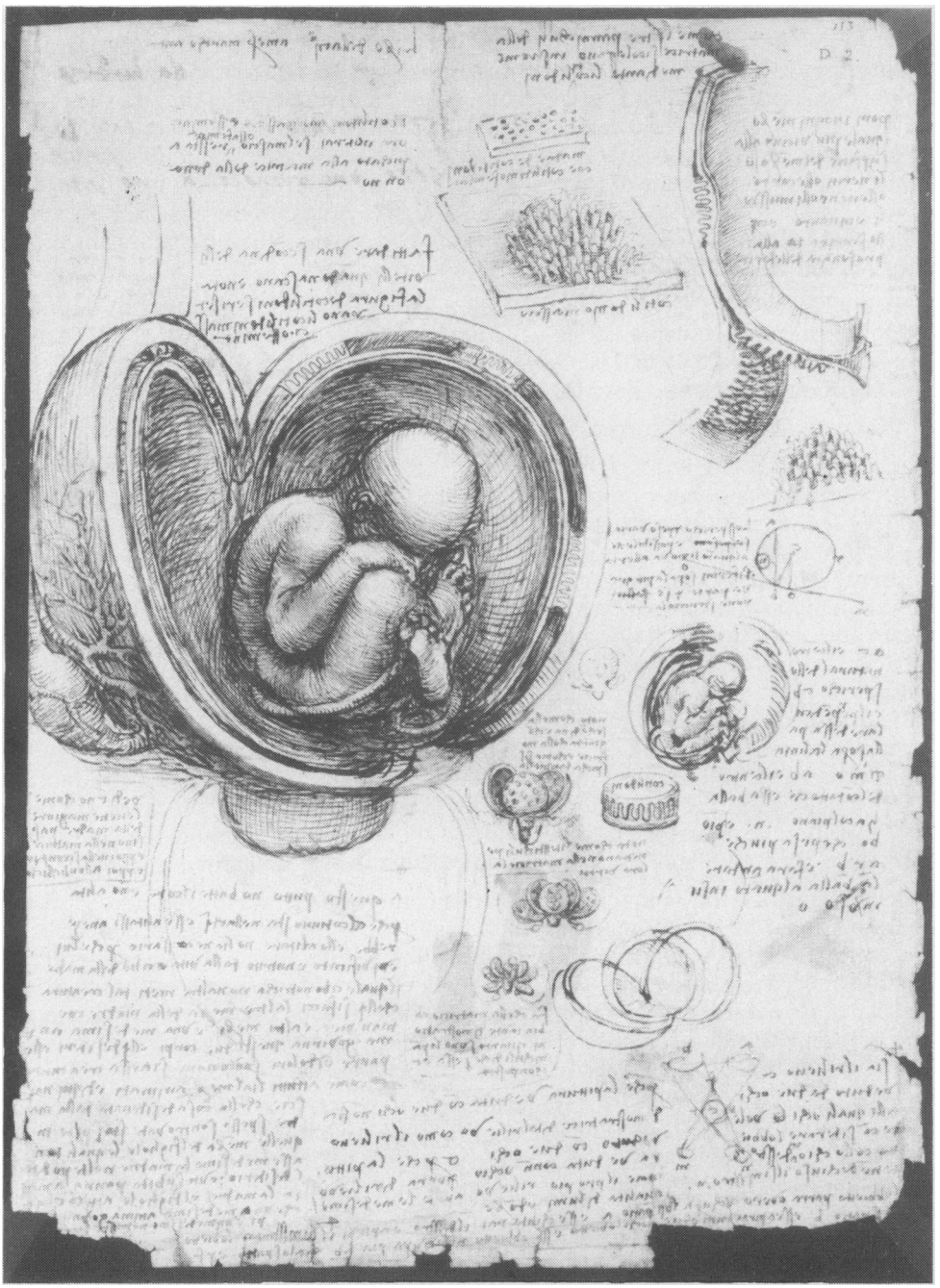

FIG. 1 *The Infant in the Womb (1510-12) by Leonardo da Vinci (1452-1519)*

science for science's sake" (Keele). Leonard said: "From it (science) is born creative action which is of much more value" and his further words have as profound a meaning for us as they did when he wrote them over four-and-a-half centuries ago: "This generation deserves unmeasured praises for the usefulness of the things they have invented for the use of man: and would deserve them even more if they had not invented noxious things like poisons, and other similar things which destroy life or the mind".

ALBRECHT DÜRER (1471-1528)

Born in Nuremberg on the eve of the Reformation, Albrecht Dürer was the son of a Hungarian goldsmith. He was the third of eighteen brothers of whom only three survived and all became painters.

His drawing of his mother Barbara Dürer (Fig. 2) in 1514 shows her in late middle age, careworn and wasted, and with a divergent squint. Dürer, who inherited from her the same disorder, believed that a portrait protected its subject from death and considered that he should be one of the first to be thus preserved! Few other artists have left so many self-portraits. In the silver-point *Self-Portrait* (1522) he draws attention, perhaps of a doctor, to the spleen which is said to have caused him pain.

FIG. 2
The Artist's Mother (1514) by Albrecht Dürer

PIETER BRUEGEL THE ELDER (1527-69)

The subjects represented by Pieter Bruegel, the pre-eminent Flemish painter of the 16th Centruy, were drawn from popular theatre and holy day processions, local folklore and proverb books. While he shared the predilection of his times for allegory and symbolism, he portrayed his fellow men with Netherlandish robustness and honesty, and through all his work runs a remarkable strain of worldly wisdom and humour. Such qualities were needed to offset the rigours of religious discipline and Spanish court etiquette and it has even been suggested that Bruegel's pictures may partly have taken the place of the court jester. They were collected by some of the most cultivated and wealthy members of Flemish society of his day and reflect the tastes and attitudes of the bankers and merchants who commissioned them.

Bruegel's peasant paintings bear witness to the great interest in countryfolk in the 16th Century. Although many townspeople laughed at their simple boorish ways, some must have envied their peaceful, untroubled country lives untouched by the cares and corruptions of the city. *The Peasant Wedding Feast* (1567-8) portrays a scene of traditional country revelry but P.D. Trevor Roper, with fine clinical perception, has drawn attention to the bride, seated at the centre of the festivities, her coarse and puffy features suggesting that she has myxoedema.

In *The Parable of the Blind* (1568) a procession of sightless men shuffles across an open field. The first two have stumbled into a ditch and it is clear that a similar fate awaits the others. Their infirmities are said by Trevor Roper to include leucoma, cataracts, phthisis bulbi and perhaps blepharospasm associated with iridocyclitis. However, these hapless creatures were not painted to arouse sympathy for their physical condition, but just as Christ told the parable of the blind to illustrate the spiritual blindness of the Pharisees (St Matthew 15: 14) so Bruegel's painting symbolises the spiritual blindness of all men. It is his most moving portrayal of the human condition.

Interpretations of *The Cripples* (1568) vary widely. In Michel Laclotte's opinion these poor creatures may be lepers who are known to have worn fox tails on their clothing during Carnival. The scene may be taking place in the courtyard of the lazaretto as they prepare to depart and the woman on the right may be a nurse. On the other hand, this may be an allegorical painting, the fancy headgear worn by the wretched men representing different social classes—the imperial crown, the military shako, the peasant's cap, the burgher's beret and the bishop's mitre. W.S. Gibson considers that the compassion we feel today for such people would have been out of place in Bruegel's day when begging was condemned, it being widely held that poverty was largely self-inflicted. Beggars had long been regarded as cheats and scroundels who often faked their deformities in order to attract public charity, a timeless image of human deceit. Bruegel portrays these wrecks of humanity with little compassion, their coarse faces and mutilated bodies resembling Bosch's devils, and in *Cripples, Fools and Beggars* he illustrates their extraordinary repertoire of deformities and the walking aids that they employed.

In 1574 Abraham Ortelius wrote that Pieter Bruegel was the most perfect painter of his century, praising his fidelity to nature and his ability to depict "many things that cannot be depicted".

PETER PAUL RUBENS (1577-1640)

At a time when the Protestant Netherlands was steadily achieving independence, Catholic Flanders remained under Hapsburg rule and Flemish art continued to be largely under the patronage of the Church and of the Court at Brussels. The return in 1608 of Rubens to Antwerp, the cultural headquarters in Flanders of the Counter-Reformation, provided a powerful impetus especially to religious painting, the greatest accomplishment of his many-sided genius.

Rubens painted *Le Chapeau de Paille* in 1622, his model being the attractive and vivacious Susanne Lunden née Fourment. So life-like is the picture that attention is drawn to the presence of a goitre by the slimness of the neck above it. Two prominent veins can be discerned on the right of her cleavage and also some smaller vessels on the neck and upper chest. The face is dominated by wide blue eyes but

there is no hint of exophthalmos. Le Chapeau de Paille is a favourite portrait and as Susanne married for the second time when she was just twenty-three years of age, it is apparent that in real life others also admired her. Indeed, it is easy to see that Rubens painted her with great affection and she is known to have sat for him more than once. After the tragic death of his first wife, Isabella Brant, he married Susanne's younger sister, 16-year-old Hélène Fourment who haunts his last portraits which are memorials to his love for her.

In his impressive portrait of *Marie de Médicis* (1622-5) the French Queen Mother, Rubens conveys a sense of majesty by adding width to her figure, thus conforming to the fashion of the day. She also has a goitre and although she appears alert, composed and completely at ease, there is just a hint of hypothyroidism.

Ludovicus Nonnius (1627), a Portuguese physician resident in Antwerp, was the author of a number of books including a famous treatise on diet, 'The Dieteticon' published in 1627, the year of the execution of his portrait. Rubens showed him in his study flanked by a bust of Hippocrates, the father of Medicine.

THE GOLDEN AGE OF DUTCH ART

The 17th Century loved genre painting and at a time when the Netherlands was emerging as a nation from those United Provinces which, in the cause of political and religious freedom, had successfully defied the imperial power of Spain, there now arose the greatest school of genre painting in the history of art. There was virtually no land-owning nobility nor was the Reformed Church a source of patronage of the arts, but the peace and prosperity of the country, the structure of society and the pride and joy of the Dutch people in their own special kind of patriotism all contributed to the sudden intense flowering of artistic talent that has been one of the major influences in the history of art.

In the Netherlands, unlike other countries, the enjoyment and ownership of paintings was not confined to the wealthy and educated. While the gap left by the loss of ecclesiastical patronage was filled by the highly successful merchants, the ordinary people had the opportunity of seeing paintings of all kinds displayed at the many village fairs throughout the country. The demand for different kinds of paintings led many artists to specialise in particular subjects so that, for the first time, they produced and kept in stock pictures that people liked and would buy.

Rembrandt van Rijn (1606-69) was the greatest of all Dutch artists. From his earliest years he studied men's faces in order to correlate the play of expression with changing emotions. In 1632 Dr Nicolaes Tulp, a famous surgeon of the day, commissioned Rembrandt to paint his public dissection and demonstration of the anatomy of the arm for the Surgeons' Guild of Amsterdam. *The Anatomy Lesson of Dr Nicolaes Tulp* (1632) won immediate and universal admiration and in the space of a few months made his name as a portrait painter.

Rembrandt always wished to excel as a religious painter and studied the Bible over and over again. Because of his ability to translate into paint his faith and piety, he ranks with the greatest of all religious artists. In his *Saul and David* (1657), Saul, King of the Israelites, having sinned against God, is being tormented by attacks of dark depression which have him completely in their power. Despite his regal splendour, he is a pitiful and unhappy man, utterly alone behind the velvet curtain

which conceals him from David, his humble servant, immersed in his cithern playing. All the people praise David because only he could save the Israelites by slaying Goliath, the champion of the Philistines, but Saul is filled with a raging hatred and twice tries to kill him with a spear.

The infirmity of blindness is portrayed in several of Rembrandt's Bible paintings, including *Jacob Blessing the Sons of Joseph* (1656) and *Tobit and Anna with the Kid* (1626). Tobit remained a true servant of God even when he became blind and was confined to the house. His wife Anna earned a pittance by her spinning. Rembrandt chooses the moment when old blind Tobit, horrified by his mistrust of his own wife, prays for forgiveness for having suspected her of stealing the kid which she could never have afforded to buy but had received as a present.

From the beginning of his career, Rembrandt was profoundly interested in old people and the inner life and character of his subjects became more important to him than their outward appearance. His deep humanity and his sympathy for his sitters enabled him to paint them with great insight and tenderness, as in *Portrait of an 83-year-old Woman* (1634) and *An Old Man in an Armchair* (1652), both hanging in the National Gallery in London.

Even had there never been a Rembrandt, his contemporaries would still have made the 17th Century Dutch School of pre-eminent importance. The other great Dutch masters all had the ability to translate into paint the space, light and atmosphere which enveloped ordinary people in their kitchens, bedrooms, courtyards, or under vast skies.

The Group portrait was almost exclusively a Dutch tradition. In the background of Werner van den Valckert's (1585-1627) group portrait of *Governors of the Leprosarium in Amsterdam* (1624) can be seen a bas relief in which are shown dogs licking the sores on the legs of Lazarus.

Gabriel Metsu (1629-67) specialised in intimate scenes of middle class life and in *The Sick Child* (1660) a mother gazes tenderly at her little one. However, the attention of the *Mother Combing Her Child* by Gerard ter Borch (1617-81) is focussed on an entirely different problem, the quest for nits!

Jan Steen (1626-79), one of the most prolific and versatile Dutch artists, holds a special place in genre painting, embracing both lowly and fashionable subjects. *The Doctor's Visit* was one of his favourite themes but never did he depict tragedy or death. The painting with this title contains several important clues to the probable cause of the attractive and elegantly dressed young lady's malady. While the doctor feeling her pulse strikes a self-important pose and gazes intently into the distance, the lady in attendance, who is probably her mother, observes him with an amused and knowing smile. In the coalpan on the floor a smouldering string has been prepared for use. According to popular belief, victims of fainting fits would come to if the doctor held a burning apron string under their noses, and in the case of young ladies no one considered any cause but pregnancy. The statue of Cupid standing on the mantlepiece confirms that love is at the heart of this little domestic drama.

In *The Blood-letting* by Q.G. Brekelenkam (1620-68) the old granny is busy attaching a cupping glass to the young lady's arm. With the help of this instrument she will bleed the girl to see if she is pregnant or not. The basket of slightly wrinkled yellow cucumbers on the table has special significance, alluding to the Dutch proverb, 'Virginity like cucumbers should not be kept too long!'

Jan Steen's expertise as a lively storyteller with good-humoured malice is shown in *A Toothpuller.* On the other hand, *A Surgical Scene* by Gerrit Lundens (1622-83) is no laughing matter and one's sympathies are entirely with the patients.

The Lady in Blue by Jan Vermeer (1623-75) is thought to be his own wife painted in the 1660's during pregnancy. It is hard to realise that in spite of his magical glimpses of ordinary everyday life, his perfect colour sense and the timeless quality of his subjects, Vermeer's work was not appreciated until two centuries after his death when the Impressionists became absorbed in the effects of light and colour.

THE GOLDEN AGE OF SPANISH PAINTING

In 17th Century Spain truth to life was considered to be the essence of a work of art.

The Bearded Woman (Magdalena Ventura with Husband and Son) by Jusepe de Ribera (1591-1652) was commissioned in 1631 by Ferdinand II, Third Duke of Alcalá, Viceroy of Naples and is signed with an inscription which translated reads: "The great wonder of Nature, Magdalena Ventura, from the town of Accúmole in Central Italy . . . . aged 52 years, the unusual thing about her being that when she was 37 she began to become hairy and grew a beard so long and thick that it seems more like that of any bearded gentleman than of a woman who had borne three sons by her husband, Felici de Amici, whom you see here. Jusepe de Ribera, a Spanish gentleman of the Order of the Cross of Christ . . . . painted this scene marvellously from the life . . . . " However, there are other disturbing features in this portrait for which no explanation is offered, for example, the large apparently single breast and the fact that this bearded woman is shown at the age of 52 suckling her own infant son. Artistic licence perhaps? Ribera conveys in a masterly way the intensity of the husband's incomprehension and resentment of his wife's masculinity.

The Clubfoot (1652), a lowly counterpart of Valázquez's court dwarfs, stands impishly outlined against the sky, his crutch over his shoulder and a note in his left hand begging for alms, suggesting that perhaps he cannot speak. While Schlesinger thought it possible that the deformities of the right arm and leg were due to infantile hemiplegia he had reservations about this diagnosis if indeed the boy was aphasic.

Diego Rodriguez de Silva Velázquez (1599-1660), the greatest of all Spanish artists, was appointed court painter to King Philip IV at the age of 23 and remained in his service for the rest of his life. Jesters and dwarfs, often young boys and girls of good birth, had long been a feature of European courts and noble houses and were chosen as pages and playmates for the royal family. Their quips and quirks helped to break the icy formality of etiquette and fashion and their portraits often decorated the palaces of their masters.

An achondroplasiac dwarf Francisco Lezcano, called 'the Biscayan', came to court in 1631 and was assigned to amuse Prince Baltasar Carlos, then age 2 years. They are shown together in Velázquez's painting *Prince Baltasar Carlos with his Dwarf* (1631). In a later portrait *Francisco Lezcano* (1638-42) is shown perched on a rock in a mountain landscape, his beclouded brain symbolised by the blackness of the cliff against which he is posed. He died in 1649. Another achondroplasiac Don Diego de Acedo, nicknamed *El Primo* (1644) was jester to the royal court of Philip IV.

It may be that the presence at court of these unfortunate members of society afforded lessons in understanding and compassion as well as providing amusement, diversion and entertainment.

GEORGIAN ENGLAND: THE AGE OF ELEGANCE

England in the 18th Century was a land in which civil peace and personal liberty were more secure than ever before, and growing sections of the community enjoyed increasing wealth and leisure. Art was an integral part of life. The paintings of Hogarth, Gainsborough, Reynolds and Wilson were matched by a remarkable flowering of literature. The social aristocracy of the day included the wealthier clergy and the cultivated middle class, and houses in town and country were as rich as museums and art galleries.

It was into such a society that William Hogarth (1697-1760) was born in London and for which he created his celebrated series of anecdotal pictures, The Harlot's Progress (1730-1), A Rake's Progress (1735), Marriage à la Mode (1743-5) and The Election (1754), satirising social abuses and pointing a moral.

The final scene of *A Rake's Progress* shows him in chains in Bedlam (Bethlehem) Hospital, then one of the sights of London where, as elsewhere, the treatment of lunatics was brutal in the extreme. In *Marriage à la Mode* venereal disease, quackery, murder, suicide with laudanum and capital punishment by hanging follow one another in rapid succession, leaving a tainted child as the sole issue of a loveless union.

In *The Election,* Hogarth first shows an entertainment at an inn in the county town. It has been arranged by one of the candidates for the reception of his friends some time before the poll in order to ensure his interest, for without it he would have little chance of success. His opponent's supporters are throwing bricks through the windows and an attorney has been struck and knocked from his seat. A member of the Corporation has had rather too much punch while a parson and an alderman are cramming themselves with food 'to the destruction of their health'. Indeed the alderman, gorged with oysters and with another on his fork, is dying and 'a barber surgeon is vainly attempting to recover him by bleeding'.

At the poll the maimed, the blind, the deaf and the dying attend to register their votes. The first to tender his oath to the swearing clerk is an old soldier whose bravery in the service of his country has cost him a leg, an arm and a hand, hence the protest against his vote on the ground that he cannot hold up his right hand on taking the oath. Next comes a man fastened to his chair, evidently deaf and mentally defective, who is prompted by another shouting in his ear. Behind them, carried in a blanket, is someone who looks so ill that 'he cannot be supposed to feel much interest in the concerns of a world he is on the point of leaving'. And finally a blind man and a cripple slowly and cautiously make their way up the steps to the hustings.

Thomas Rowlandson (1756-1827), the most talented and prolific satirist and caricaturist of the late 18th Century, is said to have been "well balanced though inclined to the normal excesses of the period, hard drinking, gambling and promiscuity". Fortunately his "zest for life" was matched by an enthusiasm for work and a dislike of debt!

FIG. 3
The Apothecary and His Assistant at Work (1814) by Thomas Rowlandson

FIG. 4
Another Whiff and All Is O'er, Gaffer Goodman Is No More (1815) by Thomas Rowlandson (1756-1827)

In *Sham Fits* (1802), the studied inaction and unconcerned gaze of the gentleman sipping his wine are in sharp contrast to the flurry of activity on his side of the table where the family mongrel is thoroughly roused and the older woman is endeavouring to restrain the buxom young lady in the full flight of her hysterical fit.

Ague and Fever (1788), one of the classics of medical iconography, shows the snake-like coils of Ague twining round the shivering victim who is seated before a blazing fire while Fever, with his quivering heats, stands between the patient and his physician who is waiting to add his own persecutions to the sick man's misery. Regrettably, the future looks even more bleak for the waiting queue of patients in *The Apothecary and His Assistant at Work* (1814) (Fig. 3).

In those days the benefits of a second opinion were sometimes illusory as in *When Doctors Three the Labour Share, No Wonder Death Attends Them There* (1816). And at that time, Rowlandson, an astute observer of social customs and their consequences, could see for himself the lethal effects of heavy smoking which he vividly illustrated in *Another Whiff and All Is O'er, Gaffer Goodman Is No More* (1815) (Fig. 4).

James Gillray (1757-1815) was famous for his coarse, scurrilous caricatures which were invariably more personal than Hogarth's social comments. At the beginning of the 19th Century, vaccination was a very controversial issue and was violently attacked by word and cartoon. In *Cow Pock* (1802) the scene is probably the Smallpox and Inoculation Hospital at St Pancras and the administering physician Jenner himself. Gillray's coloured etching *The Gout* (1799) (Fig. 5) is considered to be one of the most imaginative representations of a disease. It may be that his startling portrayal of the pain, swelling and inflammation was inspired by personal experience, for his death was said to have been caused by intemperance.

The Headache (1819) (Fig. 6) by George Cruikshank (1792-1878), Gillray's successor as political cartoonist, is so dramatically conceived that it too may have been based on his own knowledge of such an event.

FRANCISCO JOSÉ GOYA Y LUCIENTES (1746-1828)

At first Goya was employed in painting cartoons for the Royal Tapestry Factory, the subjects being scenes from contemporary Spanish life portrayed in a romantic and decorative style. *The Injured Mason* (1786-7) is such a painting, the model for a tapestry to decorate the dining room in the Palace of El Pardo. It may well have been inspired by an edict issued by Charles III specifying how scaffolding was to be erected in building construction in order to prevent accidents to and the death of workmen. In this instance, however, the two men carrying the victim have jovial expressions and this has given rise to the modern title The Drunken Mason!

In 1786, Goya was made Painter to the King but in 1792 he was struck down by a long and serious illness, probably meningo-encephalitis, which is said to have caused temporary paralysis, partial blindness and permanent deafness so that thereafter he had to communicate by sign language and by writing. During his convalescence he painted a group of eleven cabinet pictures in which he was able to indulge his fantasy and invention. *The Madhouse* (1793) was one of this series and though comparable to Hogarth's Bedlam Hospital in *The Rake's Progress* it is a more dark, forbidding and horrifying place.

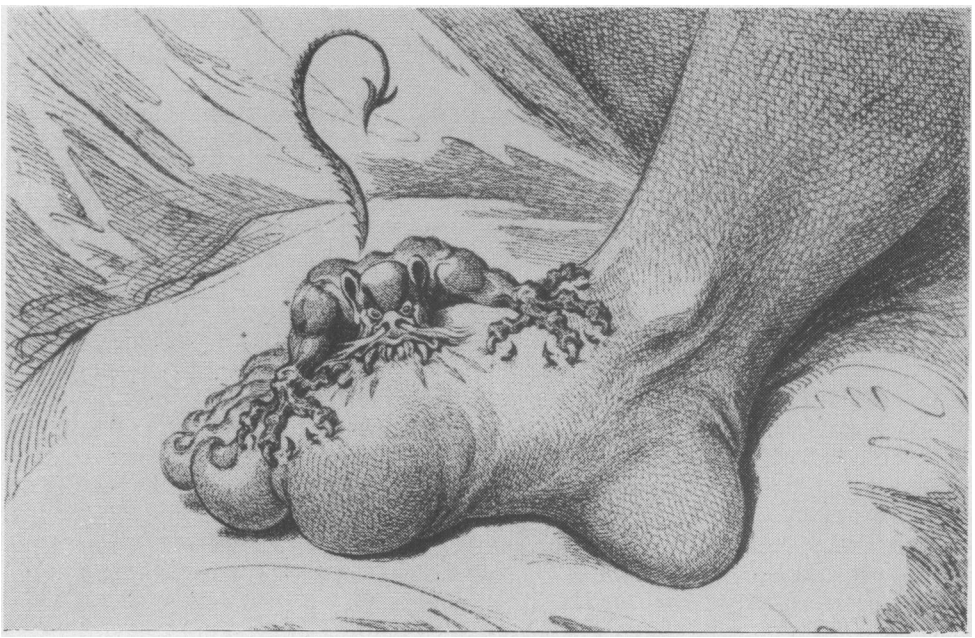

FIG. 5. *The Gout (1799) by James Gillray*

FIG. 6. *The Headache (1819) by George Cruikshank*

Although forced by his deafness into a solitary existence Goya lived through this personal crisis. His portraits showed great sensitivity and understanding of human nature and here Rembrandt was his guide. The portrait of *Infanta Maria Josefa* (1800) has the added interest of the large black mole on the right temple. One of Goya's latest studies was *Tio Paquete* (1820), a well-known blind beggar who sat on the steps of San Felipe el Real in Madrid and was invited to play his guitar and sing in the houses of court society. It is on the work of his maturity and old age, penetrating, violent and sombre, that Goya's reputation as the greatest master of his time and the first of the moderns rests.

JEAN LOUIS ANDRÉ THÉODORE GÉRICAULT (1791-1824)

It is said of Géricault that had he not died so young he might well have become the Rembrandt of French painting. His collaboration with Dr Etienne-Jean Georget, a distinguished young psychiatrist at the Salpêtrière Hospital in Paris where he set up his easel, resulted in the painting in 1822-3 of ten notable portraits of the insane. In these he emphasised the individuality of his subjects, their disturbed mental state being subtly reflected in their facial expression and their bearing, not by the use of caricature or by placing them in a recognisable medical setting. Only five of the original ten portraits are known to remain in existence. They include *The Mad Kidnapper* (1822), *The Woman With Insane Jealousy* (1823) and *Madman With Delusions of Military Grandeur* (1822). In the last of these the subject wears what purport to be a military shako and a high decoration, and his mind is preoccupied with affairs of great moment.

Géricault himself suffered from profound depression which seriously interrupted his work. It is likely that his interest in and understanding of those who were mentally disturbed were deepened by the experience of his own distress.

HONORÉ-VICTORIN DAUMIER (1809-79)

The essence of the satire of France's greatest caricaturist lay in his ability to portray a man's whole character in his face and to convey mental folly by depicting physical absurdity. In *Oh Doctor, I'm Sure I'm Consumptive* (1847), a corpulent middle-class hypochondriac, full of self-pity is being visited at his home by his long-suffering family doctor whose humanity and good nature have prevailed despite severe provocation.

The attitudes and expressions of the passengers in *An Omnibus During An Epidemic of Grippe* (1858) (Fig. 7) almost compel one to share their discomfort and misery, whereas not even the seeming inevitably of a nerve-racking experience in *Let's See, Open Your Mouth* (1864) can quell its delicious humour. In *The Country Doctor* (1840) (Fig. 8) Daumier pays a touching tribute to the quiet dedication and unrewarded and often unchronicled self-sacrifice of the country doctor.

PAUL GAVARNI (1804-66)

Daumier's fellow countryman, who revolutionised the art of disguise by inventing new costumes for balls, carnivals and entertainments of all kinds, created in his drawings real men and women with their little habits, tricks and absurdities, their sensibilities, appetites and hypocrisy. Taken from the series 'The Vexations of Happiness'', *Colic On His Wedding Night* (1838) must surely be one of the most ludicrous descents from the emotionally sublime to the ridiculous.

FIG. 7
An Omnibus During An Epidemic of Grippe (1858) by Honoré-Victorin Daumier

FIG. 8
The Country Doctor (1840) by Honoré-Victorin Daumier

VICTORIAN PAINTING

A profound change in the taste and morals of society occurred during the 1830's and 1840's. The ribaldry and high living of the late Georgian period gave way to the Victorian ethic of restraint, decorum and gentility, so that by the time the earliest number of Punch appeared in 1841, little more than a decade after Rowlandson's death, both the lifestyle and the humour of society had been transformed. There was a strong sense of propriety sometimes amounting to prudishness, the humanitarian idealism which imbued society came through in art as sentimantality and painters tended to be obsessional in endeavouring faithfully to depict nature.

Thus the tendency to poke lighthearted fun at august personages, for example Henry Liverseege's (1803-32) late Georgian lady seen in *A Touch of the Spasms,* gave way to sober contemplation, as in *An Anxious Hour* (1865) by Mrs Alexander Farmer in which a young mother watches over her stricken child. *The Blind Girl* (1856) by Sir John Everett Millais (1829-96), conveys a feeling of inner peace and trust, truly reflects nature and fulfils all the ideals of the pre-Raphaelite Brotherhood. The elegant lady in James Tissot's (1836-1902) two delightful paintings of *The Convalescent,* executed in the early 1870's, may well have been Mrs Kathleen Newton his mistress.

Sir William MacCormac, who graduated in 1857 at Queen's College, Belfast, was one of those chosen by Sir Luke Fildes (1844-1927) to portray the physician in his well-known painting *The Doctor* (1891). It is an unsentimentalised study of medical compassion when all else that could be done had already been done. Fildes' *Applicants for Admission to a Casual Ward* (1874) is based on his drawing 'Houseless and Hungry' published in the first issue of The Graphic on 4th December 1869, and was probably inspired by the description by Charles Dickens of a scene outside Whitechapel Workhouse in 1855. In the line of figures stands an anxious father carrying an emaciated, bare-legged child against which huddles his weeping wife, two little girls and a young boy clutching his abdomen. It is said that when the top-hatted central figure, whom Fildes 'found' during one of his nightly wanderings through the streets of London, was being painted he was given a pint mug of porter and was made to stand on sheets of brown paper liberally sprinkled with Keating's powder. When this painting was exhibited at the Royal Academy a reviewer in The Art Journal, while praising its realism, considered it a matter for regret that such a state of affairs should be perpetuated in art!

Whether *A Visit to Aesculapius* (1880) by Sir Edward Poynter (1836-1919), a perfect example of the spurious classicism so much criticised by Daumier and his friends, was a more acceptable representation of how sick people should look, it would certainly do wonders for the morale of physicians in charge of medical out-patient clinics and take-in medical units if family doctors would try to refer more patients with this kind of problem!

In this International Year of the Disabled thoughtful consideration is being given to helping those who by their skill, courage and determination often put to shame the able-bodied. Whether the *Siamese Twins* (1836) painted by Edward Pingret felt in need of such attention or were fully reconciled to their unusual lot in life, history does not record. However, may I commend to you Miss Sarah Biffin (1784-1850) who was born without arms or hands almost two hundred years ago. She painted with her shoulder assisted by her mouth and was exhibited at fairs by her first

teacher Mr Dukes with whom she remained contracted for 16 years. The Earl of Morton secured not only her second teacher but also royal patronage and she made a successful career as a miniaturist. Her self portrait in watercolour is in the Wellcome Institute for the History of Medicine.

VINCENT WILLEM van GOGH (1853-90)

The son of a Lutheran pastor, van Gogh was brought up in an atmosphere of poverty and stern idealism which played an important part in moulding his character. He eventually came to the conclusion that art was his only means of salvation through bringing joy and understanding to others and by uniting him with the great masters. He became obsessed by the symbolic and expressive power of colour which he used, not to reproduce visual appearances, but as a means of conveying his feelings.

On 23rd December 1888, after a violent argument, he threatened Gauguin with a razor but was put to flight by the latter's gaze and then cut off the lobe of his own right ear. Subsequent events were reported on 30th December 1888 in a local Sunday newspaper 'Le Forum Républican': "Last Sunday night at half past eleven a painter named Vincent van Gogh, a native of Holland, appeared at the maison de tolérance No. 1, asked for a girl called Rachel and handed her . . . . his ear, with these words: 'Keep this object like a treasure'. Then he departed. The police, informed of these events which could only be the work of an unfortunate madman, looked next morning for this individual whom they found in bed with scarcely a sign of life. The poor man was taken to hospital without delay".

It seems certain that van Gogh was no 'unfortunate madman' but the wound he inflicted upon himself was undoubtedly an expression of a mental disorder that was to manifest itself repeatedly thereafter. A short period of listlessness was followed by rapid recovery and his artistic output quickly returned to normal. *Self-portrait With Bandaged Ear* was painted in January 1889, within one month of this distressing episode.

During the next year-and-a-half he had further attacks considered by many to be psychomotor epilepsy, by others to be schizophrenia, and by Professor G. Kraus to be 'psychogenic attacks on a psychopathic basis'! He emphasised that many reactive elements were present and that there was no evidence of epileptic fits or dementia. Kraus considered that only in *Crows Over the Wheat Field,* painted in July 1890, shortly before he committed suicide, is there evidence of deterioration in van Gogh's mental state. His remarkable ability to convey the intensity of his emotions is shown in the sheer ecstacy of *A Starry Night* (June 1889) and the despair and desolation of the old man *On the Threshold of Eternity* (May 1890).

Van Gogh's art was totally dedicated to the exploration of man's inner life and to the expression of his deepest feelings.

HENRI-MARIE-RAYMOND de TOULOUSE-LAUTREC-MONFA (1864-1901)

Toulouse-Lautrec came from a noble family whose history could be traced back to the time of Charlemagne. Rickety and delicate from infancy, he fell in 1878 and again in 1879, breaking first one leg and then the other, and was left crippled for life. He was as conscious of his deformities as any court dwarf and was haunted by

the fear of being a misfit. This in large measure accounted for his enjoyment of disreputable company—circus and music-hall artists, pimps, prostitutes, perverts and the like—in which he felt more at ease and less of an oddity than in the social world to which he belonged by birth. By a mixture of charm, impudence and a coarse but playful wit he succeeded in getting himself accepted on terms of equality and was treated as a homely and harmless monster in whose presence it was possible to behave naturally. He was thus able to steal behind the façade of gaiety, garishness and glamour to record frankly and without moral criticism what he saw in bars, brothels, bedrooms and operating theatres.

For Toulouse-Lautrec living creatures always took precedence over landscape or still life and, like van Gogh, he had special concern for the individual. It has been said that in his open-minded and outspoken attitude towards sex he was unique in his time and that man's sexual activities form the subject of some of his greatest pictures. He was very familiar with the *Salon in the Rue des Moulins* (1894), in which he sometimes spent several days as a curious observer, and the social and professional implications of the scene that he recorded in *La visite: Rue des Moulins* (1894) would have been well known to him.

EDVARD MUNCH (1863-1944)

Munch was the foremost modern Norwegian artist and one of the principal founders of Expressionism. His mother died of tuberculosis when he was five and thereafter his father, a shy, deeply religious, kindly and dedicated physician in a poverty-stricken part of Oslo, became melancholy, suffered bouts of acute religious anxiety and led a life of seclusion. Munch said of his early years: "Disease, insanity and death were the angels which attended my cradle and since then have followed me throughout my life. I learned early about the misery and dangers of life, and about the after-life, about the eternal punishment which awaits the children of sin in Hell . . . . "

The Sick Child (1906-7) was inspired by the deaths from tuberculosis of his mother and sister Sophie. She is shown sitting up in bed, gazing wistfully through the window, still hoping that she will get better while her mother, no longer able to hide her grief, lets her head sink on her breast in despair.

In *The Heritage* (1897-9) he portrays with brutal frankness the horror and heartbreak caused by the ravages of syphilis, another of the scourges of the age, in the innocent infant victim of a thoughtless and self-indulgent world.

Munch wrote about *The Scream* (1893: "I was walking along the road with two friends. The sun set. I felt a tinge of melancholy. Suddenly the sky became a bloody red . . . . and I looked at the flaming clouds that hung like blood and a sword over the blue black fjord and city . . . . I stood there, trembling with fright. And I felt a loud, unending scream piercing nature". The screaming figure holds both hands in terror to its head, its mouth wide open and body convulsed. The colours and the wavy lines express the intense anxiety and fear that he felt.

Dr K.E. Schreiner, Munch's physician, met with determined opposition in his efforts to cure his neurosis and insomnia to which his alcoholism was undoubtedly an important contributory factor.

PABLO RUIZ PICASSO (1881-1973)

Picasso was the greatest draughtsman and most influential European artist of our time. He worked on a great number of themes in a remarkable variety of styles. It is largely due to him that the conception of art as a powerful emotional medium rather than a search for the perfection of ideal forms of beauty has become accepted among present-day artists (Roland Penrose).

Throughout his life Picasso was preoccupied with images and events that had a special significance for him and during the years 1901-4 poverty, blindness, love, maternity and death were often in his thoughts. In the later months of 1901 his painting grew increasingly introspective, the lively street scenes and vivid portraits giving way to the brooding melancholy of the Blue Period. Forlorn and mournful were his subjects, the vagabonds, beggars and prostitutes, who frequented the bars of Montmartre or the streets of Barcelona. Blue was the prevailing colour that he used to portray such anguished themes.

The Old Guitarist, painted in 1903, shows the pitifully thin and twisted body of the old blind beggar expressively distorted in a manner reminiscent of El Greco, a wailing lament on his lips. In *Woman Ironing* (1904), Picasso touches our hearts by his deeply moving portrayal of her defencelessness and frailty, and her resignation to the unremitting drudgery of life.

LAURENCE STEPHEN LOWRY (1887-1976)

The only child of an estate agent and his wife, Lowry was born and educated in Manchester. Although his lifestyle was simple and frugal in the extreme, he always had ample opportunity to observe the world without having to become too closely involved in its affairs. He was deeply devoted to his mother who was the focus of all his affections until her death when he was fifty-two. Not only did this make it difficult for him to establish a normal relationship with any other woman but it also contributed to his withdrawal from the world in his increasingly isolated and lonely role as an observer of life. The precise time of his retreat is marked by the portrait *Head of a Man with Red Eyes* which was painted under great emotional stress in 1936 when his mother was very ill. It is the face of unconsolable loneliness and grief.

People in their many and varied activities fascinated Lowry not because he was interested in them as individuals, nor out of sympathy for their poverty, ugliness, stupidity or eccentricity but just because they were isolated, grotesque or ridiculous looking. Indeed he refused to be touched by life, by people or events. In *The Cripples* (1949), whom he described as "funny to look at", he expresses no pity but almost seems to mock suffering. A feeling of incomprehension isolates the *Woman with a Beard* (1957), a portrait based on a lady who boarded the Cardiff-Paddington train at Newport. Little sign of human warmth can be detected in *Ancoats Hospital Outpatient Hall* (1952) but, rather, a sense of isolation among those waiting to be seen.

For Lowry, beauty was not to be found in man the person "but rather . . . . the masses of people, in the patterns and shapes and rhythms that they made against the background of streets and buildings, mills and factories . . . . " (Mervyn Levy).

In *The Fever Van* (1935), the action takes place in just such an industrial landscape but the curiosity of the locals about what is happening in their street ensures that, for a brief moment at least, man has attained a position of equality with the buildings.

In his delightful drawing *The Painter and the Connoisseur* (1568) (Fig. 9) Bruegel portrays to perfection the relationship that exists between the artist and his patron. The former, with fierce concentration of mind and eye, achieves that beauty of line for which he has been striving while the latter, his tutored gaze enchanted by the painter's matchless art, beams with approval and satisfaction.

FIG. 9
The Painter and the Connoisseur (1568) by Pieter Bruegel

It is my hope that, in thus presuming to comment upon the works of great artists, whose vision, understanding and skill have given delight and inspiration to the passing generations, I have not trespassed on hallowed ground. It is my wish that one day, like Zoltan Lewinter-Frankl, I too may possess a discerning eye.

ACKNOWLEDGEMENTS

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Fig. 9 is reproduced by permission of Phaidon Press Ltd, Oxford.

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SELECTED BIBLIOGRAPHY

The Lewinter-Frankl Collection.
Belfast Museum and Art Gallery, March-April 1958.

Leonardo da Vinci. Anatomical Drawings from the Royal Collection.
Royal Academy of Arts, London. The Curwen Press, London, 1977.

Pediatrics in Classical Art.
B. E. Schlesinger. Dawson Williams Lecture, B.M.A. Annual Meeting, Belfast 1961-2. British Medical Journal, 1962; **2**: 1671-77.

The Life and Times of Dürer.
Text by Adelaide Murgia, Translator Peter Newmark. Mario Riviore, ed. The Hamlyn Publishing Group Ltd., London, 1970.

The World Through Blunted Sight.
Patrick Trevor-Roper, ed. The Bobbs-Merrill Co Inc., Indianapolis, New York. Thames & Hudson Ltd, London, 1970.

Albrecht Dürer: Das Malerische Werk.
Fedja Anzelewsky. Deutscher Verlag für Kunstwissenschaft Gmbtt, Berlin, 1971.

Bruegel.
Walter S. Gibson, ed. Thames & Hudson Ltd, London, 1977.

From Van Eyck to Bruegel.
Max J. Friedlaender. F. Grossman, ed. Phaidon Press Ltd, London, 1969.

The influence of eye disease on pictorial art.
P. D. Trevor-Roper. Proceedings of the Royal Society of Medicine, Section of Ophthalmology, 1959; **52**: 722-744.

100 Favourite Old Master Paintings from the Louvre Museum, Paris.
Commentaries by Michel Laclotte. Abbeville Press Inc., 1979.

Rubens.
Text by Julius S. Held. Beaverbrook Newspapers Ltd, London, 1958.

Rembrandt. The Gallery of Masterpieces.
Hamish Hamilton, London, 1954.

Rembrandt: Bible Paintings.
Text by Seymour Slive. Beaverbrook Newspapers Ltd, London, 1959.

Rembrandt.
Text by Wilhelm Koehler. Beaverbrook Newspapers Ltd, London, 1958.

Masterpieces of Dutch Painting.
Text by Seymour Slive. Beaverbrook Newspapers Ltd, London, 1958.

Great Galleries of the World: The Rijksmuseum of Amsterdam and its Paintings.
Paolo Lecaldano, ed. John Bartholomew & Son Ltd, Edinburgh, 1973.

Die Medizin in der Klassischen Malerei.
Eugen Höllander, ed. Verlag von Ferdinand Enke, Stuttgart, 1913.

The Golden Age of Spanish Painting.
Royal Academy of Arts. The Hillingdon Press, Uxbridge, 1976.

Masterpieces of Spanish Painting. From El Greco to Goya.
Text by the Editorial Staff. Beaverbrook Newspapers Ltd, London, 1958.

Velazquez.
Zavier de Salas. Phaidon Press Ltd, London, 1962.

Velazquez.
Text by Margaretta Salinger. Beaverbrook Newspapers Ltd, London, 1959.

English Social History. G. M. Trevelyan. Longmans, Green & Co, London, 1946.

Rowlandson: Watercolours and Drawings.
John Hayes. Phaidon Press Ltd, London, 1972.

Rowlandson: A New Interpretation.
Ronald Paulson. Cox & Wyman Ltd, London, 1972.

Medicine and the Artist.
Carl Zigrosser. Third edition. Dover Publications Inc, New York, 1970.

Goya.
Enriqueta Harris. Phaidon Press Ltd, London, 1969.

Géricault.
Jacques Thuillier and Philippe Grunchec. Flammarion, Paris, 1978.

Daumier: 120 Great Lithographs.
Charles F. Ramus, ed. Dover Publications Inc, New York, 1978.

Daumier and Gavarni.
With critical and biographical notes by Henri Frantz and Octave Uzanne. Charles Holme, ed. Offices of The Studio, London, 1904.

Victorian Painters.
Jeremy Maas. Barrie & Rockliff, The Cresset Press, London, 1969.

Father and son—a tale of two cities.
Sir Ian Fraser. Presidential Address to the Ulster Medical Society, 19.10.67. Ulster Medical Journal, 1968; **37**: 1-39.

Vincent van Gogh.
A biographical study by Julius Meier-Graefe. Translated by John Holroyd Reece, Vol. II. The Medici Society Ltd, London, 1922.

The Complete Letters of Vincent van Gogh, Vol. I.
Thames & Hudson Ltd, London, 1958. Reprinted 1978.

The Complete Letters of Vincent van Gogh, Vol. III.
Thames & Hudson Ltd, London, 1958. Reprinted 1978.

van Gogh.
Meyer Schapiro. Beaverbrook Newspapers Ltd, London, 1958.

The late works of van Gogh.
Saint-Remy and Auvers. Beaverbrook Newspapers Ltd, London, 1959.

Toulouse-Lautrec.
Douglas Cooper. Beaverbrook Newspapers Ltd, London, 1960.

Edvard Munch.
J. P. Hodin. Thames & Hudson, London, 1972.

Edvard Munch: The Scream.
Reinhold Heller. John Fleming and Hugh Honour, eds. Allen Lane. The Penguin Press, London, 1973.

Picasso.
William S. Lieberman. Beaverbrook Newspapers Ltd, London, 1960.

The Paintings of L. S. Lowry.
Mervyn Levy. Jupiter Books (London) Ltd, 1975.

The Discovery of L. S. Lowry.
Maurice Collis. Alex Reid & Lefevre Ltd, London, 1951.

OLD ETHICS: NEW DILEMMAS

by

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Annual Oration at the opening of the 1981-82 Teaching Session, Royal Victoria Hospital, Belfast.

MEDICAL ethics may be described as a code of behaviour accepted voluntarily by the profession, as opposed to statutes and regulations imposed by official legislation. In many instances these are synonymous; for example, ethical matters constituting "infamous conduct" have for over a century been guarded by an official body, the General Medical Council. Numerous aspects of medical practice still fall outside official legislation but are none the less relevant to the doctor's behaviour and conscience, the limits being set by the approbation or disapproval of his colleagues. Much of medical ethics consists of good manners and civilised behaviour in the general sense, but there are certain matters which are peculiar to the practice of the profession of medicine. In Britain those aspects of medical behaviour which fall outside formal legislation are largely left to the conscience of the individual doctor: but the British Medical Association through its ethical committee has a particular interest in codifying, publicising and enforcing these ethical considerations upon its members.

The oldest code of medical ethics is the one well known to medical and lay persons alike, the Hippocratic Oath. Though now some twenty-five centuries old its basic tenets remain as valid as ever, but they are framed in archaic language and formulation, and however historically attractive have become anachronistic, leading to its restatement in the Declaration of Geneva. Formerly the Hippocratic Oath was pledged by new doctors at graduation ceremonies, but sadly this is now rare; even so the newly admitted practitioner still accepts its spirit and intentions. Following the gross transgression of medical ethics during the Second World War, the World Medical Association (at the instigation of the British Medical Association) reconstituted the Hippocratic Oath in modern style, this being known as the "Declaration of Geneva." Upon this, an international code of medical ethics was based. The Declaration of Geneva states:

> "At the time of being admitted as a member of the medical profession, I solemnly pledge myself to consecrate my life to the service of humanity. I will give to my teachers the respect and gratitude which is their due. I will practice my profession with conscience and dignity. The health of my patients will be my first consideration. I will respect the secrets which are confided in me. I will maintain by all the means in my power the honour and noble traditions of the medical profession. My colleagues will be my brothers. I will not permit considerations of religion, nationality, race, party politics or social standing to intervene between my duty and my patient. I will maintain the utmost respect for human life from the time of conception. Even under threat, I will not use my medical knowledge contrary to the laws of humanity. I make these promises solemnly, freely and upon my honour."

A doctor must always maintain the highest standards of professional conduct. He must practice his profession uninfluenced by motives of profit. The following practices are deemed unethical:

1. Any self advertisement.
2. Collaboration in any form of medical practice in which the doctor does not have professional independence.
3. Receiving any money in connection with services rendered to a patient other than a professional fee.
4. Any act or advice which could weaken physical or mental resistance of a human being may be used only in his interest.

A doctor is advised to use great caution in divulging discoveries or new techniques of treatment. He should certify only to that which he has personally verified. He must always bear in mind the obligation of preserving human life and owes to his patient complete loyalty and all the resources of his science. Whenever an examination or treatment is beyond his capacity he should summon another doctor who has the necessary ability. He should preserve absolute secrecy on all he knows about his patient because of the confidence entrusted in him. He must give emergency care as a humanitarian duty, unless he is assured that others are willing and able to give such care.

A doctor ought to behave to his colleagues as he would have them behave to him; he must not entice patients from them. Ethical behaviour is necessary right across the whole spectrum of medical practice, the overriding consideration being the welfare of the patient. It is easy to expand into prolix, pontifical generalisations about ethics, but it must be emphasised that ethical behaviour is a self imposed duty upon each doctor, and that no pride can be taken in behaviour calculated to avoid official censure, but which still remains professionally repugnant or undesirable.

The disapproval of ones colleagues should be at least as great a deterrent as the authority of courts of law, the General Medical Council or National Health Service Tribunals. Though reinforced by the presence of the General Medical Council, the terms of service of the National Health Service, and the ever present threat of civil action for negligence, the conduct of a doctor towards his patient is largely determined by his own feelings of professional responsibility, and awareness of ethical considerations. The well-being of the patient transcends any thought of financial advantage, convenience, or professional advancement. The patient is entitled to information about his illness, within limits determined by the doctor, who alone can see what measure of information should be disclosed. Conversely a doctor's strict duty to his patient is not to disclose such information to any other person except those properly entitled to receive it. Naturally the parents or guardians of small chidren are entitled to full disclosure, but as the age of a young person approaches sixteen the position alters, especially in regard to matters concerning pregnancy; the consent of a young person between sixteen to eighteen should be obtained before disclosure is made to the parents.

Part of the Hippocratic Oath affirms that "Whatever in connection with my professional practice, or not in connection with it, I see or hear in the life of men which ought not to be spoken of abroad, I will not divulge, as reckoning that all should be kept secret." Even if a medical graduate does not formally affirm this

oath on qualification he accepts its spirit and intention as an ideal standard of professional behaviour. Thus both on ethical grounds, and also because unwise breach of confidence may place him at the receiving end of a civil action, every practitioner should be careful of statements made outside the professional milieu.

The respect for such confidences obtained in a doctor patient relationship causes something of a conflict between law and ethics. There are situations where professional confidences may be broken. Where disclosure is to be anything but informal, such as to relatives, it is wise to obtain written consent. Notification of infectious diseases, certification of birth, death and various industrial diseases relating to public health must be disclosed. When requested to divulge information by a judge, magistrate or coroner, the doctor may demur, but continued refusal is at the risk of a fine or imprisonment for contempt of court. Where a doctor honestly believes that disclosure would be a breach of confidence he may request the court to respect his silence. All matters voiced in court are absolutely privileged and carry no risk of defamation or breach of confidence. The most difficult situation for the doctor is where his ethical inclination towards silence battles with his conscience concerning the welfare of the community. In some countries it is a statutory obligation to report to the police or other authorities any case of gunshot wounds or other evidence of possible criminal wounding seen by the doctor in the course of his practice. No such obligation exists in Britain and is left to the individual conscience of the doctor. This is very relevant in our present local society.

With the recent memories of human experimentation during the Second World War, and since then the great increase in clinical trials of new drugs and methods of treatment, the World Medical Association drew up a code of conduct known as the "Declaration of Helsinki." This states that it is the mission of the doctor to safeguard the health of the people. His knowledge and conscience are dedicated to the fulfilment of this mission, because it is essential that the results of laboratory experiments be applied to human beings to improve scientific knowledge and thereby help suffering humanity. The World Medical Association has prepared the following recommendations as a guide to each doctor in clinical research.

Clinical research must conform to the moral and scientific principles that justify medical research, and should be based on laboratory and animal experiments or other scientifically established fact. It should be conducted only by scientifically qualified persons and under the supervision of a qualified medical man. Clinical research cannot be legitimately carried out unless the importance of its objective outweighs the inherent risk to the subject. Special caution should be exercised by the doctor in performing clinical research in which the personality of the subject is liable to be altered by drugs or experimental procedures. In the treatment of the sick person the doctor must be free to use a new therapeutic measure if in his judgement it offers hope of saving life, re-establishing health or alleviating pain and suffering. The doctor can combine clinical research with professional care, the objective being the acquisition of new medical knowledge, only to the extent that clinical research is justified by its therapeutic value for the patient.

The greatest care should be taken when dealing with a patient, not to criticise or denigrate the professional ability of another doctor even by innocent implication. Differences of opinion over diagnosis and treatment are legitimate but should be conveyed in a way which would not undermine the patient's confidence in the other

doctor. This especially concerns the patient's referral by a general practitioner to hospital (where the outspokeness of a young doctor is often inversely proportional to the length of his experience). Where there is a marked difference of opinion it should be settled by direct contact between the two doctors, and not via the patient. Where a hospital doctor has been treating in hospital the patient of a general practitioner, there should be no undue extension of care after the patient has been discharged, and the patient should be returned to the care of the family doctor depending on the individual case and the complexity of the treatment. A doctor has no legal obligation to accept any patient for medical care unless directed to him under the tenure of service of the National Health Service. A private practitioner has no obligation to accept anyone whom he does not wish to treat. However, once accepted, his responsibility is absolute until such time as the relationship is ended either by voluntary withdrawal of the patient from treatment or withdrawal of the doctor from continued responsibility, which may only be done after due notice to the patient, and also the assurance that the patient has been accepted by another doctor. Until the latter event the first doctor is obliged to continue full responsibility. Naturally the death or distant removal of either party cancels this obligation. There are further statutory rules for general practitioners within the National Health Service, but these are not ethical matters.

Whereas it is the function of the courts to deal with the doctor who damages the patient, it is the function of the General Medical Council to deal with the doctor who damages his own profession. The General Medical Council was set up in 1858 to protect qualified medical practitioners from the competition of unqualified quacks and to protect the public by purging the profession of practitioners who offend against its own unwritten code of conduct. Unlike the courts the General Medical Council does not offer the patient with a grievance any personal redress; it does not award any damages but it does give the patient an opportunity to lodge a complaint against the professional conduct of a doctor.

The General Medical Council is composed of lay persons nominated by the Crown and by doctors elected by a postal vote of the profession. The majority are nominated by the universities conferring medical degrees, and by the Royal Colleges. Its functions are to deal with complaints and hold disciplinary hearings and also to maintain a Register of all those entitled to practise and to ensure that the educational standards of those qualifying for the profession are of an appropriate quality. The statutory duty of the General Medical Council is to deal with "serious professional misconduct" the elements of which have never been laid down formally. The concept has been described by a judge in 1894 as follows. "If a medical man in the pursuit of his profession has done something which will be regarded as disgraceful or dishonourable by his professional brethren of good repute and competency then it is open to the General Medical Council to say that he has been guilty of infamous conduct in a professional respect."

One of the main functions of the General Medical Council is to maintain the Medical Register where your name must be entered before you can practise. There is also a register of temporarily registered practitioners, mainly graduates from overseas training in this country. Inclusion in the Register is legal proof of a doctor's professional status, and confers upon him various legal benefits and responsibilities. Unless included in the Register he may not hold appointments in the National

Health Service, nor may he prescribe dangerous drugs, or treat certain cases of serious disease. Neither may he issue statutory certificates in respect of matters such as birth, death and cremation. He is also subject to the code of ethics and behaviour as decided by his professional colleagues acting through the Council. A doctor remains on the Register until death unless he fails to reply to the Registrar's enquiries or pay his retention fee, or ceases to engage in medical practice, or his name has been removed from the Register because of disciplinary erasure. A doctor can only practice while registered by the General Medical Council. Erasure from the Register prohibits him from carrying out any form of medical practice.

Though the potential reasons for erasure are limitless, the majority of cases arise from one of the six well known 'A's.

Abortion

The illegal termination of pregnancy has almost always been an immediate cause for erasure, even on the first occasion. Even following the reform in the law brought about by the Abortion Act of 1967, deliberate criminal abortion by doctors still occurs. It is imperative that all therapeutic abortions be carried out in the prescribed manner, with more than one doctor assenting to the decision, and that the procedure is performed openly in a proper institution.

Adultery

Any abuse of the doctor patient relationship which leads to adultery or other improper conduct or association with the patient, or with a member of the patient's family, carries a grave risk of erasure from the Register. Actual adultery need not be proven, if it is shown that an improper relationship exists beyond the permitted range of professional conduct.

Alcohol

Abuse of alcohol is one of the most common reasons for warnings, and if the offence is repeated, erasure from the Register may result. The most usual type of offence is drunken driving, although repeated convictions for "drunk and disorderly" or "drunk and incapable," have lead to erasure.

Addiction

Doctors, by virtue of their prescribing powers, have all too often fallen prey to addiction to therapeutic drugs, such as pethidine, morphine, heroin, and amphetamine. Anaesthetists have also been prone to addiction to cyclopropane, or nitrous-oxide. Apart from personal addiction, offences against the Dangerous Drugs Act in respect of irregularities in supply and records may form grounds for referral to the General Medical Council.

Association

This formerly was a common offence. It has now assumed much lesser importance, but consists of "covering" the activities of unqualified assistance, This was particularly common in midwifery work, where unqualified women were employed as midwives on behalf of the doctor. In an emergency, including childbirth, the assistance of an unqualified person would not now be held as "association."

Advertising

This position in regard to self advertisement or allowing others to proclaim his skill is one of the most confused aspects of this subject. It is unethical for any practitioner to perform or condone any form of publicity that draws attention to his prefessional merits, and thus possibly to attract new patients, and hence financial gain. It still remains a fact that compared to previous years when anonymity was absolute, the appearance of medical qualified persons on radio, T.V., and in newspaper articles is an almost everyday occurrence. The public have the right to be kept up to date with medical advice and opinion, but it is up to the individual practitioner as to what is ethical, and what is not. Canvassing for patients is quite wrong, whether done by word of mouth or written means.

The medical profession ought to have many high ideals and be above criticism. It cannot go very wrong if its members adhere to these ethics. The code of ethics has been subject to abuse by ill-informed non-medical people who do not understand that the code is designed, not to protect the profession, but to safeguard the interests of the patient. It is intended to cause all doctors to appreciate the privileged nature of their duties, to realise their responsibilities, and to treat their patients with fairness and humanity. It is meant to cause doctors to conduct their personal and professional relations as professional and personal relations ought to be conducted by gentlemen. When a doctor bears those principles in mind he is sure to remember that he is part of the best, the most charitable and the most ancient of professions, and that he follows a calling older than Christianity and more ancient than the Civil Law or the Welfare State.

Over one hundred and thirty years ago, the great, wise, eccentric and irascible John Abernethy, as he walked into a lecture room in St. Bartholomew's Hospital looked out upon the rows of medical students and said, half in curiosity, half in sorrow, "Good God, what is to become of you all." Today the same thought arises in the mind of your teachers. What will become of the students? All will die sooner or later, all will get more or less happiness and prosperity from the profession. Some will become rich, more will remain poor, a few will remain bachelors and spinsters, most will marry and breed children for good or ill. Some will get divorced, and a few will leave the profession. A few will become eminent, but the majority will not. In 1869 Sir James Paget endeavoured to think of a more specific answer to Abernethy's question. He traced the careers of a thousand pupils of St. Bartholomew's for fifteen years after graduation and concluded that about 10 percent of a class attain eminence or achieve considerable success. 50 percent will make a decent living, but it will be by strenuous effort. 20 percent will either do badly or fail utterly, about 10 percent will abandon practice and 10 percent will die. According to Paget's figures almost one third of any class of students make a mistake when choosing medicine as a profession. Paget's figures could apply today, that about the same proportion of a class will succeed and about the same proportion fail. It is discouraging to think that so many have little success, and that there are so many failures. Some of the failures would have succeeded in another occupation, and when they entered medicine spoilt a good business man, lawyer, accountant or farmer. When we see so many failures we naturally wish there was some infallible method whereby we might recognise the unfit, when they seek to start medicine, or early on in their student days so that they might avoid anguish. This would be good for medicine and for themselves.

How should we select medical students? Who are to be the judges and how do we assure that they are competent? It is certain that mere examination results cannot enable anyone to make a just decision. The world has a mania for examination results. The same is true of medical examinations. They are not tests of the man, they are tests of his memory for facts. They tell us little of his judgement, tact, energy, enthusiasm, idealism, reason, behaviour, temperament, disposition, honesty, loyalty, courage, truth, or intelligence. Memory for facts means little, but the other things mean all. Today some four thousand eight hundred students entered the Medical Schools of the United Kingdom, over one third of them being girls. Unsuccessful applicants numbered nearly fifteen thousand. The number of medical students has more than tripled since the late 1950's, when it was in the region of one thousand five hundred. The increase has been provided for largely by increasing the size of the medical schools, only three new ones having been established. The University of London contains twelve medical schools preparing medical students for the M.B. degree, two of these schools are clinical schools only, and two others offer courses in basic medical sciences. In England and Wales, there are thirteen medical schools outside London. There are five schools in Scotland, one of which is teaching basic medical sciences only. There is one school in Northern Ireland, and four in the Republic of Ireland. The responsibility for the standard of undergraduate medical education in all of these schools is vested in the General Medical Council. Since 1861, the General Medical Council has from time to time issued recommendations as to the aim, content, methods and duration of the medical school courses, and has power to inspect the examinations. Graduation has been synonymous with licence and referred to as qualification, although since 1953 a year of internship in an approved post has been required for full registration.

In the first half of this century, British medical schools gave sound instruction in available medical knowledge producing doctors well equipped to recognise the commonest clinical situations of the time and to deal with them in an acceptable fashion. However, as medicine began to change more rapidly, and rapidly to apply new scientific knowledge, it became clear that our education would have to be adapted to it. This has been changing continuously since the early fifties, but in an evolutionary rather than a revolutionary manner. Since the Royal Commission on Medical Education, the format of preparation for medicine has already changed and now consists of an undergraduate course, an internship, a period of vocational post-graduate training, and continuing education. In this context, the word 'vocational' is used in the sense of fitting the individual for his tasks. The medical course is no longer one of comprehensive coverage aiming to turn a schoolboy into a safe general practitioner. It has become a university course and there has been in all our medical schools a great strengthening of university staff and university facilities. The student has thereby become an undergraduate and no longer an apprentice.

In 1966, the Association for the Study of Medical Education showed that 60 percent of students approaching their final examination at the end of a five or six year course, had never performed a lumbar puncture, 70 percent had never washed out a stomach, 30 percent had never passed a catheter, and 50 percent had never measured a patient's blood count. Nearly two-thirds had never taken a decision which could have affected the course of a patient's illness. Indeed, between the age of eighteen on entry and twenty-three or twenty-four on graduation, most students have taken very few important decisions except in regard to marriage and voting.

Our students join medicine, almost all of them, because they want to help make sick people better. They want to make a positive interference in the course of illness in individual people. Most of our clinical teachers are engaged, predominantly and often exclusively, in that practice. This is the country which ignored Harvey's exhortation "To seek out the secrets of nature by experiment" and welcomed Sydenham as the father of English medicine. It was Sydenham who said that when the doctor approached the patient his mind should be empty of any hypothesis whatsoever, and, he should observe and record with the accurate detail of the miniature portrait painter. Our students spend long periods of time observing patients and recording their findings, presenting a written record of painstaking, orderly, arranged findings, and yet often are unable to write or say more than what would be the most practical thing to do next.

Medical students grow up in a situation in which, even despite recent changes, there is hardly any doubt as to precisely who is responsible for the patient and his care. Any recent trend towards the establishment of departments or services of a pyramidal structure has been superimposed on the time honoured and continuing fragmentation into as many independent autonomous units as there are members of consultant status. The British consultant has his own beds and clinics, his own groups of students and his own patients. This is not just a matter of personal responsibility. It is almost a matter of personal ownership. Each patient literally has his doctor's name stamped on him, on a band round his wrist as well as on his medical records. It would be difficult to imagine any setting more suitable for instruction in, and practice of clinical method, of a truly holistic approach to the individual, or any other roof under which is gathered such a comprehensive collection of every human hope or fear.

Good, effective, safe medical care of the individual patient must surely depend primarily on three things: Good clinical method, the ability to think critically and an abiding sense of responsibility to and for the patient. The doctor must think like the scientist, but be ready at any time in the interest of the patient to do what a scientist never does and a doctor must always do, i.e. to take action on inadequate data. The great changes in medical education have been partly the result of changes in medical practice but largely because of the aim to produce by education a doctor capable of thinking critically for himself like a scientist, whilst at the same time, training him to act like a doctor. This distinctive quality affects the doctors we produce. They are not identical with those we produced thirty of forty years ago nor are our students replicas of ourselves when we were young. This is fortunate because medicine has greatly changed. Paradoxically but very humanly, the public are inclined to explain the change in their doctors as being due to their lack of concern for people and a new scientific interest in disease. It is of course due to a new and more scientific understanding of people which the patients do not share. This separates doctor and patient who are further separated by the doctor's consciousness of medicine's vast ignorance and the patient's unshakable belief, so often shared by his relatives, that medicine is the panacea for all man's ills.

On graduation you must have your name placed on the Register of the General Medical Council paying a registration fee and annually a retention fee. Before commencing your preregistration year you must join a protection society, either the Medical Defence Union or Medical Protection Society to protect your employer and

yourself against litigation. Then you must work within the structure of the National Health Service which will be the employer of most of you for the rest of your professional lives. On graduation the first dilemma facing the young doctor is obtaining a preregistration post. With over production of medical graduates this is not always easy. On registration the choice of a specialty, which will give him a lifetime of rewarding and satisfying work no longer depends on his ambition, ability, intelligence or personality. Being forced to accept a post, often not in the specialty of his choice may produce a generation of unhappy, disgruntled and unfulfilled professionals. The relationship between the doctor and the State as his employer and controller of the public purse raises dilemmas.

The National Health Service is thirty-three years old; its original aspiration was to provide the best medical care for all and free for ever. After over thirty years its aspirations are being drowned by its imperfections. The deficiencies of the National Health Service are now familiar to all but have been cumulatively demoralising to those who provide primary health care, the doctor and the nurse. The shortcomings are not the work of fallible men that can be rectified by better men, but the unavoidable outcome of putting medicine into the political arena. At no time since the inception of the National Health Service has enough money been available to fulfil all the promises made by the politicians of a fully comprehensive service available to all and free at the point of contact. The disagreeable aspects of the National Health Service are a product of its subjugation to politics. Political decisions made at cabinet level now control the total expenditure on medical care in the National Health Service, less per capita than in every other western industrialised country. This has led to continuing irregularities between the social classes and regions, viz cardiac and orthopaedic surgery and renal failure; the emphasis on "caring" services for comfort to the relative neglect of "caring" to save life; the sacrifice of capital investment to current expenditure; the dominance of administration by producer interests and the persistence with state medicine even though many people would increasingly prefer a choice.

The so-called mixed economy is as essential to medicine as it is to trade and industry. State and private medicine must exist in symbiosis and not in competition. No country with an unstable economy can provide a fully comprehensive health service equally available for all its citizens, paid by normal taxation. Can the taxpayer afford two million non-emergency ambulance journeys a year when even the Merrison Royal Commission talks of National Health Service ambulances being used as "taxis"? Can we afford to spend almost as much on free sterilisation on demand carried out in National Health Service beds and individually paid for out of current expenditure as on dialysis machines for lack of which thousands of people die? Are eight million home visits by nurses and health visitors each year necessary when there is no money for CAT scanners or pace-makers? The reasons for these decisions are political because the politicians hold the purse-strings. The British citizen cannot, under the National Health Service get better medical advice or treatment for his family by paying more taxes and doctors and nurses have no inducement to advise their patients to demand more and better services because their life is made easier by inducing them to demand less.

Sadly the National Health Service has become less a service for the consumer than job creation for suppliers, administrators (who have increased by 53 percent since

reorganisation in 1973), cooks, cleaners, porters and ancillary staffs. This has lead to a break-down of discipline, which must exist in a competitive world. Overtime payment for junior staff was imposed on the profession so that the new generation of doctors were brainwashed into believing that working in a hospital equated with clock-watching on the factory floor. The labour unions staged repeated strikes and instructions came from hospital administrators that the unions must not be opposed and that volunteer labour to care for the unfortunate patient was to be turned away. Mortuary attendants and grave-diggers refused to tend or bury the dead. By eliminating private care from public hospitals, the building unions were allowed to refuse to build private hospitals even when these had been planned and subscribed for by the local population. Acts such as these have done much to destroy the goodwill that should exist between the public and the medical and nursing professions. But the remedy is not in their hands. This rapid attempt at extreme socialisation has had the opposite effect to that intended, for as conditions in our hospitals have deteriorated, more and more people are turning to private medicine. Not only the middle class but the unions themselves in negotiating pay deals include private care in their demands so that our police force, engineers and some trade union bosses, even those in health service unions are now covered by private medical insurance. The full-time salaried service may become a clear disincentive to initiative, it also facilitates the introduction of overtime payments, and prevents the doctor from remaining a private individual contracting his service to the patient. For the first time ever in medicine, the problem of unemployment is almost upon us. A surplus of labour gives the employer, in this case the State, the whip hand in negotiating future terms of service. As in commercial life the availability of a product controls its price.

Friendship and family life apart, the three fundamental confidential relationships recognised by western society are those of man and priest, client and lawyer, and patient and doctor. No third party has yet entered into the first two relationships. There has entered into the relationship between doctor and patient a powerful, intrusive third party, the State. The conditions of medical practice within the National Health Service are now largely determined not by arrangement with the patient but by statute and administrative instruction. This immediately erodes all our old ethics. While the independence of the doctor's judgement in matters of medical advice, prescription and treatment is recognised and formally preserved, he is employed by a public agency and subjected to administrative and financial pressures originating not from his patient but from the Health Service and ultimately the State. The possibility of a conflict of the doctor's loyalties in today's society is a real one. The doctor has a duty to society. Situations occur in which the doctor may have to put the public interest before that of the patient, immediately contravening the Hippocratic Oath. It is an uncomfortable world for the doctor as he faces conflicts of loyalty and duty which he cannot avoid.

The possibility of this conflict is greatly enhanced by the technological achievements of modern medicine. The increasing need for, and development of team investigation and therapy in medical and surgical care reduce to a commonplace daily event the restoration of health in ways which were impossible a few years ago. But therapeutic progress involves increasing medico-legal dangers when doctors, technicians, nurses and other paramedical specialists share in a collective responsibility for a patient. It is inevitable that the team approach must

continue, and it is right that it should. But inherent litigation risks make it essential for the medical profession to give them due thought. Responsibility must be assessed and delegated in such a way that there is no avoidable weak link which could result in danger or disaster to the patient. In this situation the need to maintain the personal relationship of confidence between the patient and the doctor, and the healing motive represented by a largely anonymous team is very great indeed.

What is the principle which should govern the doctor's use of a life support machine? Is the prolongation of survival of the patient the overriding priority, or is he to regard as his first priority the devotion of his special skills and society's limited resources to the more rewarding task of treating those who can recover? The ethical solution to this dilemma has not yet been resolved and it is being made no easier by developments in the law governing damages for medical negligence. Negligence occurs when practice by any member of a medical team caring for a patient falls below the accepted standards of professional competence and training at that time. Health authorities are liable for any negligence in the treatment by those whom they have employed or engaged to provide it. It is now required by statute that in medico-legal cases arising within the National Health Service, the health authority be sued in the first instance with the medical team as secondary defendants. Medical negligence claims are increasing at an alarming rate. In the past two years indemnity payments made by the Medical Defence Union have increased by 36 and 48 percent respectively. The cost of litigation now intimidates neither the rich nor the poor but only the middle income group who do not receive free legal aid. There has been a steady increase in medical litigation since the inception of the National Health Service in 1948 and of free legal aid in 1949. Increasing medical negligence claims have been accompanied by a sensational increase in the damages now being awarded by the courts in personal injury cases. Awards are now reaching heights which represent a serious threat to the finances of health authorities and they must be a mounting cause of anxiety to the Medical Protection Societies and their customer, the doctor, who has to pay a premium. It is cold comfort for the doctor to be told that his skills and the life-support systems which medical technology now places at his disposal are potent factors increasing the amount of awards, but this is fact. It is much cheaper to kill than to disable, and it may be more merciful. This is the modern doctor's great dilemma.

These huge awards are available not only for medical accidents but for every case in which catastrophic injuries have been accidentally caused in circumstances imposing liability upon those accepting the medical care of the patient. Should the doctor officiously strive to keep alive a barely sentient human wreck? Does not death represent not only the humane alternative to the patient, but also the true interest of society? Does anybody stand to gain from survival? These attitudes create the risk of forcing the doctor to practice defensive medicine, an attitude which is inconsistent with the ethical duty owed by a doctor to his patient. We have seen in America the alarming increase in medical litigation giving rise to the practice of over elaborate and costly examinations of the patient and to "safe" treatment by which is meant safety for the doctor, the interest of the patient taking second place. If in Britain the costs of litigation increase, the pressure to practice defensive medicine may become overwhelming. In the context of defensive medicine the law certainly interferes with medical ethics. Defensive medical practice results from the increased likelihood of negligence claims against the doctor, As claims and settlements

increase the doctor may be forced to protect himself against society by carrying out unnecessary tests, some of which may in themselves carry a certain amount of risk and may not be medically justified. Negative defensive medical practice occurs when a doctor does not perform a procedure or operation which he regards as medically justified because of his fear that he may be sued for an untoward result occurring during the procedure. As a result the quality of care may be affected by the risk of litigation.

The law and society may claim that the threat of legal action has forced the medical profession to improve its standards, but this is true only if the law and society assumes that doctors are not dedicated people who care about their patients. Most doctors because of their own ethics, self-respect and human concern do not want a patient to be needlessly injured. Threats of legal action therefore do nothing to improve the doctor's attitude, and, in fact may have an adverse effect. Legal action may have an unhappy impact on both the medical profession and patients and may blur the distinction between good and bad, desirable and undesirable medical practices. Two factors bedevil ethics. First the intrusion, beneficent in many ways, of the State into the doctor patient relationship and second, technological advance. It is of great importance that the State should not directly or indirectly, dictate to the doctor the treatment to be given to his patient, and certainly the State should not determine when he is to turn off the life-support machine or pronounce the patient dead. It is also of great social importance that technological advance should not be allowed to extend indefinitely the existence of the irretrievably brain damaged patient. The ultimate dilemma is therefore death. The public must be made to realise that there are great social problems not only in the life support of the human vegetable but also in the survival of barely sentient people who cannot look after themselves. The species is Homo sapiens! May it not be weakened in its own fight for survival if it devotes strength and unlimited resources to maintain "Homo" when he is no longer "sapiens". The emotional burden on the relatives of a human wreck can be as heavy as the financial sacrifice. Is death to be considered only as the enemy of the human condition, is it not more properly to be seen as a necessary part of the human condition? Not an enemy but a friend without whose help mankind cannot survive.

Death when it comes should come with dignity. Savitier stated that disease, infirmity, and death are part of the human condition and in the end they will always have the last word against the doctor. Modern ingenuity has delayed death in some cases beyond what is fair to the patient, or just to society, Voltaire once said that the "Art of medicine consists of amusing the patient whilst nature cures the disease". The non-sapient patient is no longer amused, he is not capable of being entertained and nature which provides the final cure of death cannot reach the bedside. The determination of death is best left not to society but to the medical judgement of the doctors. Modern medical thinking suggests that an acceptable definition is the irretrievable disappearance of brain function.

To conclude, medicine must seek to minimise the social burden associated with the advances of our generation in the science and technology of human survival. It is a dilemma which the doctor by his own success has created and which he must strive to resolve in a way which is consistent with a proper respect for the life of every human being.

THE HISTORY OF MEDICINE IN IRELAND

by

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Provost's address to N.I. Faculty, September, 1981

IF one compares the development of medicine in Ireland with that of the early Egyptian, Greek, Moslem and Roman civilizations it is essential to remember that civilization spread slowly from the Mediterranean basin westwards and even more slowly northwards, that highly developed cultures existed in Egypt and even Crete, while nearby Pompei in Southern Italy was still barbarous and that men were moving around France and even Southern England while Ireland was still under ice. Yet I hope that when you have heard me out, you will agree that in this country and particularly in these parts, we have a medical tradition to be proud of.

But what of the early civilisations? There were, it is claimed, five successive colonizations before the Gauls or Gaels made their way to Ireland from the European mainland around 350 years before Christ.[1] The Gauls were a celtic people who probably originated in the Danube Basin. The Pre-celts worked with gold, silver and bronze, but succumbed to the invader who had been using iron for their weapons for four centuries.

The earliest physicians of whom we have any extensive knowledge, were members of the priestly Druid race, the Tuath-de-Dannan.[2, 3, 4] They were Diancecht, his daughter Airmeadh and Miach. Diancecht was known as the God of Healing and is said to have practised hypnotism. He is said to have recognized fourteen disorders of the stomach. The prescription for his porridge has been handed down to recent times. It consisted of a brew of hazel buds, dandelions, chick-weed, wood-sorrel and oatmeal. Also among the Pre-celts were the Firbolgs, which translated means 'The men of the Leather Bag', who as their name suggests worked largely with leather and may have been the ancestors of our present day gypsies. The Tuath-de-Dannan beat the Firbolg at the battle of Moytura in Co Sligo, in 487 BC. Legend has it that the leader of the Tuath-de-Dannan had his hand cut off. It is said he was later fitted with an artificial hand made of silver with motion in every finger and joint. Thereafter he was known as 'Silver Hand', but because of this impediment was prevented from becoming high king of the Tuath-de-Dannan. This explains why a silver hand is part of the arms of the Royal College of Physicians of Ireland. Then there were the Picts, meaning tatooed people, who occupied Ulster some 50 years BC and whose most famous son was Cuchulain. He was one of the Emania Warriors, a professional army known as the Red Branch Knights and commanded by the legendary Finn MacCool. The ramparts and foundations of the Emania Fort still exist two miles outside the City of Armagh. Conor MacNessa who died in 37 AD was King of Ulster at that time. Physicians figured conspicuously in the tales of the Red Branch Knights. There was an organized army medical service to the Ulster Forces in the war of the Tain. Finqur Farthliarg was their commanding officer and King Conor's personal physician. His official residence was at Slieve Fuaid in South

Armagh.[5] Each member of the medical corps carried a bag full of medicines and dressings. In a story of Finn MacCool it is stated that a piece of skin of a ewe was grafted to an open wound of one of his warriors. The graft took so well that the fleece of wool which grew from the graft had to be periodically shorn. King Cormac who reigned in AD 227 made an order that all future monarchs of Ireland should at all times be accompanied by ten persons, a chief, a judge, a druid, a physician, a poet, a historian, a musician and three servants. This order apparently lasted until the death of Brian Boru in 1014 AD.

Physiotherapy and medicated herbal baths were apparently used extensively. The baths were used in the treatment of skin diseases and for their antiseptic effect. There is the story that after one particular battle the wounded were bathed in the milk of one hundred and fifty white hornless cows to protect them from the effect of poisoned weapons.[4] On Inishmurray off the Donegal coast and elsewhere there are remains of sweating houses. These are stone houses some 5 feet by 7 and some 3 to 4 feet high with a narrow entrance. Before use, a large fire was lit inside until the house became like an oven. The embers were then scraped out and the patient wrapped in a blanket crept inside, where he remained until he sweated profusely. On emerging he plunged into a pool of cool water and was thoroughly rubbed until he glowed all over. This treatment is similar to the Finnish and Russian sauna baths which are so popular today. In some places, sweating houses were large enough to accommodate several persons at one time. This treatment is said to have been practised in Ireland until relatively recently.

Medicine in those days must have been held in high standing as several authorities record that in the second century BC Josina, the ninth King of Scotland, who occupied the throne from 161 to 137 BC was educated in Ireland by native physicians. He is credited with the authorship of a treatise on the use of herbs.

There gradually developed in those days, a law of the land known as the Brehon Laws.[6] These laws were first promulgated several hundred years before Christ and became gradually refined over the centuries. They were only abolished in the reign of James I (1603-1625). The Brehon Laws gave special standing to someone in charge of a sick person. He was responsible for providing him with a proper house, not dirty or snail smeared, nor one of those inferior houses, a pig-house, sheep-house, or cow-house. Other laws were as follows. A person engaged on an errand of mercy for a physician or compounding medicine was exempt from the law until the task was done. These tasks included seeking a midwife, struggling with an epileptic or securing a madman. An unlawful physician was required to inform the patient of the fact that he was unqualified before performing an operation. Lawful or unlawful physicians were expected under penalty of a fine, to warn the patient who might not respond to treatment. According to the Book of Accill, provision was made in the Brehon Laws for a medical referee where a dispute arose between patient and physician as to treatment. Compensation, including payment of a physician was payable by the aggressor in quarrels resulting in injury. Several sections of the laws dealt with the care of the elderly, the poor and the insane. If a sane adult had any part in bringing about sexual connections between two lunatics he was responsible for the children born of the union. There was a levy on the landowner for the poor and there were very strict laws on the maintenance and care of the elderly.

The immigrant Gaels or Celts, these people were virtually synonymous, who came to Ireland were a hardy people. As they pushed further afield they escaped for a time at least, the infectious diseases then present in most of the heavily inhabited areas of Europe. They were an enterprising race, who in the third and fourth centuries raided far and wide to England and the Continent even as far as the Alps. For example in the year 404, Niall of the Nine Hostages was killed aboard his ship in the English Channel while on a raiding expedition. In one of those raids in the year 432, a young boy, later to be known as St. Patrick, was taken hostage.

Christianity brought an end to the feuding at home and the foraging abroad, and for three hundred years, peace came to Ireland and Ireland had its golden age. These early Christians set up monasteries and schools of learning. During this period, as I am sure you are all aware, craftsmen produced the Ardagh Chalice, the Tara Brooch and the Book of Kells. The equally decorated, but black and white version, the Book of Armagh was also written at this time. Scholars came from many lands to study at the monastic establishments. In 808, when the scribe Ferdonach was busy working on the Book of Armagh, there were 5,000 students studying in Armagh. One early historian states that books were supplied free of charge to the hordes of foreign students.[1, 7, 8] Even among the unconverted, the country was relatively peaceful. The local chieftains went as far as to elect a high king, who resided at Tara. In the reign of each high king there was a great feast held there, with up to five hundred bards in attendance. The Annals of the Four Masters, report that these feasts were attended by the leading physicians of the day.

Major epidemics occurred in these times throughout the known world and helped to change history.[9] The plague of Athens in 432 BC contributed more to the downfall of the Athenian Empire than the war with Sparta. This is thought to have been a virulent scarlet fever in a susceptible population. The Roman Empire was decimated by plague which was more catastrophic than the attacks of the Goths and the Vandals. From the description of the disease this appears to have been malaria brought back by the conquering Roman Armies. There was a plague in Ireland in 250 AD of unknown origin, consisting of vomiting, diarrhoea, ulcerated sore throat, a burning fever and gangrene of the hands and feet. There was another again in 442. In 540 AD there was an epidemic that lasted thirty years referred to as the 'Corn Coloured Yellowness' or 'Buidhe Chonaill', which was probably yellow fever or possibly malignant malaria.[10] In 569, the Annals of Innisfallen refer to Bolgach, or smallpox, for the first time, while the Annals of Clonmacnoise refer in 675 to the great leprosy called the pox. We can't be sure that this was indeed smallpox, but it may well have been. The bubonic plague that destroyed the Byzantine Empire, probably reached Ireland towards the end of the 6th century. In the years 664 and 665, there was a dreadful pestilence during which two thirds of the inhabitants of this country were said to have perished. There were many other plagues too numerous to mention.

It has been said that Christianity benefited from illness and the major epidemics that then existed. The miracles of Christ, the miraculous power entrusted to his followers and the belief in the resurrection after death, gave hope to the sick and those living amidst a plague, while the Christian ethos of caring gave practical comfort. So medicine was closely linked to monasteries in Ireland. The early christian hospitals attached to the monasteries were designed upon the same plan as

the early churches. A central altar or area with two or four long naves or wards leading from it and a number of side wards or chapels. Treatment was in the hands of physician priests assisted by brothers and sisters, who combated disease, mostly by prayer. There was a general fatalistic acceptance of illness and its outcome. The care of the soul was more important than that of the body. The cures were mainly herbal. There were herbal gardens attached to most of the monasteries. The treatments were generally ineffective and not as well documented as on the Continent. There are some reports such as the story of a man having a thorn stuck in his foot. His legs became swollen and his joints inflamed and he suffered a high temperature. He was wrapped in sheepskin rugs, the thorn came out and he recovered. There is the story of the youth who became paralyzed, starting in his feet and spreading gradually through all his limbs, possibly an ascending paralysis of the kind seen in infective polyneuritis. After some time he asked could he wear the shoes of a particular saint, who had died some time before. He had them put on his feet and when he awoke, he had regained the use of his limbs. We may speculate that when he felt some recovery in his feet he asked for the shoes and the cure has since been exaggerated. There are other more practical cures documented. A young man came to St. Columba with a persistent nose-bleed, whereupon the saint pressed both nostrils with the two fingers of his right hand and soon stopped the haemorrhage. There is a description of a monk who got a deaf mute to talk by practising speech therapy with him over a prolonged period.[11]

There was also a body of lay medical practitioners. Medical knowledge was generally passed from father to son so that medical dynasties were common. Charms worn about the body were a frequent device to ward off disease or reduce its effect. For stomach ache the heels of a hare were to be placed on the clothing near the stomach. For swollen eyes, the eye of a crab had to be placed upon the neck.[4] In cases of fever the right foot of a dog was to be hung over a patient's arm. Skin diseases due to infestation associated with poor hygiene were common, as were eye diseases. Saliva was thought to heal eye disease, though bathing the eyes in salt and water was also advised. Honey was apparently a very effective antiseptic and was used to cover wounds. Mandrake and the poppy were used for sleep.

Cupping using a glass or horn or special instrument called a gipne was used to relieve pain, by creating a vacuum over the painful skin area.[2] Splinting of fractures was carried out often in association with herbal remedies. Poulticing was used to drain abscesses which were incised and drained with tubes when necessary. The debridement of wounds was carried out and amputation was used to prevent the spread of gangrene. Wounds were sutured with silk and a surgical operation for the repair of hare lip is described. It is stated in the writings of Galen the great Roman Physician who was born in 130 AD that ligatures had to be acquired from the distant land of the Celts. Other surgical procedures were the removal of nasal polyps and amazingly the removal of cataracts of the eye. There was the story of the warrior whose skull was fractured by a blow from a sword during the battle of Moyrath, Co Down, in AD 637. He was brought to Primate Senach in Armagh who had him sent to St Bricin the Abbott of Toomregan, in Co Cavan, who removed the injured part of his skull and brain. The chronicle of this episode states that his 'brain of forgetfullness' was removed and on his recovery, his intellect and memory were more powerful than ever. It has been suggested that this was in fact a decompression

operation. This view is supported by the fact that there is a skull in Queen's University which was found in Nendrum Abbey on Mahee Island in Strangford, which was destroyed by the Norsemen in AD 974, which has an 8 mm burr hole in the left pareital bone. There was a similar find in Co Meath dated from the pre-christian period.

Blood letting, venesection was a surgical procedure frequently employed.[11] Different sites were used for different conditions, at different times of the seasons. There was usually a room in the monastery set aside for blood letting. Various mishaps occurred during these procedures. There is the story of the educated clerk who lost his knowledge of letters for a full year after blood letting and only recovered his faculties a year later after a further blood letting. The monastic practice of venesection, in spite of its now obvious ineffectiveness, persisted throughout the middle ages and is known to have been performed regularly, even into relatively modern times. It perhaps suggests that an elaborate procedure, even if relatively ineffective, impresses both physician and patient and prolongs its use.

In the eighth century, Ireland was still in close contact with Europe and a centre of learning. The great Emperor Charlemagne's advisor on educational matters was educated at Clonmacnoise. Charles II (Charles the Bold) sent for the celebrated Irish scholar John Scotus Erigenia to translate certain Greek works.

Then in 795 Ireland was attacked for the first time by the Norsemen. They attacked and plundered and destroyed the monastic settlements. In 830 Armagh was plundered three times in one month by the Norsemen under Turgesius. The Annals of Innisfallen which were said to be written in 869 AD, states that the city was burned with its hospitals and leper houses. These latter houses were probably houses where people with highly infectious diseases could be isolated and more likely than not this was a disease other than leprosy. It has been suggested that it was a virulent form of scabies of Norwegian origin, said to have come from infected wolves. Acta Sanctorium, states that St Patrick maintained a certain leper in his house and washed his sores with his own hands. The Vikings made fortified settlements and trading stations along the coast line. Dublin, Wexford, Waterford, Cork and Limerick were all Danish towns before they were Irish. What they did in Ireland, they did in Britain and France and even down to Morocco. The Irish fought back with some success under Maelseachlin and later Brian Boru, who finally defeated the Danes in 1014 at the battle of Clontarf. The Norsemen were not completely barbarous. They introduced a system of coinage to the country and like all Irish invaders intermarried and intermingled with the natives. Yet I cannot find any reference to physicians among them, nor does Fr F. X. Martin of Woodquay fame, the leading authority on the Vikings, know of any.

After the battle of Clontarf, Armagh again filled up with students and remained a centre of learning even into the 15th century, but the monastic settlements never regained their former glory as centres of learning and of medical influence. This was due to a large extent to the Papal Edict of Tours of 1163 which prevented monks from practising surgery, but which was interpreted by many as a general condemnation of surgical practice. Instead the hereditary physicians or leeches as they were called grew in importance. This was the period of the rise in importance of certain clans such as the O'Neills, the O'Donnells, the Maguires and the Anglo-Irish families such as the Ormondes, the Butlers, and the Fitzgeralds. To each of these

nobles or chieftans there was attached a family of hereditary physicians. The Dunleavys were hereditary leeches to the O'Donnells. In 1459 Cormac Dunleavy translated several medical texts into Irish.[2] The O'Cassidy's were leeches to the Maguires of Fermanagh. The O'Meara's were physicians to the Butlers, and were by their writings and repute greatly esteemed in Great Britain and on the Continent. They were perhaps the first of a long line of Irish hereditary physicians who published medical works in Latin. The O'Shiel's were physicians to the McMahon's of Oriel, but later gave their services to the O'Neill's. Some of the hereditary physicians went further afield, Nial O'Glacan, a hereditary physician born in Donegal became Professor of Medicine in Toulouse at the age of 29 and physician to the King of France.[12] In 1655 in Bologna he published books on physiology and pathology. He treated the great Hugh O'Donnell during his terminal illness in the palace of the King of Spain. Much later Dr. Bernard O'Connor of Kerry was physician to the King of Poland around the end of the 17th century. As mentioned earlier, surgery had fallen into disrepute and until this time all physicians had been true general practitioners.

Arabic physicians were the first to inculcate the doctrine of the inferiority of the surgical branch of the healing art and surgery was left to tradesmen or barbers with little learning. Each army at that time had its barber surgeons and the Norman armies that invaded Ireland in the 12th and 13th centuries were no exception. Despite the rise in the universities at this time the Normans were less well equipped surgically in 1300 AD than the Greeks in Alexandra in 200 BC. Yet some of the barber surgeons got considerable experience. This was the time of the bowmen and heavily armed knights, who when unhorsed were easy prey to infantrymen with long knives. Despite the absence of firearms, casualties were heavy. These barber surgeons were journeymen who had to travel long distances to their patient's residence, where even when the operation was successfully performed, they had to remain until the patient was fully recovered. Indeed they most probably only charged if the operation was successful. Eventually, in 1446, in recognition of their work, Henry VI established a guild of Barber Surgeons in London. Apprenticeship was then 5 to 7 years.[13]

From 1346-1361, the 'Black Death' swept Europe and hit Ireland in 1349. In Europe 24 million people, one quarter of the population died. Petrach wrote that future generations would be incredulous and would be unable to imagine the empty houses, the abandoned towns, the squalid countryside, the fields littered with death and the dreadful silent solitude which seemed to hang over the whole world. This was bubonic plague, caused by the bacillus *Pasteurella pestis* and passed from rat to rat and rat to man by fleas. It is not normally infectious from man to man except by flea bite. The plague of 1349 was a particularly virulent type, producing a septicaemia and pneumonia, causing the patient's breath to become heavily infected. This resulted in spread by direct contact, with a mortality rate of up to 90 percent.

With the Renaissance in the 16th century came a reinfusion of the old Greek approach of direct observation and intellectual enquiry after a dormant period of a thousand years. Vesalius, who studied under Professor Sylvius, Professor of Anatomy at Paris, dissected incessantly for 5 years before publishing De Fabrica in 1543. Then Harvey discovered the circulation of the blood. Surgeons were no longer

afraid of haemorrhage. They became extremely rapid and brilliant operators with an accurate knowledge of anatomy and an amazing manual skill. There remained two great undiscovered problems, the relief of pain and the reduction in the appalling mortality from post operative infection. In 1577, Queen Elizabeth issued a charter uniting surgeons and barbers.

In Ireland the influence of the hereditary medical families began to decline with the eclipse of their patrons culminating with the flight of the Earls in 1607 and the later arrival of Cromwell. There now appeared a new type of physician who went abroad to study, such as Thomas Molyneux, born 1661, described by a British historian as the first great physician of Ireland or Thomas Arthur of Limerick, born 1593, educated at Bordeaux and Paris. He reported: "I went to Dublin to Mr George Sexton, who being thoroughly cured of gonorrhea, gave me a horse, value of £8 and £5 in gold. I then went to Mrs Chichester of Carrickfergus, labouring under dropsy and forewarned of her death within a few days, payment £5. On the 24th July 1633 Basil Brooke paid £1 for the treatment of urinary infection".[2] Somewhat later a H. Kennedy M.D. from Monaghan published a work on the chemical and medical properties of the sulphurous water of Aughnacloy. Then there was Sylvester O'Halloran, a Limerick doctor who was said to be a daring surgeon and a prolific writer. He was described as a tall thin man in his quaint French dress with his gold headed cane, beautiful Parisian wig and cocked hat.

As we are reminded annually, the native Irish were vanquished at the end of the 17th century by King William of Orange. Thereafter, for more than a century there was unbroken peace. As was the custom of the time the conquerors wielded absolute power and instituted stringent measures to ensure their continued supremacy. The natives were disenfranchised. They could become doctors, but not solicitors, barristers, or magistrates. They might not own a horse worth more than £5 while any settler offering £5 might claim any horse owned by a native. A native artisan could not follow his trade without paying quarterage, a special rate, to the town fathers. More importantly no settler could sell, give or bequeath land to a native. A native landowner could not bequeath his land as a whole. It had to be divided equally among his sons. No native could lease land unless the lease was at least two thirds the profit from the land. If his profit was more than one third, the person who informed of this fact could get the land from him. Foreign trade was curtailed and the setting up of new industry prohibited. These were the penal laws and although there was peace, discontent smouldered among the native population.

In 1641 the population of Ireland was 700,000; by 1841 it was eight million. The increase in population was mainly among the labouring classes and the small tenant farmers where the land was poorest. The increase in population was followed by continuous division, as I have explained, of already inadequate holdings. People cultivated their land not for profit, but to stay alive and in general existed on the single staple food—the potato. The result was a standard of living at hunger level with the occurrence of succeeding famines culminating in the supreme tragedy of 1847. There were regular violent outbreaks of cholera, typhus, typhoid, smallpox, scarlatina and influenza. Tuberculosis became endemic and in the ten years 1831-1841 caused more than a third of all deaths from infectious disease. The death rate from tuberculosis continued to rise until 1902, before gradually declining again.[14] By the end of the 17th century, smallpox, which was a mild illness in the

16th century became a common disease of childhood and throughout the 18th century destroyed more young children than any other disease. Measles too was a fairly mild disease until towards the end of the 18th century, when it too became more common and more lethal, not just because of a debilitated population, but apparently also associated with an increased virulence. There was some effort made to relieve this suffering and misery. In 1703 the Irish Parliament passed an act enabling the erection of a workhouse in the city of Dublin for employing and maintaining the poor thereof. One of the reasons for erecting the workhouse was declared to be 'to preserve the lives of unwanted children and the educating and instructing them in the Protestant religion'. Part of this workhouse was reserved for a foundling home or hospital. At one of the gates to the workhouse there was a basket attached to a revolving door. Those who wished to abandon a child, deposited the child in the basket, rang the bell and left. Children in the home were fed on passade, bread soaked in water with a little milk added. Some children were farmed out to foster parents at a fee of £2 per year, and all children who were farmed out were branded on the arm. The majority of infants admitted to the home were healthy, when ill they were removed to the infirmary. The only treatment children received was 'the bottle', a narcotic mixture, after which they were easy for an hour or two. Between 1791 and 1796, 5,716 infants were admitted to the infirmary and one was discharged alive. Two old women were in charge of a ward of 60 children. Two doctors were supposed to attend. The dead were left until there were sufficient numbers, worthy of a grave-diggers time. It is not surprising that in 1797, a committee set up by the Irish Parliament, dismissed the physician, surgeon, apothecary, as well as the Board of Governors.[2]

Towards the end of the 18th century, county surgical infirmaries were built in many of the country towns. In 1767 the Armagh County Infirmary came into operation and Joseph Strewbridge was appointed surgeon at an annual salary of £100.[15] On the 1st October 1774, the housekeeper was advised to hire two nursing assistants at a salary of £4 per annum. It was part of their duty to change the straw in the patients beds once every month and their sheets once every month or more often if necessary, and to have the men shave at least twice per week. For every instance of neglect or carelessness reported by the surgeon at least one shilling was to be deducted from their wages. At that time it was stated that the drug bill should not exceed £1.10s. per month.

There were certain rules of the Infirmary. Patients were not allowed to play cards or dice or any other game or smoke tobacco in the house. That such patients as were able were to be employed in nursing, washing or ironing the linen, cleaning the wards, or in such service as the Matron should require. That when patients were cured they be enjoined to return public thanks to Almighty God in their respective places of worship. In the surgical wards at that time four diseases were so prevalent that they became known as the hospital diseases, erysipelas, septicemia, pyaemia and hospital gangrene. Amputation statistics were frightful, mortality varied from 25 to 60 percent. For we must remember that it was little more than a hundred years ago that Joseph Lister appreciated the significance of Pasteur's discovery of the presence of organisms in the fermentation process and introduced aseptic techniques.

Then in 1838, the poor relief act established a workhouse system in 130 union

districts throughout Ireland. Between 1841 and 1845, 130 workhouses were established, 43 of these in Ulster, which even by to-day's standards was a remarkable building programme. Each union district was governed by a board of guardians who employed the relieving officer and the doctor. A person seeking assistance under the poor law applied to the relieving officer who assessed the social and medical needs and issued an order for relief, if he saw fit. The doctor then saw the patient in the workhouse or his home. At the height of the famine on the 3rd July 1847, out of a total population of about eight million, nearly three million received food gratuitously at the hands of the relieving officer and close to a million meals were sold at a moderate cost to those who were unable to procure food otherwise. At that time public works afforded employment to nearly three quarters of a million people. The workhouses and their auxiliary hospitals gave shelter and food to more than one million in the space of two years. At one period 800,000 were relieved daily at the charge of the poor rate. In addition 207 temporary fever hospitals were set up throughout Ireland through which passed, in 1847 and 1853 more than a quarter of a million.[14] Emigration amounting to nearly one million people occurred over a six year period. The famine had a less disastrous effect on the North than many other parts of the country. County Antrim was said to have a blight resistant potato, while oatmeal was part of the diet in these parts. Typhus was rife, particularly in Belfast and the surrounding area. As you know, typhus is a ricketsial disease presenting as fever, delirium and a blotchy rash. It is spread by the bite of an infected body louse and appears to require malnutrition and sordid living conditions to thrive. It was typhus that decimated Napoleon's army on the long march back from Moscow, the lice spreading rapidly among the debilitated soldiers as they lay huddled together at night to keep out the cold. This same louse spread rapidly among the starving peasants in the workhouses. Although the famine was not as severe in the North, typhus was more common, particularly in Belfast. It was estimated that one person in five got typhus fever. According to the census of 1841 the mortality rate per 1,000 in Belfast was 28.2, the average age at death was 9 years and one half of the population was under 20 years of age. The proportion of fever deaths to all deaths was about 1 in 16 in the whole of Ireland and about 1 in 6 in Belfast. The mortality in the workhouse was frightful. In one particular week in a Lurgan workhouse 95 died, while in Ballina 150 died. Dr Seaton Reid, the physician in charge of the Union Fever in Belfast, estimated that during the epidemic of 1847 to 1848, there were 13,649 patients admitted with fever with a 13 percent mortality, 1,836 admitted with dysentry with a 32 percent mortality, 325 admitted with smallpox with a 34 percent mortality.[18] Cholera was not a problem then. It hit Belfast in 1849 and lasted for a full year and when it did, 1 in 50 of the population were affected with a mortality of 36 percent. As can be appreciated dysentery and cholera had such a high mortality, due to the inability to replace fluids parenterally and correct electrolyte imbalance.

Until the middle of the nineteenth century for the bulk of the people there was no home medical relief. There were some dispensaries established by landlords and gentry, prior to 1800, but these were voluntary institutions subsidised to a very limited extent by government funds. Medical advice was given gratuitously, but the supply of medicines was severely limited and the doctor paid domiciliary visits only to those who lived within a short distance of the dispensary.

Under the medical charities act of 1851 dispensary districts were formed under the

management of the Board of Guardians.[17, 19] There appears to have been no shortage of applicants for the post of dispensary medical officer in spite of low pay. Dispensary districts often extended over 100 square miles with a scattered population of some 4 to 5 thousand. The conditions of work in the workhouses remained appalling, with no prospects of promotion or pension. More than fifty doctors died in one year from infectious diseases. William Stokes, the noted Dublin physician, stated that the risk for those doctors working in a workhouse was greater than the soldiers in the front line of battle. A sum of £30 annually was common for a doctor in charge of a workhouse and £70 if a district was included. Extra fees were paid for maternity work and vaccination. The fee for a normal delivery was ten shillings and one pound for a difficult confinement. If a district involved a great deal of travelling, a special allowance was sometimes paid as it would then be necessary for the dispensary doctor to keep two horses. So the duties and guidelines for modern practice were established. As we can see, our forefathers were paid a basic practice allowance with item of service payments and a mileage allowance. At this time, a fact until recently unnoticed by historians, permission was granted to introduce a bill into the British Parliament, which set out the foundations of a Royal College of General Practitioners.[20] Unfortunately for us and for general practice, this did not materialize for a further hundred years.

By the turn of the century there were more than eight hundred doctors employed in the dispensary service. It was highly efficient, for example the vaccination programme wiped out smallpox, so that the last case of smallpox occurred in this country in 1911. At that time it was probably the best rural health service in the world, due in a large measure to the humanity of those who operated it.

In this talk I have not done justice to some of the great physicians of the past such as Stokes, Graves, Corrigan, Whitla or to our famous hospitals, nor to the international contribution of Irish Medicine, particularly in the Colonial and Empire period in the developing countries, the part played by Irish medical men and women in the United States of America, Canada, Australia and New Zealand, by medical missionaries, by research workers; a vast and magnificient record. I have attempted more to paint a picture of the gradual evolution of general medical practice through the centuries. When we look back over the centuries we can marvel at the great men and their great discoveries, yet appreciate that medicine advanced in many instances in spite of us. These sentiments are aptly and humbly stated by two of the greatest scientists in history. The first, Isaac Newton, said, 'If I have seen further than other men it is because I have been standing on the shoulders of giants'. The second, Ambrose Paré, the renaissance surgeon said, 'Je le pansay, Dieu le quarist; I dressed him, God healed him'.

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REFERENCES

1 Gwynne S. *The History of Ireland.* London: Macmillan, 1923.

2 Fleetwood J. *History of Medicine in Ireland.* Dublin: Browne and Nolan, 1951.

3 Hickey E.M. The Background of Medicine Ireland. *Ulster Med J* 1938; 66-82.

4 Wellcome Sir H. *Medicine in Ancient Ireland.* London: Burroughs Wellcome and Co., 1909.

5 Joyce PW. *Social History of Ancient Ireland.* London: Longmans Green, 1903; 597-632.

6 *Ancient Laws of Ireland.* Vols I-VI. Dublin: 1865-1901.

7 Stuart J. *Historical Memoirs of the City of Armagh.* Dublin: Browne and Nolan, 1900.

8 Rogers E. *Record of the City of Armagh.* Armagh Guardian Printers, 1861; 5-7.

9 Cartwright F. *Disease and History.* London: Rupert Hart Davis, 1972.

10 Mac Arthur W. The identification of some pestilences recorded in the Irish Annals. *Irish Historical Studies,* Vol VI. 1949; **23**: 169-188.

11 Rubin S. *Medieval English Medicine.* London: David and Charles, 1974.

12 Sims S. Nial O'Glacon of Donegal. *Ulster Med J* 1935; 186-189.

13 Doolin W. *Wayfarers in Medicine.* London: Heinemann, 1947.

14 Deeny J. *Tuberculosis in Ireland.* Dublin: Medical Research Council of Ireland, 1954; 13-24.

15 Patterson TGF. *Armachiana,* Vol IV. Armagh Museum, 1968; 44-49.

16 Patterson TGF. The beginnings of our local Hospitals. Armagh City Hospital. The Surgeons Roll 1767-1924. Nursing conditions in the period 1774-1874. *Hospital News,* Vol II-V. Northern Ireland Hospitals Authority Publications, 1961.

17 McCourt E. *The Poor Law and the Workhouse in Armagh.* Belfast: Public Records Office, 1981.

18 Calwell HG. *Andrew Malcolm of Belfast.* Belfast: Brough Cox and Dunn, 1977.

19 Bloor DU. The Union Doctor. *J Roy Coll of Gen Practit* 1980; **30**: 358-364.

20 M. Conaghey RMS. Proposals to found a Royal College of General Practitioners in the nineteenth century. *J Roy Coll of Gen Practit* 1972; **22**: 775-787.

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THOMAS CRAWFORD, REGIMENTAL MEDICAL OFFICER IN THE CRIMEA, 1855

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Thomas Crawford was an Ulsterman, born in the year 1824 at Dumbrain, Newbliss, Co. Monaghan. His family had their origins in Ayrshire and came from Scotland in 1698 after the main plantation of Ulster. Crawford studied medicine in Edinburgh and graduated there in 1845. On February 18th, 1848, he was appointed assistant surgeon in the 51st Regiment of Foot (Kings Own Light Infantry) and saw service with that Regiment in the first Burmese war of 1852-53. Those years for him were not uneventful as the record shows: "Dr. Crawford served with the 51st Regiment of Foot throughout the Burmese War. He was on board the East India Company Steam Frigate Ferooz during the naval action and destruction of the enemy's stockade on the Rangoon River: served during the succeeding three day operation in the vicinity, and at the storm and capture of Rangoon (including the storming of the Whitehouse redout) also at the storm and capture of Bessein, various skirmishes at Prome, and during the advance on Meaday."[1]

It was therefore with some experience of battle conditions that, in February, 1855 he was appointed surgeon to the 18th Regt. of Foot (The Royal Irish). This regiment had embarked at Portsmouth on 8th December, 1854 and landed in the Crimea at Balaklava after a sea journey of some three weeks. Surgeon Crawford joined the regiment, then encamped on the slope of a hill two miles outside Sebastopol, with a draft of 138 men, on the 20th February, 1855.

Conditions in the Crimea were appalling by any standards. In part, these were due to severe weather conditions, but much of the misery suffered by the Army was of its own making. As Lord Montgomery states "The Crimean War really provided an object lesson on how not to make war."[2] The administrative organisation on both sides was disastrous. The Allies (France and Britain) despatched a naval expedition to capture Sebastopol without discovering beforehand that the water on either side of the Isthmus was too shallow for their ships to berth. The British brought no transport for their food and ammunition, and the troops lacked practically all the equipment necessary for a winter campaign. Medically, little or no thought was given to endemic disease, the siting of camps and other important factors which subsequently conspired to give horrific morbidity and mortality statistics for the whole British Army. It was into this situation that the 34 year old Crawford entered with his regiment of 28 officers and 835 soldiers.

THE REGIMENTAL MEDICAL SYSTEM OF 1855

Medical officers or regimental surgeons were specially commissioned for each regiment, wore its distinctive uniform, and were confined to treating the regimental sick only. Although each regiment had its own hospital, the responsibility for the order and interior economy of these hospitals rested solely with the regimental or battalion commanding officer,[3] and not with the medical officer. The duties of prescribing for the sick were delegated to the surgeons and here their responsibilities ended. Support to the surgeon was provided by the regiment, "the hospital sergeant

was a sergeant of the regiment, taken from the regimental ranks by permission of the commanding officer, and he and the nursing orderlies were returnable to duty at any time by the commanding officer's order."[3] Everything within the hospital, from discipline and ward duties for patients, to times of reveille for patients, was arranged for by the commanding officer. For professional standards of treatment, the surgeons were responsible to inspecting medical officers "who half yearly or yearly visited the hospitals, and looked into the records of treatment and dieting."[3]

The medical aspects of the Army were therefore essentially regimental—except for three or four general hospitals established in wartime. These general hospitals were staffed "by scratch contributions of individual medical officers and stray orderlies and recovering patients obtained with difficulty from regiments."[3]

The advantages of the regimental system were said to be:

1. The regiment had its hospital complete and independent of the rest of the Army.
2. The surgeon being constantly with the same regiment learned to know the men, prevented scheming, and thus benefited the State.
3. It formed a pleasant home for the surgeons of the service!

To equip the surgeon for his task of operating a miniature hospital of 12 beds, he had bedding, blankets, sheets and pillows, with the essential ward items; a large medicine chest containing a six month supply, and a detachment chest of a smaller design for use if a part of the regiment was on detached duty: a pair of panniers for carriage on a pack horse which contained sufficient drugs and dressings to last a week and some medical comforts. The surgeon was responsible for the purchase of his own instruments.

Tentage included a hospital marquee for use as a ward, and a bell tent for the surgeon. All the equipment required two wagons for its conveyance, and carts were provided under regimental arrangements.

For professional advice on the treatment and problems of war surgery, surgeons were advised to take with them Dr. Guthrie's "Commentaries on Surgery." This volume was produced as a result of experiences in the Peninsular War—some thirty years previously. However, other works were beginning to be produced such as "Outlines of Military Surgery" by Ballingall,[4] adopted by the Medical Departments of the Army and Navy.

Thomas Crawford appears to have been an extremely industrious young man. Cantlie[5] describes him as "a distinguished officer of great experience with an enormous capacity for work and a master of detail." That this was so is shown in the remaining records. These indicate a high volume and wide breadth of clinical activity, coloured by constant attempts at improvement of knowledge and standard of treatment.

CASUALTY RATES

The months of January and February 1855 were disastrous for the Army. Figures from official records[6] provide details.

Table showing the number of men who died in each month from all causes: and from the principal classes of disease.

	Diseases and Wounds	*Wounds and Mechanical Injuries*	*Cholera*	*Disease of the Bowel*	*Fever*	*Diseases of Lungs*	*All Other Causes*
Jan. 1855	3168	83	71	2033	512	117	352
Feb. 1855	2528	42	12	1230	687	118	439

Of the total of 5,696 deaths, only 125 or 2.2% were the result of enemy action and could be classified as battle casualties.

The casualty death rates in January and February were at the rate of 9.49 and 8.01 per 100 of strength respectively. Later these rates fell considerably. However, the death rate combined with hospital admissions, and the sick, produced a loss of about 35% of effective military manpower at its peak. The work loads which these casualty rates generated for the regimental surgeons were enormous. The admissions record of Surgeon Crawford's regimental hospital shows a total of 1,941 admissions between February 1855 and June 1856, ranging from 304 in June 1855 to 38 in June 1856.[6] Of these 1,941 admitted, only 64 died in the hospital, and another 60 died outside, mainly on the battlefield.

With the mean average size of the 18th Regiment of 758 officers and men and 79 deaths from non-battle casualties, the survival chance of its members was 9.6:1. Within the Army as a whole—of 33,500 and non-battle casualty deaths of 16,211, the survival chances were only 2.1:1. Other factors apart, it seems likely that Surgeon Crawford's energy, interest and hard work helped in some measure to sustain his regiment through a very difficult campaign.

THE CLINICAL WORK

Cases of Fever—diagnosed as "of a Typhoid character with gastric or cerebral complications," Cholora and Dysentery, Pneumonia and Catarrhal afflictions are frequently described in Crawford's reports. In August of 1855 he notes "the sanitary conditions of the regiment exhibited much improvement; fever and bowel complaints became less prevalent: and only two cases of cholera were presented."[6]

Less frequent were battle casualties. In one incident 10 casualties "were caused by the bursting of a shell thrown by the enemy among the men, on their way to the trenches; and of the 10 thus wounded, seven underwent the operation of amputation of a limb."[6] Thus a heavy volume of surgery was generated in one incident and treated, if somewhat drastically, by the surgeon.

It is interesting to observe references to fractures of the femur, which was then, and still is now, a life threatening injury—"in two of these (wounded) the femur was fractured at its upper third, the bone having been much comminuted in one and obliquely fractured in the other, but both proved fatal, one after amputation and the other in consequence of mortification of the limb."[6] Frost-bite, exhaustion, acute hepatitis, and rheumatic illness all appear to have been encountered.

Three months before the regiment left the Crimea, Crawford observed the initial effects of scurvy. "At first the men looked robust and healthy; but after the lapse of three months, scurvy made its appearance—spongy gums, purple blotches on the extremities, haemorrhagic dysentery, and profuse discharges of blood from the stomach and bowels, marked the outset of the disease. Lime juice was procured and issued freely, and the scurvy rapidly abated. Lime juice or the salts rich in potass, will generally check scurvy under such circumstances: and it is scarcely necessary to remark that the nitrogeneous or albuminous elements were superabundant in this case."

"When the reverse of this occurs, the nitrogeneous or albuminous elements of the food being deficient, or the whole diet being insufficient to meet the wear of the system—a disproportion, at the same time, existing between the various nutritious constituents—the system is equally liable to suffer, though not so rapidly as in the former case. The gums show the same tendency to separate from the teeth; a lividity of countenance takes the place of the roseate hues of health; boils degenerate into unhealthy ulcers; slight indispositions are accompanied by disproportionate congestion of important organs, not infrequently terminating in sub-acute inflammation ere its presence is even suspected; and if any of the preparations of mercury be administered for the relief of such symptoms, profuse salivation will be produced by a quantity of that metal which, under other circumstances, would have no perceptible effect; but there is not the same tendency to haemorrhage. Such are the indications of the scorbutic taint, represented as prevalent in the regiment during the month of March and which, under the names of pneumonia, rheumatism, contusion, phlegmon, debility, etc. filled the wards of the hospital during that period."[6]

Crawford concluded that "the necessity of a constant issue of lime juice implies a presumed defect in the vegetable portion of the diet" and made representations to the supply commissariat for fresh rations to include fruit and vegetables

Many deaths were simply related to the bitterly cold winter weather coupled with inadequate clothing and shelter. Crawford noted that the group who suffered most from the effects of the weather "was composed of men nearly all of whom were above average height, and the majority of whom were considerably so; but whether this circumstance contributed to swell the list of casualties cannot be determined."[6] This sound observation is in fact correct, in that tall males are most vulnerable to the exposure-exhaustion syndrome.

The 18th Royal Irish during the service in the Crimea suffered 124 deaths. 265 men were invalided to England, 50 men were discharged the service on account of disease, and 82 in consequence of wounds inflicted by the enemy.

SUBSEQUENT CAREER

Surgeon Crawford became a Staff Officer in London, Surgeon Major in 1868 and Deputy Inspector General of Hospitals in 1870. After holding the post of Surgeon General from 1876 and P.M.O. H.M. Forces in India 1880, he was appointed Director General of the Army Medical Service—set up by his predecessor, Sir William Muir.

Muir evolved many changes and improvements in the previous years. However, it was for Sir Thomas Crawford to see how practical the reorganisations were, for

THOMAS CRAWFORD
Director General of the Army Medical Service

Britain did not become involved in another major military confrontation till 1882 and the arrival of Arabi Pasha on the Egyptian scene.

During a period of enormous change in the medical arrangements within the Army between 1856 and 1882, Crawford had played a major supporting role. The result after the battle at Tel el Kebir in 1882 caused Sir Garnet Wolseley to comment "I never saw wounded men better cared for."[7]

Crawford did not return to his homeland. He died on the 12th October 1895 and was buried at Blackheath.

REFERENCES

1 Army Medical Department. *Annual Reports, 1861.* London: War Office, 1861.

2 Montgomery BL. A History of Warfare. London: Collins, 1968.

3 Evatt GJH. *Army Medical Organisation.* Allahabad: Pioneer Press, 1877. pp 3-4.

4 Ballingall G. *Outline of Military Surgery.* Edinburgh: Adam amd Black, 1833.

5 Cantlie N. *A History of the Army Medical Department.* London: Churchill-Livingstone, 1974.

6 Medical and Surgical History of the British Army which Served in Turkey and the Crimea. Vol. II. London: War Office, pp. 186-209.

7 Morley, Earl. Report of Committee and Enquiry in the Organisation of the Army Hospital Corps. Hospital Management and Nursing in the Field. London: War Office, 1883. p 6210.

FINE NEEDLE ASPIRATION IN BREAST LUMPS

by

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THE clinical differentiation between benign and malignant breast lumps is fraught with danger. A small proportion of cases present with classical clinical findings but in the majority of cases it is essential to have a cytological or histological diagnosis before surgery is undertaken.

Fine needle aspiration (FNA) of solid tumours has been practised since 1930,[1] and has been used throughout the world. Its usefullness remains controversial, opinions ranging from total rejection to enthusiastic acceptance. In order to evaluate the technique we carried out 135 consecutive FNA and the results of this series are now presented.

MATERIALS AND METHODS

One hundred and thirty two women attending with breast lumps were subjected to FNA. Some had simultaneous Trucut needle biopsies (TCN) carried out and some went on to have excision biopsy or mastectomy. It was found that lumps smaller than 0.5 cm in diameter were unsuitable for aspiration due to difficulty in accurately locating the lump with the aspirating needle.

ASPIRATING TECHNIQUE

Although various devices have been designed to enable the syringe to be held single handed[2, 3, 4] we have found the "braced thumb method" as described by Webb[5, 6] to be satisfactory. The lump to be aspirated is steadied between the thumb and forefinger of the left hand while a 20 ml syringe with a No. 18 guage (green) needle is held in the right hand. The needle is introduced into the lesion while a strong negative suction is applied by withdrawing the plunger and bracing the thumb against the body of the syringe. Suction is then released, the needle moved to a different part of the lump and the procedure repeated. With fibrous lumps or those which have been previously aspirated, constant suction is obligatory. It is essential that suction is released before withdrawal, otherwise cells will be sucked into the body of the syringe and therefore lost. Local pressure is applied to the aspiration site to prevent bleeding.

The needle is then removed from the syringe and the plunger withdrawn to fill the syringe with air. After re-connecting the needle, the aspirated material is expressed on to a freshly polished glass slide and a smear made in the same manner as a blood smear. The prepared slides are fixed immediately in a solution of equal parts of 95 per cent ethyl alcohol and ether and subsequently stained by the Papanicolaou technique. All smears were examined and reported by one cytopathologist.

One hundred and thirty five FNA were performed on solid tumours in 132 patients. When the presence of malignant cells was demonstrated an excision or TCN biopsy was undertaken to confirm the diagnosis, before proceeding to mastectomy. In FNA where no malignant cells were seen, excision biopsies were carried out in the first 50 patients. Thereafter, depending on the degree of clinical suspicion, either excision biopsy was undertaken, or the patient was followed up for six months to establish that the lump was benign. In a number of cases TCN biopsies were taken simultaneously with FNA and will form the basis of a further report.

RESULTS

The results are detailed in Table I. Of a total of 135 FNA 102 (75.6 percent) were satisfactory and 33 unsatisfactory. In the 102 satisfactory aspirations 68 were reported as being benign. Forty of these had biopsies which were also benign (two lipomata, 25 with fibroadenosis and 13 fibroadenomata) and the remaining 28 were followed up and to date have shown no evidence of malignancy. Of the 33 aspirates considered to be malignant only one proved to be histologically benign, therefore there was only one false positive result. With regard to the 33 unsatisfactory reports, 23 of these had insufficient cells for a diagnosis, four consisted of red blood cells only, one contained no breast tissue, one showed active epithelial proliferation but was judged to be unreliable because the patient was pregnant and four were unsuitable due to cell artefact. Only two of these 33 patients with unsatisfactory FNA were ultimately shown to have carcinomas. This supports the view[3, 4, 7] that unsatisfactory aspirations are more common in benign lesions. We did not repeat unsatisfactory aspirations but it is recognised[4, 6] that satisfactory aspiration can often be obtained by repeating the procedure.

TABLE I

FNA diagnosis compared with final diagnosis

FNA Diagnosis		*Final Diagnosis*	
		Benign	*Malignant*
Unsatisfactory or failed aspirations	33	31	2
Benign	68	68	—
Suspicious	1	1	—
Malignant	33	1	32
TOTAL	135	101	34

DISCUSSION

Cancer of the breast still carries the highest mortality from malignant disease in women and the incidence is still rising.[8] Prognosis is still thought to be improved by early diagnosis[9] and therefore any method which contributes to this deserves due consideration. Recently more attention has been paid to the psychological complications which arise from breast disease. A non traumatic, simple, cheap and reliable method of making a definite diagnosis is important as many surgeons now

like to discuss the methods of treatment with the patient before carrying out a mastectomy or other major procedure. An excisional biopsy has three main disadvantages: (1) it requires a general anaesthetic; (2) the incision may affect the choice of the incision for definitive surgery; (3) many surgeons do not feel that frozen section examination of the biopsy should be followed by immediate definitive surgery. In the majority of cases FNA provides a rapid, relatively painless and safe procedure for diagnosis. Franzen and Zajicek[3] performed over 3000 aspirations of breasts with no significant complications other than an occasional haematoma which resolved quickly and caused little discomfort. It has been suggested that dissemination of tumour along the track of the needle might occur, but experience does not confirm this fear.[5] In an extensive series[3] there was no tumour seeding along the needle tract and intensive investigations carried out by Robbins and colleagues[10] registered the survival times of 1463 patients with mammary carcinoma submitted to radical surgery. They compared their survival rates in patients who had had FNA with those who did not, and they found that the two groups did not differ in their ten year survival rates.

A high number of unsatisfactory specimens is a common problem with FNA. In the present series satisfactory aspirations were obtained in 102 (75.6 percent) out of 135 FNA. It has been suggested that this could be improved by the cytopathologist examining the specimen while the patient is still at the clinic and if the specimen is unsatisfactory then it can be repeated immediately.[4] This would be ideal but is not usually feasible. There was one false positive in our series but no false negative results were reported. The results from other series are reviewed in Table II. It can be seen that the incidence of false negative cytology results range from nil in our series to 18 percent in the series by Fentiman et al.[11] We feel that even in the light of our results, a negative cytology report can only be taken as a guide to the diagnosis of benign breast disease. It is our policy that any discrete lump which arouses clinical suspicion on the part of the surgeon or worry on the part of the patient should be removed even if the cytology report is negative. The incidence of false positives is much lower, being nil in five of the reports, 0.6 percent in Webb's series[6] and 0.7 percent in our own series (one case). However, we also had one specimen labelled as "suspicious" but the clinical findings in the 26 year old patient suggested a diagnosis of fibroadenosis and this was confirmed on excisional biopsy.

TABLE II

Comparison of results of FNA of solid breast lumps in various series

Author	*No. of FNA*	*False Positive percent*	*False Negative percent*
Webb A. John[6]	168	0.6	0.6
Meirion-Thomas J.[7]	189	Nil	4
Fentiman Ian S.[11]	151	Nil	18
Rimsten A.[13]	984	Nil	4
Gardeki T. I. M.[12]	I 233	Nil	7.9
	II 211	Nil	Nil
Duguid H. L.[4]	294	Nil	3.3
Present Series	135	0.7	Nil

Several authors[3, 4, 12, 13] have graded their FNA cytology findings in terms of benign, atypical, suspicious and definitely malignant. In the present series the cytopathologist felt the specimens should be graded as either benign or malignant as this would be more beneficial to patient management but unfortunately it was necessary to label one specimen as suspicious.

In conclusion we have found that a high degree of accuracy in diagnosis of breast lumps can be achieved with FNA and in the present series there were no complications. Confidence in the technique has increased and provided that it is employed in conjunction with clinical judgement it is a cheap and virtually painless method of making a reliable diagnosis in the majority of cases. A diagnosis of carcinoma of the breast allows discussion of the treatment with the patient before major surgery. It also makes excisional biopsy with frozen section unnecessary and permits definitive surgery to be planned without compromising the position of the incision. Again, excisional biopsy has on occasion left us without tissue on which to perform oestrogen receptor analysis, a procedure which is now considered important not only for establishing prognosis but also for planning further treatment. We would therefore advocate that this technique plays an increasing role in the diagnosis and management of patients presenting with lumps in the breast.

SUMMARY

The technique of fine needle aspiration (FNA) of solid breast lumps is described. One hundred and thirty five FNA were performed in 132 women and 75.6 percent of these provided satisfactory slides for examination. There were no false negative results and one false positive. FNA was found to be of value in the diagnosis of benign and malignant breast lumps, enabling better counselling and planning of definitive surgery.

We wish to acknowledge our grateful thanks to Mrs. C. Gray for typing the manuscript.

REFERENCES

1 Stewart FW. The diagnosis of tumours by aspiration. *Am J Path* 1933; **18**: 801-805.

2 Franzen S, Giertz G, Zajicek J. Cytological diagnosis of prostatic tumours by transrectal aspiration biopsy. *Br J Urol* 1960; **32**: 193-196.

3 Franzen S, Zajicek J. Aspiration biopsy in diagnosis of palpable lesions of the breast. *Acta Radiol* 1968; **7**: 241-262.

4 Duguid HLD, Wood RAB, Irving AD, Preece PE, Cushchieri A. Needle aspiration of the breast with immediate reporting of material. *Br Med J* 1979; **2**: 185-187.

5 Webb AJ. A cytological study of mammary disease. *Ann Roy Coll Surg Engl* 1975; **56**: 181-191.

6 Webb AJ. The diagnostic cytology of breast carcinoma. *Br J Surg* 1970; **57**: 259-264.

7 Meirion-Thomas J, Fitzharris BM, Redding WH, et al. Clinical examination zeromammography and fine needle aspiration cytology in diagnosis of breast tumours. *Br Med J* 1978; **2**: 1139-1141.

8 Office of population censuses and surveys Eng and Wales 1978; DH1: 6.

9 British Breast Group. *Br Med J* 1975; **3**: 357-358.

10 Robbins GF, Brothers JH, Eberhart WF, Quan S. Is aspiration biopsy of breast cancer dangerous to the patient? *Cancer* 1954; **7**: 774-778.

11 Fentiman IS, Millis R, Hayward L. Value of needle biopsy in outpatient diagnosis of breast cancer. *Arch Surg* 1980; **115**: 652-653.

12 Gardecki TIM, Hogbin BM, Melchner DH, Smith RS. Aspiration cytology in the preoperative management of breast cancer. *Lancet* 1980; **3**: 790-792.

13 Rimsten A, Stenkvist B, Johanson H, Lindgren A. The diagnostic accuracy of palpation and fine needle biopsy and an evaluation of their combined use in the diagnosis of breast lesions. *Ann Surg* 1975; **182**: 1-8.

FRIEDREICH'S ATAXIA AND JUVENILE DIABETIC JOINT CONTRACTURE

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INTRODUCTION

THERE is a prevalence of insulin-dependent diabetes mellitus in Friedreich's ataxia ranging from 8 to 20 per cent.[1,2] The occurrence of limited joint mobility in juvenile diabetes was first described in 1974[3] and subsequently has been identified in 50 percent of children after nine years of diabetes.[4] We describe a case in whom joint contracture was discovered in a patient with a non-progressive form of Friedreich's ataxia. To our knowledge, this association has not previously been reported.

CASE REPORT

A 19-year-old girl with Type I diabetes mellitus of 15 years duration was admitted to hospital for investigation of severe ataxia, the onset of which was first noted at age 16. Growth rate had been slow, but development normal, with menarche at age 15. Both parents were healthy. However, of four siblings, a brother had Type I diabetes mellitus of 20 years duration complicated by retinopathy, neuropathy and nephropathy, and subsequently died of uraemia at the age of 32. He had no known evidence of limited joint mobility. Of three sisters, one had congenital adrenal hyperplasia, one had died at age four following surgery on transposition of the great vessels, and one was alive and well with normal results of neurological examination.

The patient was of short stature, 137.5 cm, weighed 41 kg, but was normally developed. She had bilateral pes cavus with minimal equinovarus deformity. There was grade II/VI systolic ejection murmur along the left sternal border but no electrocardiographic abnormalities. Fundoscopic examination revealed mild bilateral background retinopathy with early neovascularization in the area of the right disc and macula. She had episodic proteinuria, but blood urea and creatinine were normal. There was interphalangeal joint flexion deformity of both hands resulting in limited mobility, but without muscle atrophy, altered sensation or palmar fascial thickening. The skin of the hands appeared thickened. There was also limitation of movement at the knee and ankle joints. These findings are characteristic of the limited joint mobility seen in diabetes.

Neurological examination revealed ataxic gait, positive Romberg's sign and bilateral horizontal nystagmus. Muscle strength, sensation and reflexes were normal in the upper extremities, but there was diminished power of dorsiflexion at both ankles, absent tendon reflexes and posterior column and light touch sensory loss in the lower extremities. Babinski's sign was negative.

She is now 25 years old and has shown no deterioration of her neurologic status over the past six years. Her joint abnormalities have also remained stable and there has been no further progression of her retinopathy or nephropathy.

DISCUSSION

Friedreich's ataxia, the most common of the spinocerebellar degenerations, is an autosomal recessive disorder with childhood onset of progressive ataxia, absent deep tendon reflexes, long motor tract signs and posterior column sensory deficits. Pes cavus, kyphoscoliosis, nystagmus, dysarthria and cardiomyopathy are common.[5] This patient was diagnosed at the age of 19 years as an incomplete form of the syndrome.[5] Friedreich's ataxia has been associated with both Type I and Type II diabetes mellitus. More than two-thirds of the population with combined disorders have been young females with Type I diabetes as is this patient.[2] Usually the ataxia is well advanced before the onset of diabetes. The present case is unusual in that the diagnosis of diabetes preceded the ataxia by 12 years. We are aware of only one other case in which diabetes preceded the neurological disorder.[2]

Joint contracture due to periarticular connective tissue thickening is strongly correlated with duration of diabetes. The interphalangeal joints of the hands are always affected, but in more severe cases there is often multiple joint involvement. It has recently been associated with a short stature for age, and increased prevalence of retinopathy, nephropathy and thickening of the skin.[7] This patient showed all of these features.

This patient manifests two disorders, one inherited and the other acquired; an incomplete form of Friedreich's ataxia and diabetic joint contracture. Both have been commonly associated with diabetes mellitus, but surprisingly, as far as we are aware, have not been described in the same individual. A number of possibilities might account for this. Firstly, the association of a characteristic limitation of joint mobility with long standing diabetes mellitus has been noted for less than 10 years and major studies of diabetes mellitus in patients with Friedreich's ataxia were conducted before this time so that early manifestations may have been overlooked. Secondly, because the ataxia nearly always antedated the onset of diabetes, patients usually succumbed to their progressive neurological disorder before the duration of diabetes was sufficient for limited joint mobility to become advanced and easily recognizable. The present patient is unusual in that her diabetes preceded her ataxia by 12 years, and also in that her neurological disorder has been non-progressive, allowing time for her advanced joint deformity to occur.

It may be that this case represents a series of random accidents rather than necessarily a systematic association. Its significance lies in illustrating the frequent association of diabetes with joint contractures, and the fact that in Friedreich's ataxia there is an increased incidence of diabetes.

SUMMARY

A case of juvenile diabetic joint contracture with Friedreich's ataxia is described in a 19-year-old girl. Review of the literature reveals no previous reports of the simultaneous occurrence of these disorders.

We express our thanks to Dr. Harvey C. Knowles, Jr. for allowing us to study this patient under his care.

REFERENCES

1 Hewer RL, Robinson N. Diabetes mellitus in Friedreich's ataxia. *J Neurol Psychiat* 1968; **31**: 226-31.

2 Poldolsky S, Sheremata WA. Insulin-dependent diabetes mellitus and Friedreich's ataxia. *Metab* 1970; **19**: 555-61.

3 Rosenbloom AL, Frias JL. Diabetes, short stature, and joint stiffness—a new syndrome. *Clin Res* 1974; **22**: 92A.

4 Grgic A, Rosenbloom AL, Weber FT, Giordano B, Malone JI, Shuster JJ. Joint contracture—common manifestation of childhood diabetes mellitus. *J Pediat* 1976. **88**: 584-88.

5 Geoffroy G, Barbeau A, Breton G, Lemieux B, Aube M, Leger C, Bouchard JP. Clinical description and roentgenologic evaluation of patients with Friedreich's ataxia. *Can J Neurol Sci* 1976; **3**: 279-86.

6 Hewer RL. Study of fatal cases of Friedreich's ataxia. *Br Med J* 1968; **4**: 649-52.

7 Rosenbloom AL, Silberstein JH, Kubilis PS, Riley WJ. Limited joint mobility in insulin dependent diabetes indicates high risk for microvasculopathy. *Pediat Res* 1980; **14**: 580.

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PERCUTANEOUS TRANSLUMINAL ANGIOPLASTY

by

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IN 1963 Dr Charles Dotter, a radiologist of Portland, Oregon whilst performing an aortogram by retrograde catheterisation of the right iliac artery inadvertently passed his guide wire, and then a catheter, through a complete occlusion of the artery. There was a palpable though diminished femoral pulse in the groin and the catheter was passed easily. It was only when radiographs were taken that these revealed the catheter had been passed through an apparent occlusion of the iliac artery. It occurred to him that it might be possible to dilate a blocked or narrowed artery by this means. A year passed before the opportunity arose, when he successfully dilated a tight stenosis of the femoral artery in an elderly woman with gangrenous toes. This was achieved by passing a guide wire through the stenosis, then passing a catheter over it, then passing a larger catheter over that, thus dilating the artery step by step. Publication of this achievement[1] caused slight interest in Europe and less in America. At certain centres attempts were made to modify the technique by using a balloon catheter which could be positioned in the stenotic area and then inflated, but the various types of balloon catheter developed did not have the strength to dilate the stenosis, tending to take up an hour-glass shape.

In 1974 balloon dilatation, or transluminal angioplasty as it has come to be called, was revolutionised by a Swiss radiologist, Andreas Gruntzig, when he developed a double lumen catheter with a balloon, made of polyvinyl chloride, near its tip, which had the authority to dilate stenotic arteries without deforming.[2] Initially used to dilate peripheral vessels it has come to be used in coronary and renal vessels.

It took about fifteen years from Dotter's original publication and about five years from Gruntzig's paper before the medical world at large accepted this technique. Those working in Britain interested in vascular occlusions have been slower than most in overcoming their scepticism. Reports now suggest that dilatation of iliac stenoses have been successful in a high proportion of cases with an initial success rate of 92 percent[3,4] and with two year patency rates of 87 percent[3] and 86 percent.[5] Results for femoro-popliteal dilatation are not as good as for iliac dilatation though Gruntzig has reported an 84 percent initial success rate for occlusions of less than 10 cm with a three year patency rate of 70 percent.[6] Patients with acute thrombosis and embolism are not suitable.

TECHNIQUE

The procedure of percutaneous transluminal angioplasty (PTA) using the Gruntzig catheter is performed by passing a guide wire, under local anaesthetic, through the stenosis or occlusion which has been identified by an arteriogram. An angiographic catheter is then passed and the pressure gradient across the stenosis is measured. The patient is then given 5000 units of heparin via the catheter. The catheter is then replaced by a balloon catheter of appropriate size which is positioned in the narrowed area and inflated several times. The pressure gradient is then

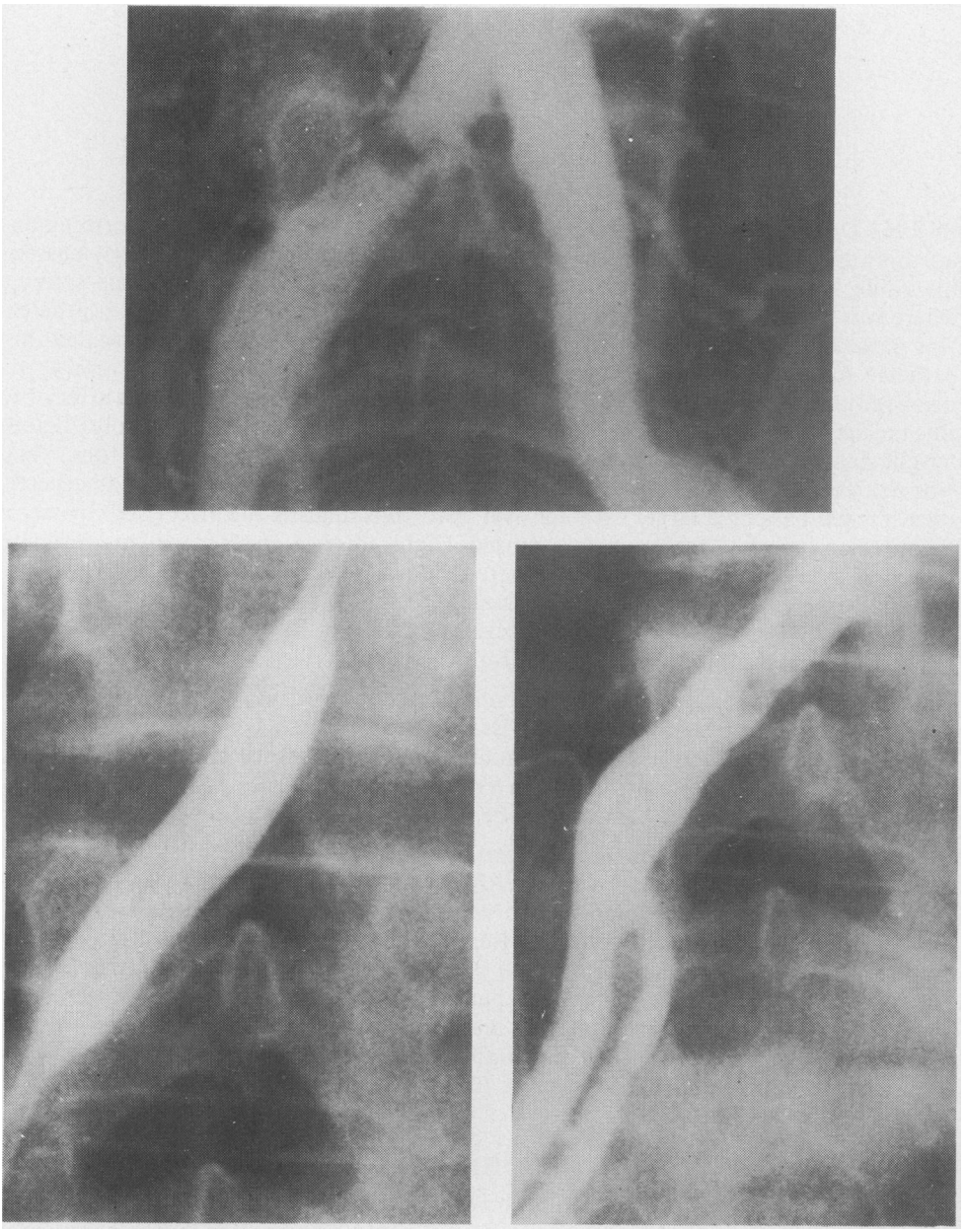

FIG. 1

Top. *Localised stenosis in right common iliac artery.*

Bottom Left. *Catheter in position and balloon inflated with contrast medium.*

Bottom Right. *Post dilatation film.*

re-assessed: ideally it has been abolished or markedly reduced. Finally, a post-dilatation angiogram is taken. The patient is started on anti-platelet therapy, Persantin or aspirin. He remains in bed for 24 hours and is usually fit for discharge on the second day.

CASE REPORTS AND REVIEW OF PATIENTS TREATED

The ideal case is a patient with intermittent claudication or more severe ischaemia with a short segment block in a major vessel, especially an iliac artery.

Case 1

A 58 year old man complaining of intermittent claudication in the right leg. A series of arteriograms (Fig. 1) shows a short localised stenosis in the right common iliac artery, the dilated Gruntzig balloon filled with contrast medium positioned across the stenosis, and the arteriogram after dilatation. The appearances of the stenosis is improved. The pressure trace (Fig. 2) shows the gradient across the stenosis before and after dilation and demonstrates the abolition of the gradient.

This man's intermittent claudication was abolished and ankle pulses regained after his PTA. He was discharged from hospital three days after the procedure.

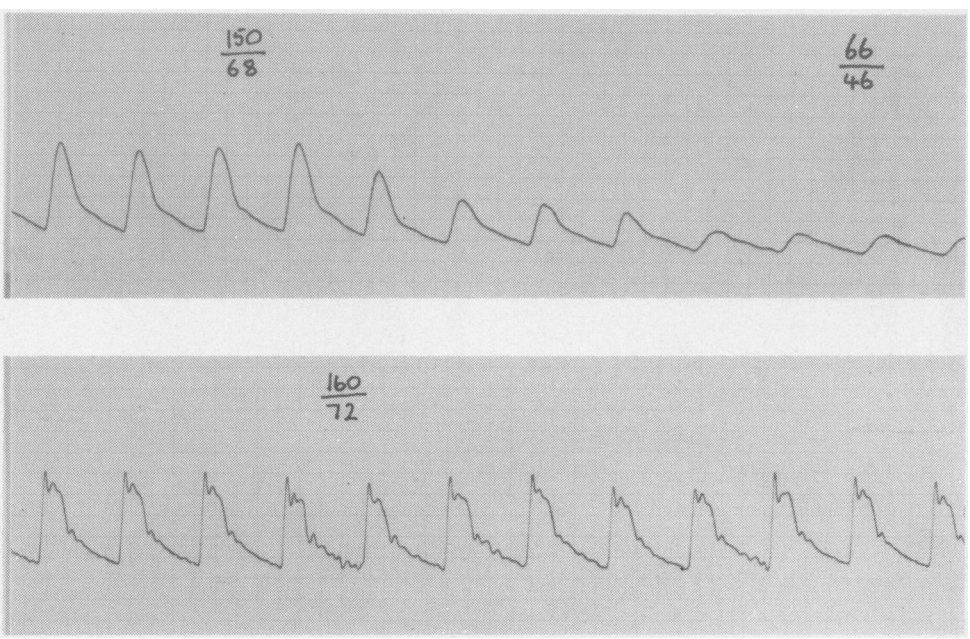

FIG. 2

Top. *Pre-dilatation pressure trace—showing gradient above and below stenosis.*

Bottom. *Post-dilatation pressure trace—showing abolition of gradient.*

Short localised blocks in the femoral and popliteal arteries are also suitable.

Case 2

A 70 year old man with bilateral intermittent cluadication. Arteriogram showed a short stenosis in the distal femoral artery on both sides. PTA was performed bilaterally with resultant improvement in the arteriographic appearance and abolition of his intermittent claudication. He was discharged three days after PTA. The arteriograms (Fig. 3) show the vessels of one side before and after angioplasty.

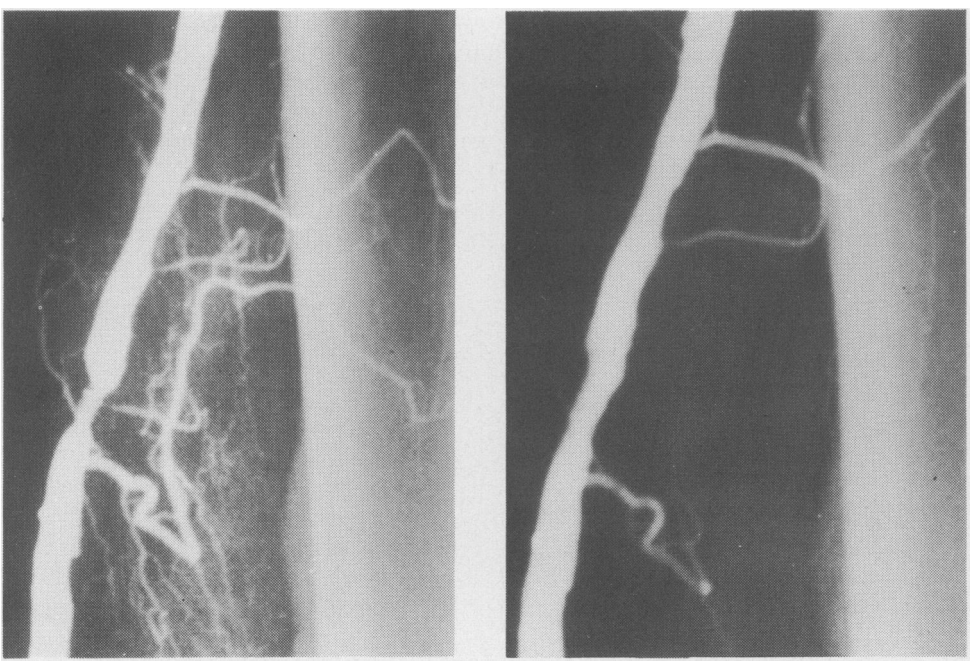

FIG. 3

Left. *Pre-dilatation arteriogram showing localised stenosis in distal superficial femoral artery.*

Right. *Post-dilatation arteriogram showing marked reduction in degree of stenosis and reduction of collateral flow.*

Long segment occlusions can be attempted but it is generally considered that total occlusion of the iliac arteries and occlusions of the femoro-popliteal arteries of more than 10 cm are unsuitable and are better dealt with by operation. However, in cases where the limb is in jeopardy and surgery is not feasible, i.e., where there is no distal pick-up, there is nothing to be lost by attempted PTA.

Case 3

A 57 year old diabetic woman was admitted with three gangrenous toes and a black patch on her heel. There were no distal pulses. Arteriogram showed a blocked femoral artery with no pick-up in the popliteal artery and therefore unsuitable for operation. PTA was attempted with re-canalisation of femoral, popliteal and distal arteries. She lost three gangrenous toes but the rest of the limb was salvaged. The change in the circulation in the limb is illustrated in Fig. 4.

We first used this technique six months ago at the Belfast City Hospital, and we have now tried it in ten cases. In four cases there was an iliac artery stenosis (two had femoral occlusions as well), three cases had femoral stenoses or blocks (one bilateral), one case had a popliteal stenosis, one had acute thrombosis of the tibial vessels and one had a brachial artery block.

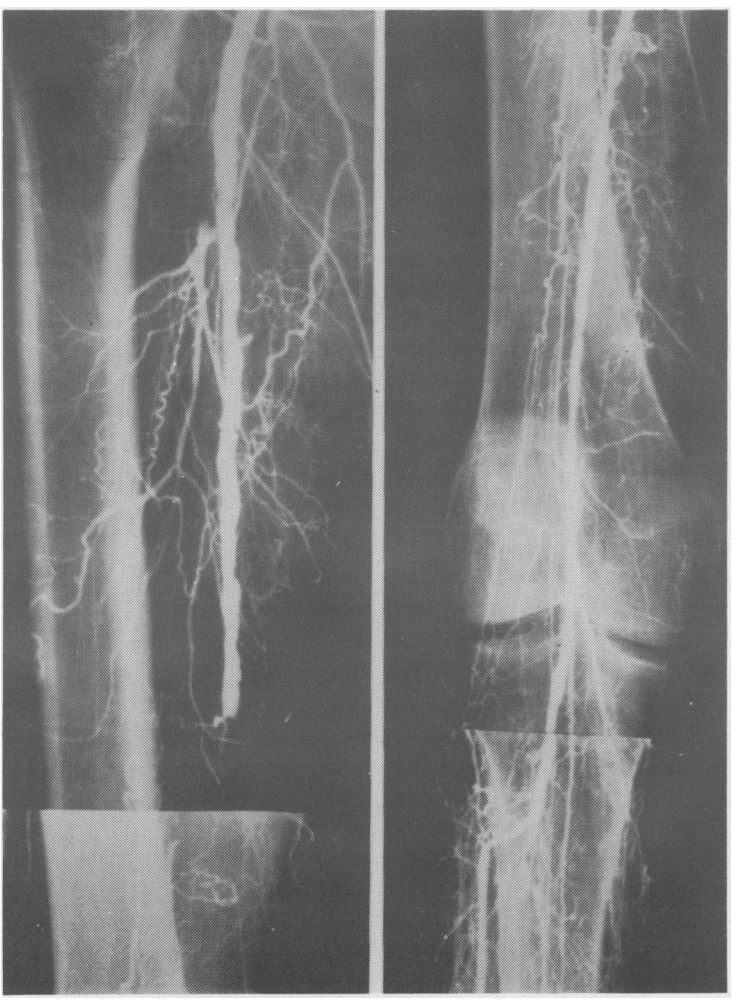

FIG. 4

Left.
Pre-dilatation arteriogram showing complete occlusion of distal superficial femoral artery and popliteal artery. There was no significant run off down the right leg.

Right.
Post-dilatation arteriogram showing recanalisation of distal superficial femoral and popliteal artery and good flow down the anterior tibial artery.

Of the four iliac stenoses, one has been a total success, one who also has a femoro-popliteal block as yet unrelieved, had his pressure gradient decreased and his claudication distance doubled. The third patient in this group had a PTA and a femoro-popliteal bypass done at the same time. The procedure was difficult for the radiologist working in the operating theatre with inadequate x-ray equipment and we would not attempt it again. However, the limb which was in jeopardy was salvaged and the attempt can be counted a success. The fourth case was a failure, being abandoned on account of bleeding.

Of the three femoral or femoro-popliteal cases, two were very successful (Cases 2 and 3). The third case had a block of about 10 cm which was completely re-canalised but it re-occluded two weeks after leaving hospital. The one popliteal stenosis was successful. The technique failed in the case with acute thrombosis of the distal vessels. The brachial artery occlusion was a failure because the guide wire could not be pushed through the block.

COMPLICATIONS

The most common complication is bleeding at the site of arterial puncture. This is not usually serious but in the first case in our series we encountered great difficulty in entering the femoral artery, there being no pulse palpable though there was one identifiable with a Doppler probe. The attempt was eventually abandoned because of severe bleeding, the patient being taken to the operating theatre where a repair of the artery was performed.

The other complications described include peripheral embolism but this rarely gives rise to any sequelae or symptoms. In one case in our series where the popliteal artery was dilated there was transient arterial spasm, possibly due to contrast entering the vessel wall. This was treated with intra-arterial lignocaine and the spasm soon passed. X-rays show a stenosis of the popliteal artery and after dilatation dye in the vessel wall (Fig. 5).

The one complication which might be expected to occur, namely aneurysm formation at the site of dilatation, has not been reported.

DISCUSSION

It was originally thought that the arterial lumen was increased due to compression of the atheromatous material. However, atheroma is essentially incompressible and it appears that splitting of the intima and the atheromatous area occurs which allows the media to be dilated.[7, 8] Healing of the vessel wall occurs by formation of a new intima and scar tissue. Contrast medium may sometimes be seen sub-intimally in the wall of the vessel after dilatation (Fig. 5).

From our experience this technique has a very important place in the management of peripheral arterial disease. It has, in suitably selected cases, very obvious advantages over traditional surgery. Thus, it is done under local anaesthesia and can therefore be carried out in poor risk patients. There is no large wound either in the belly or thigh. The patients post-operative stay is 48 hours or less (in the USA and Scandinavia PTA is being done on out-patients). Also very important is that it is easily repeatable: according to Dotter it can be done again and again if necessary.

FIG. 5.

Left. *Pre-dilatation arteriogram showing localised stenosis of right popliteal artery.*

Right. *Post-dilatation arteriogram (slightly more enlarged) showing dilatation of stenosis and contrast medium sub-intimally in the vessel wall.*

Exactly how big a place PTA has in the treatment of peripheral arterial disease remains to be seen. One series claims 82 percent of patients as being suitable for PTA.[8,9] This certainly would not be our experience as the majority of the patients we see have long-segment femoro-popliteal blocks. However, dilatation of the profunda femoris may be of value in attempting limb salvage where there is extensive femoro-popliteal occlusion[10] and there could be significant use made of the technique as a complement to more radical surgery.[11] This could be to improve the inflow where there is an iliac block, or more importantly and more commonly to improve the run-off. This dilatation would have to be done at the same time as the surgery, preferably in the operating theatre and would demand better x-ray facilities than we have at present. Finally we would emphasise that this technique should not be attempted without the back-up of a vascular surgical unit as in the event of complications arising open surgery may be required immediately.

SUMMARY

Experience of balloon dilatation of stenosed arteries (percutaneous transluminal angioplasty) is described in a series of ten cases. Results would suggest that this is a valuable technique in short occlusions of the major vessels of the periphery. It may sometimes be a value in the more distal vessels and as an adjunct to surgery but its place in these cases is less certain.

REFERENCES

1 Dotter CT, Judkins MP. Transluminal treatment of arterioclerotic obstruction: description of a new technique and a preliminary report of its application. *Circulation* 1964; **30**: 654-670.

2 Gruntzig A, Hopff H. Perkutane rekanalisation chronischer arterieller vershlusse mit einer neuen Dilatations-Katheter, *Dtsch med Wschr* 1974; **99**: 2502-2505.

3 Gruntzig A, Kumpe DA. Techniques and percutaneous transluminal angioplasty with Grantzig balloon catheter. *Amer J Roent* 1979; **132**: 547.

4 Van Andel GJ. Transluminal angioplasty: Long term results. *Radiol* 1980; **135**: 607-611.

5 Colocpinto RF, Harris-Jones P, Johnston KW. Percutaneous transluminal angioplasty. *Cardiovascular interventional Radiol* 1980; **3**: 213.

6 Gruntzig A. Percutaneous transluminal angioplasty: A two year experience. *Amer J Radiol* 1981; **136**: 216.

7 Castaneda-Zuniga WR *et al.* The mechanism of balloon angioplasty. *Radiol* 1980; **135**: 565-571.

8 Block PC. Percutaneous transluminal coronary angioplasty. *Amer J Radiol* 1980; **135**: 955-959.

9 Motarjeme A, Keifer JW, Zuska AJ. Percutaneous transluminal angioplasty and case selection. *Radiol* 1980; **135**: 573-581.

10 Motarjeme A, Keifer JW, Zuska AJ. Percutaneous transluminal angioplasty of the deep femoral artery. *Radiol* 1980; **135**: 613-621.

11 Motarjeme A, Keifer JW, Zuska AJ. Percutaneous transluminal angioplasty as a complement to surgery. *Radiol* 1981; **141**: 341-345.

A STUDY OF THE EFFECT OF PULSED ELECTROMAGNETIC WAVES ON THE BLOOD FLOW OF A NORMAL LIMB

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THE mechanism of healing in a fractured long bone, despite its common occurrence, remains the subject of debate and investigation.[1] The factors which initiate, guide and control the various processes of bone repair are still ill-understood. The recent use of electrical stimulation of bone, particularly in non-union and in pseudarthrosis of the tibia has gained popularity as a possible method of inducing osteogenesis. The first report of the use of electrical stimulation to enhance the healing of fractures was by Hartshone,[2] but until fifteen years ago little was known of the effects of electricity on bone. Since then there has been an exponential rise in the number of publications[3] and the literature on the subject is both bewildering and confused.[4] It is still not clear what method of electrical stimulation is correct, what the current should be, where the anodes and cathodes should be placed, what pulsing of electro-magnetic fields is correct or indeed whether the technique has any significant effect on human bone at all. The association of piezoelectrical potentials and remodelling of bone according to Wolffs Law is altogether a different concept from its ability to induce osteogenesis in a non-union. The electrical potentials observed on stressing a bone do not depend on the viability of the tissue and the mechanism by which they reduce changes in bone is unclear. The effect on bone is generally held to be a piezoelectric effect,[5, 6, 7] but others have postulated a pyro-electrical effect[8] or an ion exchange mechanism.[9]

The mass of evidence, however uncontrolled and circumstantial, points to electricity as a possible signal which may redirect the response of a cell by changing its physical environment. The electrical signal may not be a direct stimulus but indirect, acting by some other physiological mechanism. The physiological mechanism may also be initiated by a number of other different signals. The effect of blood supply on fracture healing is accepted and it is possible that the physiological mechanism involves the blood supply. A fracture of the tibia in the dog produces a dramatic increase in total limb blood flow and specific receptors controlling flow changes are present in the soft tissues and periosteum surrounding the fractured bone.[10] Increased vascularity was confirmed in the human fractured

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tibia by Rhinelander.[11] In a study of pulsed electromagnetic stimulation in the human fractured tibia Jørgensen[12] observed that with a current in an order of magnitude higher than that used to-day there was an increase in skin temperature at five minutes and maximal at fifteen minutes after application of the electric current. The finding was illustrated by thermography. He postulated that the effect was due to an electrochemical reaction causing vasodilation. However, it is possible that electricity, no matter how induced or at whatever current may, by a change in blood flow, change the environment of the cell in such a way as to induce or enhance osteogenesis. The change in flow could be an effect similar to sympathectomy, i.e. electrical stimulation might block nerve conduction or by a direct effect on local receptors it could cause a vasodilation. A literature search has failed to show any report of the effect of electromagnetic stimulation on the blood flow in a normal limb. Therefore a study investigating the effect of pulsed electromagnetic waves on the calf blood flow of normal subjects was undertaken.

METHOD

Electromagnetic Induction

An electronic device as constructed to deliver a train of pulses 200u sec. wide in bursts every 5m.sec. These bursts repeated at a frequency of 10-15 Hz. To obtain such a configuration three separate signal generators were used 5000 Hz, 200 Hz and 10-15 Hz to produce a composite signal. The signal was then amplified and fed into a set of coils wired in series. The resulting electro-magnetic waves between the coils were sufficient to produce an induced voltage 1.5 to 4.5 mV/cm in a search coil between the inducing coils.

Measurement of Calf Blood Flow

Experiments were carried out on eight healthy male volunteers aged 21-28 years lying lightly clad in a laboratory maintained at 23-24°C.

In the first series of four experiments, the coils were applied to the left thigh and right and left calf blood flow were measured by venous occlusion plethysmography[13] using convenational metal water-filled plethysmographs.

In the second series of four experiments, the coils were incorporated in a specially constructed water-filled plethysmograph made of polycarbonate. Thus the electromagnetic field was applied to the calf at the level at which blood flow was being measured.

In all experiments, calf blood flow was recorded for a three minute control period. The coils were then switched on without the subject's knowledge and flows were recorded for a further three minute period. The coils remained switched on for thirty minutes before being switched off, again without the subject's knowledge. Three minute periods of blood flow were recorded when the coils had been on for ten, twenty, and twenty-seven minutes and for three minutes after switching them off.

RESULTS

Coils applied to left thigh

Before the coils were switched on, the mean left calf blood flow for the group of four subjects was 1.9 ml/100 ml/min (S.E.$\pm$ 0.1). Mean flow while the coils were

switched on was 2.0 (±0.1), 2.2. (±0.1), 2.3 (±0.1) and 2.4 (±0.1) ml/min. During the three minute period immediately after the coils were switched off, mean left calf blood flow was 2.7 ml/100 ml/min (±0.1).

Similar changes were seen throughout this period in the control right calf. Blood flow rose from an initial value of 2.3 ml/100 ml/min (±0.1) to 2.4 (±0.1), 2.3 (±0.1), 2.5 (±0.1), 2.6 (±0.1) while the coils were on and was 2.8 ml/100 ml/min (±0.1) after the coils had been switched off.

There was no significant difference at the 5% level between right and left calf flows at corresponding times.

Coils Applied to Left Calf

The pattern was similar to that in the first series of experiments. Left calf blood flow was 3.0 ml/100 ml/min (±0.2) before the coils were switched on, 3.3 (±0.1), 3.0 (±0.1), 3.1 (±0.2), 3.2 (±0.2) while the coils were on and 3.4 (±0.2) after they had been switched off.

Corresponding values in the control right calf were 2.7 (±0.1), 2.9 (±0.1), 2.8 (±0.1), 2.7 (±0.1), 3.0 (±0.1) and 3.2 (±0.2).

Once again, there was no significant difference at the 5% level between right and left flows at corresponding times.

DISCUSSION

Electromagnetic stimulation of a normal limb failed to produce a significant increase in limb blood flow. This finding could mean that electromagnetic induction of the type used for the treatment of non-unions did not affect blood flow. It could also mean that the stimulation was not applied for a long enough time to affect blood flow (presumably by an indirect mechanism). The other possibility is that small changes in blood flow to bone did occur but were not detected by the method of blood flow measurement used. Venous occlusion plethysmography estimates total limb blood flow and therefore includes skin and muscle components as well as blood flow to bone. Since blood flow through normal bone is about 10% of the total flow, skin and muscle flow make the major contribution. Therefore, if the pulsed electromagnetic waves produced only small changes in bone blood flow and no change in skin and muscle flow, these might not have been detected by venous occlusion plethysmography. However, if the electromagnetic waves do affect blood flow either by a direct effect on the blood vessels themselves or indirectly via metabolic factors, it seems likely that blood flow to all tissues—skin muscle and bone—would be affected.

If we are to embark on expensive and time consuming regimes, and electrical stimulation can be either invasive in its own right or associated with other invasive procedures as part of the regime, or if we raise our patients hopes with prolonged period of immobilisation, then we must understand more fully what we are trying to do before attributing healing to a single process. Many electrical stimulation regimes involve reoperation, bone grafting, internal fixation and graduated exercise programmes, in these cases the effect of electrical stimulation per se is impossible to assess. We must enquire further into the mechanism of electrical stimulation to be sure that the phenomenon is a real one and a direct effect on osteogenesis. Only then can we weigh the benefit of the regime against the efficacy of such treatment.

SUMMARY

The blood flow in the normal lower limb was investigated after pulsed electromagnetic stimulation. No change in the blood flow was detected. It was concluded that electrical stimulation did not directly increase the blood flow to the limb, a mechanism thought to enhance osteogenesis.

REFERENCES

1 McKibbin B. The biology of fracture healing in long bones. *J Bone Joint Surg (Br)* 1978; **60B**: 150-61.

2 Hartshorne E. On the causes and treatment of pseudoarthrosis and especially of that form of it sometimes called supernumerary joint. *Am J Med Sci* 1841; **1**: 143-4.

3 Spadoro JA. Electrically stimulated bone growth in animals and man. *Clin Orthop Relat Res* 1977; **122**: 325-32.

4 Brighton CT. Bioelectrical effects on bone and cartilage. *Clin Orthop Relat Res* 1977; **124**: 1-4.

5 Bassett CAL, Becher RO. Generation of electrical potentials by bone in response to mechanical stress. *Science* 1962; **137**: 1063-64.

6 Sharmos MJ, Lavine LS. Physical bases for bioelectric effects in mineralised tissues. *Clin Orthop Relat Res* 1964; **35**: 177-88.

7 Yasuda I. Piezoelectricity of bone. *Jl Kyoto Med Soc* 1953; **4**: 395- 06.

8 Lang SB. Pyroelectric effect in bone and tendon. *Nature (London)* 1966; **212**: 704-7.

9 John TL. A possible mechanism for the effect of electrical potentials on apatite formation in bone. *Clin Orthop Relat Res* 1968; **56**: 261-73.

10 Wray JB. Acute changes in femoral arterial blood flow after closed tibial fracture in dogs. *J Bone Joint Surg (Am)* 1964; **46A**: 1262-68.

11 Spadaro JA. Electrically stimulated bone growth in animals and man. *Clin Orthop Relat Res* 1977; **122**; 325-32.

12 Jørgensen TE. The effect of electric current on the healing time of crural fractures. *Acta Orthop Scand* 1971; **43**: 421-37.

13 Greenfield ADM. Methods for the investigation of peripheral blood flow. *Brit Med Bull* 1963; **19**: 101-4.

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MGMcG

BOOK REVIEWS

TOPICS IN RENAL DISEASE.

THERE are five books in this series, each dealing with a single topic or related group of topics. They seem a little expensive for their size at £5.95 each, but they have hard covers and are pleasantly produced on good quality paper. Taken together they cover renal disease in sufficient detail for anyone except the specialist nephrologist. They certainly would be adequate for preparation for the membership examination, and would be very helpful for a registrar coming to work in a renal unit. They are, however, somewhat uneven in quality.

Renal Glomerular Diseases. By Paul Sharpstone and JAP Trafford. (Pp 83, Figs 12, Plates 22. £5.95). Lancaster: MTP Press, 1981.

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The young man who passes his primary may be tempted to sell the book but may well elect to keep it for reference later in his surgical career. I regard this as a magnificent book, beautifully produced and printed, and well worth the not inconsiderable price—£48.00. TCK

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The chapter devoted to the laboratory evaluation of hypercoagulability clarifies the difficulties in this field of medicine. This highlights changes in coagulation present in patients with unequivocal evidence of thrombosis but also points out how often abnormal coagulation is present in the absence of thrombosis, and how often patients suffer from repeated thrombosis with no apparent laboratory evidence to support the presence of a hypercoagulable state.

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PRIMER FOR THE PSYCHOTHERAPIST. By Joyce A Bockar. (Pp v + 149, Figs 3. £8.95). Lancaster: MTP Press, 1981.

THIS book is very American in its language and style. It is short, readable and very simplistic. Its main objective appears to be to help the non-medical psychotherapist in differentiating psychological illnesses from organic diseases. It deals with anxiety, depression, schizophrenia, alcoholism and drug addiction from this point of view and does it quite well.

There are a number of serious shortcomings in the book. The title "Primer for the Psychotherapist" is quite misleading as this suggests that it contains an account of basic skills for psychotherapists but, in fact, it indicates that the non-medical psychotherapist should be able to differentiate between such conditions as duodenal ulcer, ulcerative colitis, Parkinson's disease and thyrotoxicosis. The description of the organic and pyschological illnesses in this book are very simplistic and without good background knowledge and information could lead to many clinical misdiagnoses and difficulties. Because of these two serious shortcomings I feel this book should not be used without adequate control and supervision by the lay psychotherapist.

ECO'G

PRACTICAL HUMAN ANATOMY. Laboratory Handbook and Pictorial Guide. By TR Murphy. Section One—Thorax. (Pp 153, Figs 101. £3.00). Section Two—Abdomen. (Pp 113, Figs 154. £3.00). London: Lloyd Luke (Medical Books), 1981.

THESE small handbooks of about 150 pages each are designed to assist students in the anatomical examination of the body. Each double page has one or two good drawings with appropriate instructions and descriptions. The author emphasises those anatomical features which are essential knowledge in the clinical examination of patients. The text is well written and concise. Relevant aspects of living anatomy, embryology, and function are referred to. The author rightly points out that students will also need a larger text for learning the subject.

These books can be highly recommended to medical students in their practical anatomy sessions.

TJH

MECHANISMS OF CUTANEOUS SENSATION. By David Sinclair. (Pp xi + 363, £20.00). Oxford: Oxford University Press, 1981.

THE author refers to his subject, appropriately, as being fascinating but still mysterious. The fascination comes from the ways in which various difficulties have been overcome, often by quite recent investigations, and yet the mystery remains of how the cutaneous sensations are actually produced. Professor Sinclair has provided us with a scholarly account covering all aspects of the subject. Moreover he has been able to present it within a logical framework that enables the reader to plot a steady course through this mass of material. The text is helped where possible by many, well-chosen illustrations and there are informative end-of-chapter summaries. Each chapter also carries a selected list of books, symposia and review articles. The journal references occupy a further sixty pages.

This is a book that should be available in every medical or bio-medical library. However, its classification may not be easy as it should enter the orbit of the anatomist and physiologist as well as the various clinical specialists who have to deal with the peripheral and central nervous systems. It may also capture the imagination of the more wide-ranging student. I hope librarians will not be tempted to save space by now disposing of the author's 1967 book because of its similar title. A comparison of these two books provides an easy means of seeing just how quickly, and in which directions, this hitherto elusive subject is advancing.

EWC

PRIMER FOR THE PSYCHOTHERAPIST. By Joyce A Bockar. (Pp v + 149, Figs 3. £8.95). Lancaster: MTP Press, 1981.

THIS book is very American in its language and style. It is short, readable and very simplistic. Its main objective appears to be to help the non-medical psychotherapist in differentiating psychological illnesses from organic diseases. It deals with anxiety, depression, schizophrenia, alcoholism and drug addiction from this point of view and does it quite well.

There are a number of serious shortcomings in the book. The title "Primer for the Psychotherapist" is quite misleading as this suggests that it contains an account of basic skills for psychotherapists but, in fact, it indicates that the non-medical psychotherapist should be able to differentiate between such conditions as duodenal ulcer, ulcerative colitis, Parkinson's disease and thyrotoxicosis. The description of the organic and pyschological illnesses in this book are very simplistic and without good background knowledge and information could lead to many clinical misdiagnoses and difficulties. Because of these two serious shortcomings I feel this book should not be used without adequate control and supervision by the lay psychotherapist.

ECO'G

PRACTICAL HUMAN ANATOMY. Laboratory Handbook and Pictorial Guide. By TR Murphy. Section One—Thorax. (Pp 153, Figs 101. £3.00). Section Two—Abdomen. (Pp 113, Figs 154. £3.00). London: Lloyd Luke (Medical Books), 1981.

THESE small handbooks of about 150 pages each are designed to assist students in the anatomical examination of the body. Each double page has one or two good drawings with appropriate instructions and descriptions. The author emphasises those anatomical features which are essential knowledge in the clinical examination of patients. The text is well written and concise. Relevant aspects of living anatomy, embryology, and function are referred to. The author rightly points out that students will also need a larger text for learning the subject.

These books can be highly recommended to medical students in their practical anatomy sessions.

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AUDIOLOGY AND AUDIOLOGICAL MEDICINE. Edited by HA Beagley. (Two volumes. Pp xiv + 1004, Illustrated. £50.00). Oxford: Oxford University Press, 1981.

AUDIOLOGICAL medicine is a relatively new specialty in the British Isles and the editor of this two volume work is one of the outstanding British specialists in this field. He has gathered together most of the leading audiological physicians in this country and quite a few of distinction from overseas. In the preface he states that his plan is to cover all clinical aspects of this specialty, with the exception of the vestibular labyrinth and its disorders. In addition, he sets out to pay special attention to certain areas, such as the ultrastructure of the inner ear, where science is advanced with respect to clinical practice. He declares his aim with the newer techniques, such as evoked response audiometry, to give practical details for the benefit of those not familiar with the day to day practice of the tests.

He has achieved his objectives. This is the largest and most comprehensive work on this subject that the reviewer has come across and the whole field is well covered. Unfortunately, in many places the style of writing is ponderous and the reading is heavy going. Trainees in this new specialty, who will be working through it from cover to cover, may find this discouraging but, as a reference book, it is excellent.

Who should buy it? The only individuals likely to buy these volumes are those working purely or largely in audiological medicine. The student for the final fellowship examination in otolaryngology will find more audiology than is required but certain aspects of this specialty are incompletely covered in the standard otolaryngology books and this text should be of value. Although the otolaryngologist is unlikely to want a copy on his own bookshelves, he will find in this work the answers to many audiological questions that arise from time to time and departmental libraries would be deficient without it.

In summary, this is a heavy but comprehensive work that can be recommended for reference to all otolaryngologists and is likely to become the standard work in the British Isles for audiological physicians.

AGK

HANDBOOK OF NEONATAL INTENSIVE CARE. By Henry L Halliday, Garth McClure and Mark Reid. (Pp 307, Figs 43, Tables 84. £7.50). London: Baillière Tindall, 1981.

THIS superb little manual should be carried in the pocket of every doctor involved in the care of newborn infants. It is aimed primarily at nurses and doctors working in neonatal intensive care units and will doubtless be widely used in such units throughout the country since it is the sort of vade-mecum which has been needed for several years in this field.

The book has several distinctive qualities:-

(1) All the important facts on each subject are clearly set out in concise rapidly readable tables and there is little unnecessary prose.

(2) Essential steps needed to establish the diagnosis in each situation follow and

(3) Clear instructions on the correct management of the problem are defined.

The book therefore is ideal for doctors working in the front line in that every neonatal emergency situation is clearly outlined and a very few minutes reading can confirm that action taken is correct.

Neonatology is a high technology specialty and the book adequately covers the common machinery, using clear diagrams and simple instructions to enable the beginner to manage, eg. ventilators, transcutaneous oxygen monitors and corometric cardiorespiratory monitors. Throughout the handbook the various practical procedures performed on tiny infants including arterial blood sampling, lumbar puncture and insertion of chest drains are similarly described in a clear step-by-step manner with drawings explaining the technique involved. These sections are a goldmine of practical tips.

The book is valuable not simply at a practical level. Knowledge of the contents would impress examiners in the higher profession examinations. The structure of the book ranging from an opening chapter on high risk pregnancy to final chapters on mother infant bonding, and patient follow-up reflect the emphasis given by the local perinatal team to the need for co-operation between obstetric, neonatal and paediatric services in the care of the high risk neonate, mother and family.

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The section which deals with the reception of the patient underlines the importance of the receptionist's understanding of human behaviour and underlines the key role she occupies at the interface between practice and patients. The interaction between receptionist and patient largely determines what happens next in the consultation. The receptionist's role has changed noticeably with the growth of larger partnerships and group practices and the historical perspectives offer some understanding of these changes. The appendix is particularly useful. It contains practical information of medical terminology and abbreviations in daily use by doctors. This book must be compulsory reading for all doctors and their receptionists and should find its way on to all bookshelves in practice libraries.

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The weakest part of the book is the account of renal physiology. The account of renal tubular function is fragmental and confusing; the Fick principle is mentioned but not described; oncotic pressure is not the same as osmotic pressure; the explanation of the renal loss of potassium following protracted vomiting is not clear.

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ESSENTIALS OF GERIATRIC MEDICINE. By George F Adams. Second Edition. (Pp xiv + 146. £4.95). Oxford: Oxford University Press, 1981.

THE increasing importance of geriatric medicine in the medical curriculum is shown by the fact that, whereas ten years ago there were no short soft-cover textbooks on the subject, in 1981 second editions of three of these books appeared. The second edition of this book has the same basic format as the first and is a product of the author's wide knowledge and experience of the subject. Revisions to bring some topics up to date have been undertaken, and three new chapters have been added—on skin diseases in old age, home assessment visiting of the elderly and retirement. The chapter on the home assessment visit has been written by Dr EW Knox and is one of the outstanding features of the book, being full of clinical acumen and warm humanity. This chapter and the large table of normal and abnormal age changes are unique to this book and make it an important contribution to the literature on geriatric medicine. Professor Adams has succeeded in the difficult task of writing a textbook which emphasises the medical aspects of health care of the elderly without repeating the contents of textbooks of medicine. This book should, therefore, be used as a supplement to textbooks of medicine. There is no doubt that this edition will repeat the obvious success of the first.

RWS

DIFFERENTIAL DIAGNOSIS: A guide to symptoms and signs of disease or disorder, presented in systematic form. By ADG Gunn. (Pp 311. £14.95). Lancaster: MTP Press, 1981.

THIS book provides concise answers to the diagnosis and investigation of common diseases in medical practice. It covers a broad basic knowledge of the causes, incidence, and presentation of these disorders. It provides easy and ready revision of learning for generalists, especially medical students. In parts the author has perhaps over simplified some physiological and pathological explanations and created here and there a 'Reader's Digest' quality. Experienced clinicians would wish to use the book selectively. Some of the simpler explanations of patho-physiology may have been included for the benefit of nurses, who may wish to read the book. Nevertheless it is useful to have close at hand in daily practice a set of reference tables, system by system, which list the differential diagnosis of particular symptoms and provide the expected laboratory findings. General practitioners should find the book useful in dealing with less common conditions, which could be life threatening. Examples of these can be found in the chapters on the endocrine-hormonal system and disorders of acid-base balance. This new text is less likely to be of general value to internists despite its concise logical approach to diagnosis, because of their greater experience of internal medicine.

WGI

PROBLEMS IN RESPIRATORY MEDICINE. By Paul Forgacs. (Pp 158, Illustrated. £7.95). Lancaster: MTP Press, 1981.

THIS book has been written as one of a series on 'Problems in Practice' and is in a tutorial style, intending to help discuss the problems of local practitioners. As such it makes many very relevant points and as expected from this expert, the section on the nature of the lung sounds is excellent.

The restrictions imposed by writing for a limited audience have however led to over-simplification of such things as the causes of chest pain or the implication that the FEV1 is as adequate as the FEV1 : FVC ratio in the diagnosis of airflow obstruction. There is also a tendency to separate discussion about a disease over several chapters with 15 pages in the main section on tuberculosis but 3½ pages elsewhere.

It is difficult to extrapolate from the problems of one region to another. The line drawings on physiology for instance are not in a form likely to be seen by N.I. general practitioners. It would also be unfortunate if this community thought that tuberculosis was confined to alcoholics, old men, drug addicts or social misfits. Our local ASH committee would not like the inclusion of the popular remedy of a cigarette in the morning to encourage expectoration.

If purchased, this book should be used to supplement rather than replace one of the standard general or specialist text books.

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THE increasing importance of geriatric medicine in the medical curriculum is shown by the fact that, whereas ten years ago there were no short soft-cover textbooks on the subject, in 1981 second editions of three of these books appeared. The second edition of this book has the same basic format as the first and is a product of the author's wide knowledge and experience of the subject. Revisions to bring some topics up to date have been undertaken, and three new chapters have been added—on skin diseases in old age, home assessment visiting of the elderly and retirement. The chapter on the home assessment visit has been written by Dr EW Knox and is one of the outstanding features of the book, being full of clinical acumen and warm humanity. This chapter and the large table of normal and abnormal age changes are unique to this book and make it an important contribution to the literature on geriatric medicine. Professor Adams has succeeded in the difficult task of writing a textbook which emphasises the medical aspects of health care of the elderly without repeating the contents of textbooks of medicine. This book should, therefore, be used as a supplement to textbooks of medicine. There is no doubt that this edition will repeat the obvious success of the first.

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THIS book provides concise answers to the diagnosis and investigation of common diseases in medical practice. It covers a broad basic knowledge of the causes, incidence, and presentation of these disorders. It provides easy and ready revision of learning for generalists, especially medical students. In parts the author has perhaps over simplified some physiological and pathological explanations and created here and there a 'Reader's Digest' quality. Experienced clinicians would wish to use the book selectively. Some of the simpler explanations of patho-physiology may have been included for the benefit of nurses, who may wish to read the book. Nevertheless it is useful to have close at hand in daily practice a set of reference tables, system by system, which list the differential diagnosis of particular symptoms and provide the expected laboratory findings. General practitioners should find the book useful in dealing with less common conditions, which could be life threatening. Examples of these can be found in the chapters on the endocrine-hormonal system and disorders of acid-base balance. This new text is less likely to be of general value to internists despite its concise logical approach to diagnosis, because of their greater experience of internal medicine.

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THIS book has been written as one of a series on 'Problems in Practice' and is in a tutorial style, intending to help discuss the problems of local practitioners. As such it makes many very relevant points and as expected from this expert, the section on the nature of the lung sounds is excellent.

The restrictions imposed by writing for a limited audience have however led to over-simplification of such things as the causes of chest pain or the implication that the FEV1 is as adequate as the FEV1 : FVC ratio in the diagnosis of airflow obstruction. There is also a tendency to separate discussion about a disease over several chapters with 15 pages in the main section on tuberculosis but 3½ pages elsewhere.

It is difficult to extrapolate from the problems of one region to another. The line drawings on physiology for instance are not in a form likely to be seen by N.I. general practitioners. It would also be unfortunate if this community thought that tuberculosis was confined to alcoholics, old men, drug addicts or social misfits. Our local ASH committee would not like the inclusion of the popular remedy of a cigarette in the morning to encourage expectoration.

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The apprentice clinician will find Philip Welsby's approach to the problem is much more practical. Infections are discussed as they present by the patient's bedside, whether as respiratory problems; jaundice; a P.U.O either in the temporate resident or the recently returned traveller; exanthem or as diarrhoea and vomiting. Each presentation is analysed using clinical as well as laboratory information to achieve a rational diagnostic approach and then discussing the clinical management. Philip Welsby's interest in educational methods is apparent from his logical if telegraphic style which will quickly recommend itself to anyone liable to subsequent trial by multiple choice question. His use of diagrams and tables to clarify as well as compress information is exemplary. His half page algolithm detailing the clinical management of potential rubella contact in pregnancy is an admirable argument in favour of computer-speak!

The book also contains a very readable distillate of microbiology which allows the less dramatic protozoa, helminths and fungi equal billing with viruses and bacteria. It is nicely rounded off by some excellent summaries on the methods of preventing infection and a particularly useful section on practical procedures in clinical medicine. The clear description of a safe method of routine venupuncture should be read and re-read by every practising doctor. It is a sad reflection on our profession that though we recognise the increasing prevalence of symptomless hepatitis B carriage with its consequent hazard to the phlebotomist, we continue to employ the least experienced and least trained members of the clinical team in taking the bloods.

A future edition of this book might benefit by an expanded consideration of the principles governing antibiotic usage, and surely the growing problem of infection in the immunocompromised deserves a separate section? Already, however, Philip Welsby's book is the best and by far the most useful British guide to infectious disease practice. The same clarity and precision which makes it ideal for the medical student will recommend it to even the most experienced doctor as a very enjoyable update in modern infectious practice. Strongly recommended.

DAC

THE YEAR BOOK OF PATHOLOGY AND CLINICAL PATHOLOGY. Edited by KM Brinkhous. (Pp 459, Illustrated. £29.00). Chicago, London: Year Book Medical Publishers, 1981.

THIS year book is now in its thirty-fourth year of publication, and has had continued success through three editorial periods. Editorship has now passed to the Emeritus Professor of Pathology in the University of North Carolina, who is assisted by a large and influential panel of associates at Chapel Hill, N.C. Published in May 1981, it abstracts and comments on papers published as late as June 1980.

About two thirds of the book presents a well balanced survey of articles in what we would call histopathology in this country. Specialists in chemical pathology, microbiology and haematology are given less help. Indeed, the wide range of abstracts and the inclusion of these subjects indicates an attempt to attract the still large number of pathologists in smaller centres in America and elsewhere who practice in several disciplines. Despite this, the papers selected for consideration reflect well the growing edge of pathology, both academic and practical. The succinct presentation of important work demands careful attention and study by the reader, and the brief comments of the co-editors are often most useful in defining the wider implications of the selected papers.

Contributions on subjects most discussed by pathologists in the past year and others presenting recurrent themes are selected from a wide variety of journals. The inclusion of journals other than pathological journals is most valuable, and may well direct the pathologist to work he may have overlooked. This book requires more than casual armchair study and careful reading can only be rewarding.

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TOPICS IN RESPIRATORY DISEASE.

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ACCIDENT and Emergency Medicine is a relatively new but rapidly expanding specialty, and although many textbooks related to it have been published in recent years for doctors, the same has not occurred for nurses. This book, written by a team of doctors in Lancaster, covers a wide range of the emergencies and not so acute conditions seen in every casualty department, and the nurse is given very good guidance in how to manage the department not only efficiently, but compassionately.

Special emphasis has been placed on resuscitation and the chapters on the physiology of the cardiovascular and respiratory systems and its relation to the restoration of blood volume and artificial ventilation are very well written.

Nurses who are on Accident and Emergency courses, and those who have been working in casualty departments for many years will find much to interest and stimulate them in this book, which has been written by doctors who have obviously had practical experience in emergency care.

MJT

TESTING FOR TOXICITY. Edited by JW Gorrod. (Pp xiv + 381, Illustrated. £18.00). London: Taylor and Francis, 1981.

THIS is a book for the specialist involved in examining potential drugs for their toxicity. In recent years there has been growing demands for safer drugs, which can only be achieved by more detailed toxicological testing in laboratory animals. Unfortunately, such testing has delayed and greatly increased the cost of development of new drugs. The contributions in this book were given at a Symposium held by the Pharmaceutical Society in 1980. The first two chapters describe the toxicity requirements of the United Kingdom, other countries in the European Economic Community, Canada, Japan and the United States of America. The remainder of the book (346 pages) describes the tests used to meet these toxicity requirements. However, many chapters are extremely well prepared and the testing procedures are critically appraised. This book will be of value to those interested in the toxicity testing of drugs.

RGS

HOSPITAL OFFICE PRACTICE. By Marion Collin. (Pp 133, Figs 34. £4.50) London: Baillière Tindall, 1981.

THIS book makes a somewhat ambitious attempt for its size to outline not only purely routine duties, but to cover many aspects of hospital administration and to define the place of modern office equipment in the hospital. It should be useful for those studying for specialised examination, but is perhaps less valuable for the day to day work of the hospital. It even includes in a page and a half advice on writing for medical journals. It is perhaps unfortunate that the style of journal and book references advised is not that of the Vancouver Agreement now rigidly adhered to by most British and many American journals.

PROBLEMS IN CARDIOLOGY. By CFP Wharton. (Pp 158, Illustrated. £7.95). Lancaster: MTP Press, 1981.

THIS reasonably priced book is designed primarily for general practitioners. It is essentially a practical guide for doctors in practice who have access to basic diagnostic equipment such as electrocardiography and chest radiography, but not the large array of modern invasive and non-invasive diagnostic techniques. It covers all the important problems in cardiology and ends with a useful chapter on changing trends in cardiological problems.

The book is practical and concise and there are useful paragraph headings in the margins. However, the use of lists, while making for simplicity, inevitably involves grouping the important with the less important. For example, in the list of side-effects of diuretics, hepatic coma and agranulocytosis are listed above vomiting and diarrhoea, while skin rashes come last in the list.

The most useful feature of the book is its clarity and the ease with which information can be found in it. This is facilitated by the absence of references. It is essentially a compilation of the author's personal experience after years in practice in a district general hospital. It can be recommended to all general practitioners.

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RGS

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