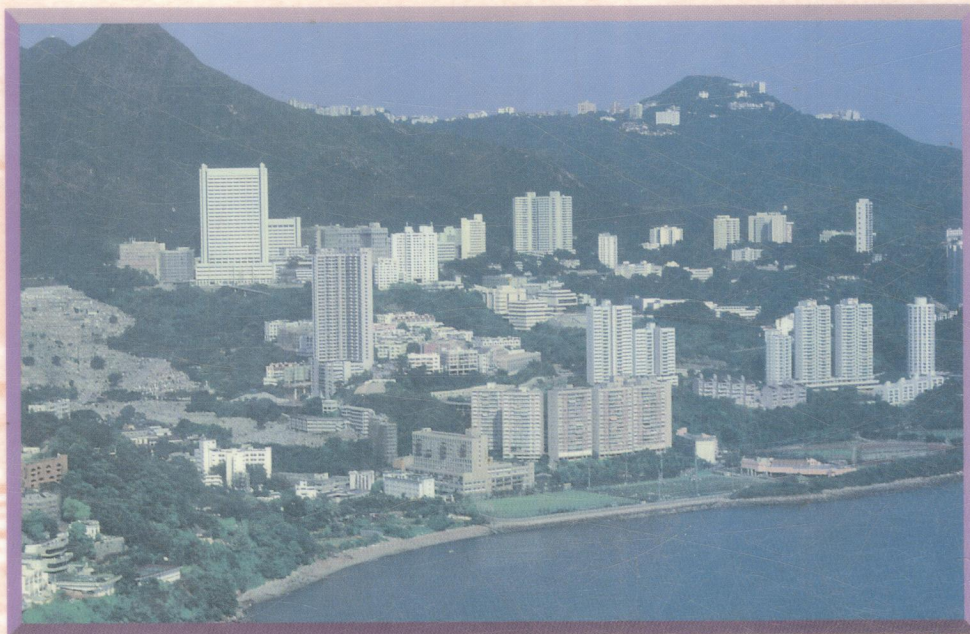


# Department of Orthopaedic Surgery

THE UNIVERSITY OF HONG KONG



*30th Anniversary*  
1961 - 1992

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*This book was a gift*



*Vice-Chancellor,  
The University of Hong Kong  
Professor Wang Gungwu,  
C.B.E., M.A., Ph. D., F.A.H.A.*

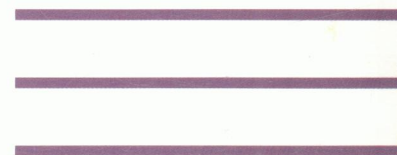
**I**t was in 1961 that the Department of Orthopaedic Surgery was established. The years since then have seen a continual growth in both its staff and caseload. Many thousands of patients now have reason to be grateful for the highest standards of professionalism and dedication with which its doctors pursue their task.

The Department has built up an international reputation in several areas, including spinal surgery, especially its pioneering work on tuberculosis of the spine and correction of spinal deformity. It has also excelled in treatment of hand injuries and microvascular surgery.

Its research had moreover broken new ground with its well-established biomechanics, motion analysis, general orthopaedics, tissue culture and microsurgery laboratories and Department staff have contributed over 250 full papers and chapters in international refereed journals.

This is in addition to the training since 1968 of some 80 overseas doctors from many countries, including North America, the United Kingdom, Sweden, Southeast Asia, Australia and New Zealand.

It therefore gives me great pleasure to congratulate the Department on the 30th anniversary of its founding and to wish it a future which is equally full of achievement.



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*Professor J. C. Y. Leong*

This booklet is compiled to give the reader an overview of the Department of Orthopaedic Surgery, University of Hong Kong, some thirty years after its conception and birth. The Department was born of necessity, at the time when diseases and injuries of the musculoskeletal system had grown to such a proportion that management of such problems could not be effectively dealt with within a department of general surgery.

Just like any new-born baby, the Department required careful nurturing and support. These were provided for by the generations of highly-dedicated, forward-looking, competent and innovative staff. From a very modest beginning of a few beds and a few doctors, it has grown to a department of over 30 doctors, with over 300 beds in four hospitals, and some 200 beds in rehabilitation and convalescent centres. There is a constancy of purpose in the goals of the Department, which are to impart undergraduate and postgraduate medical teaching of an international standard, provide a patient-carè service which is second to none, and conduct research at a level satisfactory to scrutiny by peer review.

Many pioneering efforts have borne fruit in the thirty years. To lay claim about the importance of these contributions to the field of orthopaedics and traumatology, in a worldwide perspective, would be unnecessarily egotistical. The judgement is better left to our peers. Suffice it to say that members of the Department are proud of its accomplishments within such a short time span.

The successful production of this booklet is a direct result of the enormous amount of time and effort spent by Dr. Peter K.Y. Chiu, Prof. S.P. Chow, Dr. David Fang, Mr. Henry Leung, Dr. Keith D.K. Luk, Mrs. Rebecca Mok, Dr. T.L. Poon, and Dr. Shanti Upadhyay. We would like to share our thirty-year experience openly with our friends and colleagues both locally and overseas; and for present and former staff, trainees and fellows, to hopefully foster feelings of fraternity and nostalgia.

# HISTORICAL ASPECT



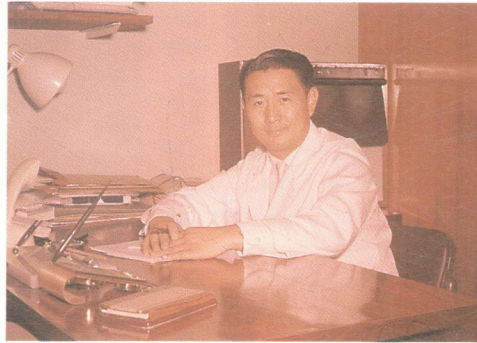
The beginning of academic orthopaedics in Hong Kong was conceived in the year 1951. Prior to that, patients with orthopaedic or musculoskeletal trauma problems were mainly treated by general surgeons. In 1951, the Department of Surgery, University of Hong Kong, under the then Professor of Surgery, Professor Francis E. Stock decided that it was timely to form an Orthopaedic and Trauma Unit. Dr. A.R. Hodgson from the United Kingdom was recruited to start the Unit, and when he arrived in Hong Kong in September 1951, he was joined by Dr. Harry S.Y. Fang on secondment from the Department of Surgery. Dr. S.F. Lam was the clinical assistant.



**Professor A.R. Hodgson**

The formation of the Unit made it possible to focus more attention on the major orthopaedic problems facing Hong Kong at that time. There were two main groups of diseases, both of Herculean dimensions. Firstly, bone and joint tuberculosis, and in particular spinal tuberculosis, accounted for some 500 new cases per year. Secondly, poliomyelitis, both in its acute form as well as chronic form were rife, and patients presented with paralysis and multiple residual deformities of the musculoskeletal system.

Dr. Harry S.Y. Fang was a local graduate, who later pursued postgraduate orthopaedic training in Liverpool, and then returned to Hong Kong to serve in the public sector. The two-man team was



**Dr. H.S.Y. Fang**

joined later by Dr. Alan Murley on secondment from the Royal National Orthopaedic Hospital in London. During the ten years from 1951 to 61, prior to the formal establishment of the Department of Orthopaedic Surgery, the then Orthopaedic and Trauma Unit, under the direction of Dr. A.R. Hodgson, made full use of the abundant clinical material of spinal tuberculosis to develop unique surgical expertise on the spine, and carry out clinical research in the face of marked adversity. The application of the anterior approach to treat spinal tuberculosis with radical resection of the disease focus, and anterior strut grafting in compression, has earned the Department a world-wide reputation for pioneering such an endeavour. The momentum of the clinical research on the spine, started in the 50s, has been carried to the 80s and 90s, supplemented with further clinical and basic research, so that the Department has continued to be an international leader in the field of spinal surgery.

The efforts of Dr. A.R. Hodgson and his co-workers made such an impact on the international orthopaedic scene that their way of treating spinal tuberculosis was named the "Hong Kong Operation". The first paper on the results of this operation was published in the British Journal of Surgery in 1956, and remains a classic. Further papers on the excellent results of the procedure stimulated the Medical Research Council of Great Britain to initiate

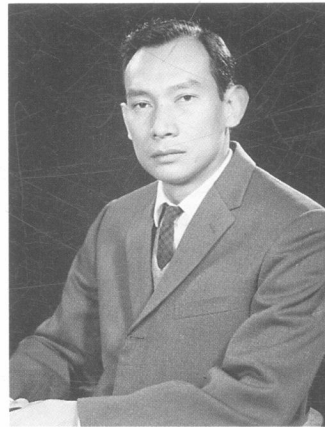
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a prospective trial of the procedure to compare with the more conventional conservative way of treatment with anti-tuberculous medication with or without plaster immobilization, or limited surgical debridement.

Professor Dafydd E. Evans in his monograph "Constancy of Purpose" (a monograph dedicated to the celebration of the Centenary of the Faculty of Medicine, University of Hong Kong, in 1987) wrote "the point came in 1961 when the Unit was ready to spread its wings and become a fully fledged department within the Faculty. Professor Hodgson was appointed to the Chair of Orthopaedic Surgery and his supporting staff consisted of Dr. Fang and Dr. A. Brodetti, an Italian surgeon who later became a Professor in Naples. The Department was, of course, still small and still lacked facilities being housed in tiny premises on Eastern Street in the Sai Ying Pun district below the main University campus."

From such modest beginnings the Department was to flourish and blossom to the present-day status. This is a shining example of the fact that it is not the buildings that count in an institution, nor the comprehensiveness of its facilities, nor the size of the complement of its staff; but the drive, dedication, forward vision, and intellectual capacity of the people in the institution that matters.

In 1962 Dr. Arthur C.M.C. Yau, and in 1964 Dr. Y.S. Tsao, joined the Department as part-time Lecturers. Dr. Tsao had received overseas training in hand surgery



**Professor A.C.M.C. Yau**

from Dr. Joseph Boyes in California, and his appointment added further strength to the Department. Later, both appointments became full-time.

The next phase perhaps could be regarded as the provision of decent, although still limited, planned space for the clinical departments of the University of Hong Kong in 1967 with the completion of the Professorial

Block in Queen Mary Hospital. It was a decided step forward that the then Medical and Health Department recognised the importance of providing space and facilities for not only clinical research, but basic research as well, in order that Hong Kong can be at the forefront of medical sciences. In June 1967, the Department moved into its premises on the 5th floor of the Professorial Block. For the first time, there was space not only for the holder of the Chair, and two or three teachers, but also for a research laboratory. Professor Hodgson recognised the importance of comprehensive visual documentation in clinical research, and started the first audio-visual laboratory in the Faculty of Medicine, which until today still serves as a regional centre for the patient-care departments of the Faculty in Queen Mary Hospital.

### **THE DUCHESS OF KENT CHILDREN'S ORTHOPAEDIC HOSPITAL**

The Hospital was founded many years ago as The Convalescent Home for Crippled Children. The Home was managed by the Columban sisters for many years. It provided convales-



**Dr. A. Murley**





cent beds, and rehabilitative services in the form of physiotherapy, hydrotherapy, and occupational therapy for children with chronic orthopaedic problems, and for children with musculo-skeletal trauma who had had treatment of their acute condition in Queen Mary Hospital. There was also a small-scale school, run by teachers from the Red Cross, so that children who required a prolonged stay in the Home could continue their kindergarten or primary school.



**Dr. S.F. Lam**

In 1968, although acute spinal tuberculosis and poliomyelitis were on the decline, the residual spinal and limb paralysis and deformities created a large reservoir of children who required further orthopaedic treatment. Such treatment was often complicated, and required a lengthy period of stay in hospital. In response to this situation, the Society for the Relief of Disabled Children, which owns and manages the Convalescent Home, decided on an ambitious plan of expansion and upgrading of clinical activities. The Home was renamed the Duchess of Kent Children's Orthopaedic Hospital (later to be known as the Duchess of Kent Children's Hospital) in 1970, and became a 200-bed orthopaedic hospital, with full operating theatre facilities, day-time clinical laboratory services, an intermediate-care unit, an X-ray department, and out-patient facilities.



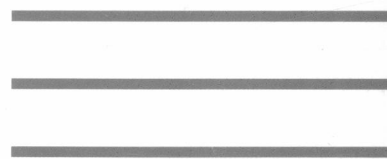
**Dr. J.P. O'Brien**

to profitable use in the treatment of severe and crippling spinal deformities. Initially the emphasis was on tuberculous kyphosis, and later on scoliosis. Limb deformities from poliomyelitis, as well as other paediatric orthopaedic problems occupied the rest of the time of the orthopaedic staff. The work became so well-known that "the Duchess of Kent" or DKCOH became synonymous with excellent spinal and paediatric orthopaedics, and attracted numerous overseas orthopaedic surgeons who came for formal training as fellows in the Department, for six months to a year – to date, some eighty fellows from a wide range of countries and cultures, including the United States and Canada, the United Kingdom, Europe, Southeast Asia, Australia, and New Zealand.

Dr. John P. O'Brien, an Australian orthopaedic surgeon who trained in Edinburgh, joined the Department in 1967, and played a key role in developing the orthopaedic services at the Duchess of Kent Children's Hospital (DKCH), holding the post of Medical Director from 1967 to 1975, when he departed to take up the Directorship of Spinal Disorders at Oswestry. After that, Dr. John C.Y. Leong and Dr. Louis C.S. Hsu continued and further expanded the clinical services and clinical research, as well as developing basic research. Dr. Louis Hsu, who worked side by side with Dr. O'Brien since

The expertise gained from the earlier work on anterior approach to the spine was put

1969, was Medical Director from 1978 until 1990.



■  
■

The Hospital and the Department have been complementary to each other, and become inseparable.

### **THE 1970S**

This decade was one of consolidation of the clinical work and research that was started from the 60s. Whilst Professor Hodgson was slowly winding down his contribution to the Department, as he approached his retirement in 1975, Dr. Arthur C.M.C. Yau was accelerating in his commitments and contributions. In 1972, he was promoted to a Personal Chair, and spearheaded the further expansion of the Department.

He and Dr. O'Brien were mainly responsible for developing techniques for the correction of tuberculous kyphosis. The clinical concept of a halo-pelvic apparatus was put onto the drawing board with the help of Dr. Joe Clark from the Department of Mechanical Engineering. After a few refinements of prototypes, the apparatus was manufactured and used in a clinical trial. This apparatus made possible a circumferential osteotomy of the spine at the level of kyphosis, followed by controlled distraction to achieve correction with the patient awake and ambulant, and over a lengthy period of time, to take advantage of the viscoelastic behaviour of the spine. The results of such correction again scored a first in the field of spinal surgery. Although with the more widespread and prolonged use of this method of treatment, there surfaced certain complications of the neck, which limited its use to a very special group of patients, no better method has been developed to date.



***Duchess of Kent Children's Orthopaedic Hospital, 1956***

Professor Yau took up the Chair of Orthopaedic Surgery from 1975, and took upon himself to further develop the Department. In particular, he saw the need to organise the hand service. He fought for in the Faculty development plans, and obtained, a Senior Lectureship in Hand Surgery. Dr. S.P. Chow was appointed to the post. The other important area was to encourage the development of basic research. After five years in the Chair, and with time spent as Pro-Vice-Chancellor, he left the University in 1980 for private practice.

Professor J.C.Y. Leong was appointed to the Chair in June 1981, and led the team to its present set up.



***Queen Mary Hospital, 1947***

# PRESENT SET UP



### THE PRESENT SET UP OF THE DEPARTMENT

The Department of Orthopaedic Surgery in 1992 is a much expanded version of the one founded in 1961. The expansion is made possible because of the vision and driving energy of a succession of the Chair holders, as well as all the staff. It is also driven by social circumstances, because of the ever-increasing need to provide services to the population of Hong Kong for musculoskeletal problems. The demand is continuously increasing because of a number of factors: (a) the gradual ageing of the population, leading to more degenerative diseases, (b) the increasing toll of polytrauma consequent upon increasing traffic, provision of high speed motorways, and vehicles with heavy loads, (c) increasing work-related musculoskeletal injuries, especially hand injuries and construction site injuries, (d) increasing participation of sports, with the rising affluence of the society, and consequential sport-related injuries.

The mission of the Department, however, has changed relatively little. Our goal remains to provide undergraduate and postgraduate training to an international standard, to provide a first class orthopaedic service to the community, to enhance clinical and basic research, to foster strong links with reputable orthopaedic centres overseas, and to maintain the characteristic of internationalism within the Department.

#### STAFF

The medical staff of the Department consists of a mixture of University-employed teachers, doctors employed by the Hospital Services Department (HSD) and the Hospital Authority (HA), overseas doctors on a formal training program, interns and externs.



*(standing, from left to right) Dr. C.J. Roberts, Dr. J.J. O'Flanagan, Dr. P.K.Y. Chiu, Dr. K.M.C. Cheung, Dr. B. Balkfors (seated, from left to right) Dr. D. Fang, Prof. J.C.Y. Leong (Head), Prof. S.P. Chow, Dr. K.D.K. Luk*

#### Medical Staff

University medical staff: 1 Chair of Orthopaedic Surgery, 3 senior posts to be held at Senior Lecturer/Reader/Personal Professor level, and 5 Lecturers

HSD and HA medical staff: 6 Senior Medical Officers and 13 Medical Officers

Overseas Fellows (Honorary Clinical Associates): 2 or more every six months

Interns: 6

Externs: 1 - 2

#### Supporting Staff

These include secretarial and clerical staff, technical staff, minor staff, and plaster artisans. Again the employer may be the University or HSD or HA.

Secretarial staff: 1 Senior Secretary, 1 Departmental Secretary I, 1 Departmental Secretary II, 1 Clerical Officer II, 1 Typist, 1 Clerical Assistant

Technical staff: 1 Laboratory Superintendent, 1 Senior Technician, 5 Technicians, 1 Leading Artisan, 1 Laboratory Assistant, 1 Laboratory Attendant

Minor staff: 4 Workmen

Plaster Artisans: 10



*(standing, from left to right) Dr. T.K. Ho, Dr. S.S. Upadhyay, Dr. T.L. Poon, Dr. S.C.F. Chan (seated, from left to right) Dr. Y.H. Li, Prof. J.C.Y. Leong (Head), Dr. F.K. Ip*



**STRUCTURE**

The Department is in control of over 300 beds in four hospitals, with acute or booked admissions. There are 150 beds in Queen Mary Hospital, 100 beds in Duchess of Kent Children's Hospital, 42 beds in Grantham Hospital, and 12 beds in Nethersole Hospital.

In addition, there are 112 beds for patients undergoing convalescence at the Fung Yiu King Convalescent Hospital, and an average of 80 patients at any time undergoing rehabilitation at the MacLehose Medical Rehabilitation Centre.



*Technical staff*

*Queen Mary Hospital:* is the main teaching hospital of the Faculty of Medicine, University of Hong Kong. The 150 orthopaedic beds are divided into 2 teams for clinical organization. A complete case-mix of all musculoskeletal problems is treated here. The load is extremely high and the wards very congested. Two more wards for orthopaedic patients will be added with the completion of a massive extension and refurbishing program in 1994.

*Duchess of Kent Children's Hospital:* The 100 orthopaedic beds are divided into two teams for clinical organization. A complete case-mix of paediatric orthopaedic problems is treated here, with a large component of spinal deformities.

*Grantham Hospital:* The Unit there existed in the 60s under the direction of Dr. Harry



*General Office*

Fang, when he was a Government Specialist. It catered mainly for spinal tuberculosis patients with paraplegia. At present, it provides a welcoming relief for the very congested work in Queen Mary Hospital. The case-mix there includes patients with elective joint replacement surgery, and elderly patients with fracture hips requiring surgery and rehabilitation. Surgery for degenerative spinal conditions are also done. Because it has only booked admissions, and no camp beds, the ambience of the wards is very pleasant and conducive to good clinical studies.

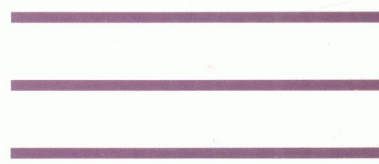


*Secretarial, clerical and other supporting staff*

*Nethersole Hospital:* Our Department has provided a free orthopaedic service for this hospital for at least 25 years. The orthopaedic service is provided as part of the General Surgical Unit, with 10 in-patient beds, and 2 day beds. Less complicated cases are dealt with.



*Plaster Artisans*



| UNIVERSITY OF HONG KONG<br>DEPARTMENT OF ORTHOPAEDIC SURGERY   |  |   |  |
|--|--|---|--|
| Head of Department (Prof. J. Leong)  |  |   |  |
| <b>STURCTURE</b>   |  |   |  |
| <p><b>Queen Mary Hospital</b><br/>Team A (75 beds)<br/>Headed by<br/>Professor<br/>(Prof. S.P. Chow)</p>   | <p><b>Duchess of Kent Children's Hospital</b><br/>Team B (50 beds)<br/>Headed by<br/>Head<br/>(Prof. J. Leong)</p> | <p><b>Grantham Hospital</b><br/>(42 beds)<br/>Headed by<br/>Professor<br/>(Prof. S.P. Chow)</p> | <p><b>Nethersole Hospital</b><br/>(12 beds)<br/>Headed by<br/>Senior Medical Officer<br/>(Dr. T. K. Ho)</p>                    |
| <p><b>Lecturers:</b> Dr. P.K.Y. Chiu, Dr. J.J. O'Flanagan, Dr. K.M.C. Cheung, Dr. C.J. Roberts, Dr. B. Balkfors</p>  |  |   |  |
| <p><b>Senior Medical &amp; Health Officers:</b> Dr. F.K. Ip, Dr. Y.H. Li, Dr. T.L. Poon, Dr. S.C.F. Chan, Dr. T.K. Ho, Dr. S.S. Upadhyay.</p>  |  |   |  |
| <p><b>Medical &amp; Health Officers:</b><br/>Dr. J. Brockwell<br/>Dr. Y.K. Chan<br/>Dr. L.C. Cheng<br/>Dr. H.M. Cheung<br/>Dr. W. Chow<br/>Dr. B.K.K. Fung</p>   | <p>Dr. W.Y. Ho<br/>Dr. K.F. Kong<br/>Dr. H.Y. Kwok<br/>Dr. S.K. Lau<br/>Dr. K.H. Ng</p>                            | <p>Dr. T.P. Ng<br/>Dr. T.S. Pun<br/>Dr. C.N. Tang<br/>Dr. W.M. Tang<br/>Dr. J.W.K. Wong</p>     | <p><b>Interns:</b> Dr. R.W.K. Cheung<br/>Dr. W.K. Ip<br/>Dr. C.Y. Lau<br/>Dr. K.K. Ng<br/>Dr. J.K.F. Wong<br/>Dr. W.P. Yau</p> |
| <p><b>Honorary Clinical Associates (Fellows)</b><br/>Dr. A. Ohlin (Sweden)<br/>Dr. M.J. Saji (India)</p>   |  |   |  |
| <p><b>Honorary Clinical Lecturers:</b><br/>Dr. S.C. Bong<br/>Dr. S.C.F. Chan<br/>Dr. V.N.H. Chan<br/>Dr. R.Y.P. Chang<br/>Dr. S. Chang<br/>Dr. Y.Y.N. Chow<br/>Dr. S.Y. Chun<br/>Dr. H.S.Y. Fang<br/>Dr. K.Y. Fung<br/>Dr. T.K. Ho</p> |  |   |  |
| <p><b>Honorary Lecturer:</b> Dr. A.F.T. Mak</p>  |  |   |  |

**CLINICAL SERVICE**

The organization of the clinical service is a reflection of the changing pattern of musculoskeletal diseases in Hong Kong, the gradual expansion of the facilities of the Department, the availability and maturation of expertise in the staff members of the Department.

Because of the large size of the patient load and the number of beds under its jurisdiction, it has been necessary to divide patient-care services into a number of teams, for efficient and effective treatment. Each team has autonomy in patient-care

ment, discussed over departmental staff meetings in the last two years, the following areas of specialization are targeted:

- (a) spine surgery
- (b) paediatric orthopaedics
- (c) hand and microvascular surgery
- (d) complicated trauma
- (e) joint replacement surgery
- (f) sports injuries

It is envisaged that the staff of the Department will be divided into three teams; one will deal with spinal and paediatric problems, one will deal with hand and complicated trauma problems, and one with joint diseases and sports injuries. Such



*Medical staff of the whole Department*

decisions, influenced by treatment protocols set up within the Department for some conditions. Difficult cases are discussed at the two clinical case conferences held each week, during which a collective decision is made.

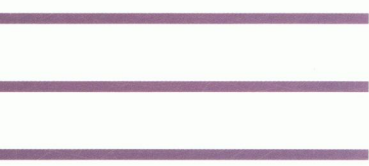
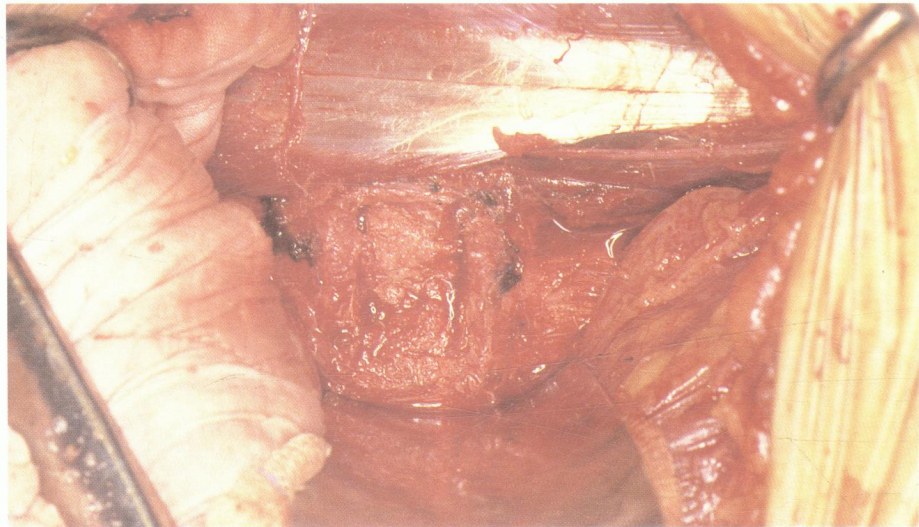
Specialization in orthopaedics is a world-wide trend. The policy in this Department is to encourage special clinical and research interests, but maintain a competent level of general orthopaedics for each of the senior staff. At present, the main areas of specialization include spinal surgery, paediatric orthopaedics, hand and microvascular surgery, and to a lesser extent sports injuries. In the long-term planning of the Depart-

ment, specialization is likely to produce greater efficiency and effectiveness in patient management, and increased output in clinical as well as basic research.



*Audio-visual laboratory staff*

# SUB-SPECIALTY DEVELOPMENT





### SPINE SURGERY

The whole spectrum of spinal surgery is well developed in this Department. It has had over thirty years of experience, and objective criteria of its success are found in the numerous publications on the subject from this Department in the most reputable international orthopaedic journals, and the application for and completion of six months to a year of formal training by overseas doctors in this specialty.



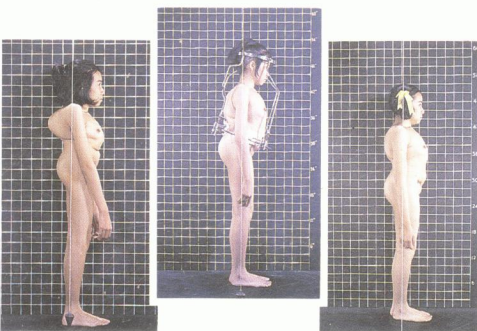
*Examining a patient with scoliosis*

The pattern of spinal diseases in Hong Kong has changed dramatically since the 1960s. From the prevalence of spinal infection in the 50s and 60s, the emphasis has shifted to deformities, degenerative diseases, and spinal injuries in the 80s and 90s.

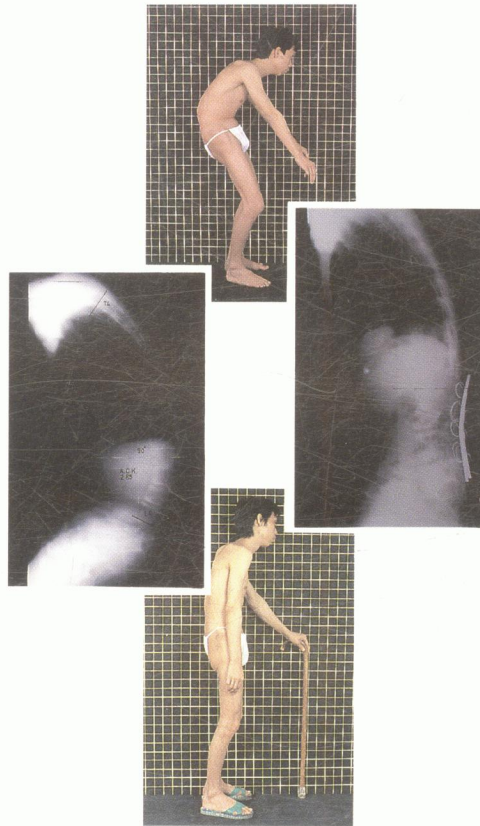
### SERVICE

#### Adult

Spinal surgery is done mainly at Queen Mary Hospital, the main teaching hospital



*Correction of tuberculous kyphosis*

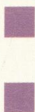


#### *Transpedicular decancellization osteotomy*

of the University of Hong Kong. The 150 beds are divided into two teams, each headed by a team leader. Under both teams, a significant proportion of the patients treated are with spinal problems. Degenerative diseases of the spine, from the cervico-occipital junction to the lumbosacral junction are dealt with. The common conditions in the neck include cervical spondylotic radiculopathy and myelopathy, ossification of the posterior longitudinal ligament, and soft-disc herniation. The common conditions in the low back include prolapse intervertebral disc, non-prolapsing disc disease, spinal stenosis, spondylolisthesis. Other less common diseases include ankylosing spondylitis, Forestier's disease, adult Scheuerman disease, and adult scoliosis with back pain. Spinal injuries are common, especially from construction site injuries. Primary tumours of the spine are relatively uncommon, but

## Sub-Specialty Development

(SPINE SURGERY)



secondary metastasis present frequently. Tumours affecting mainly the bony elements are dealt with by our staff, whereas tumours involving the spinal cord, especially in the cervical spine, are treated together with neurosurgeons, with whom we have excellent rapport. There is a special follow-up clinic for all spinal patients, with prospectively designed protocols for most treatment regimes.



*Spinal Brace Clinic*

A complementary "Spinal Injuries Unit" set up in the MacLehose Medical Rehabilitation Centre in January 1989, has strengthened the sub-acute treatment and rehabilitation of patients with spinal injuries.

### *Paediatric*

The spinal service is situated at the Duchess of Kent Children's Hospital. Spinal deformities make up the bulk of the clinical problems. Over 100 spinal cases are operated on per year. Very careful pre-operative, operative, and post-operative



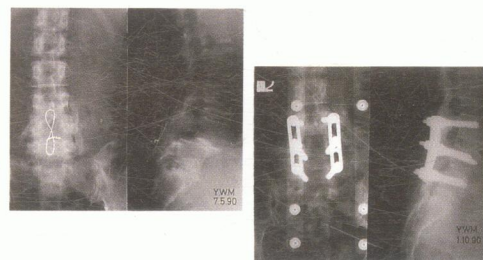
*QMH Spine Clinic*

documentation and assessment of the patients are done. All notes and records are kept from the first day of presentation, and many of the records date back to twenty or more years. The follow-up rate is over 90%. There are two clinical teams. A Consultant (at present Prof. J.C.Y. Leong/ Dr. K.D.K. Luk), a Senior Medical Officer, an overseas fellow, and one Medical

Officer or Lecturer at trainee level form a team. The fellows and trainees are given graduated operative training under close supervision. There is a special follow-up clinic for all spinal patients.

Special techniques and developments pioneered in this Department include the halo-pelvic apparatus for stabilization of the spine developed in the early 70s, and a titanium mesh block

developed in conjunction with the Department of Orthopaedic Surgery, University of Chicago, in the late 70s. The prospective



*Transpedicular fixation & PLIF*

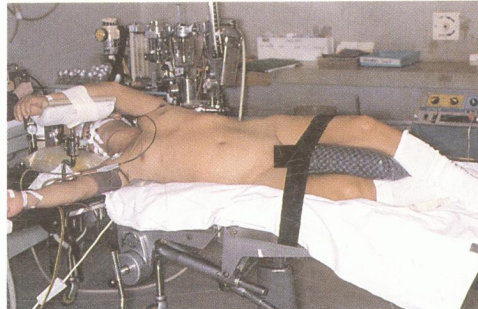
clinical trial on the latter project has now been followed for up to thirteen years, and an invited paper will be forthcoming in an international journal soon. A novel technique of correcting fixed flexion deformity of the spine in ankylosing spondylitis, named "Transpedicular Decancellation Osteotomy" has been developed in the late 70s.



*Spine Round*



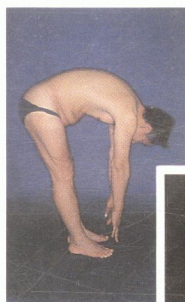
**Anterior lumbar fusion**



**Position for anterior lumbar fusion**

Anterior discectomy and interbody fusion for deranged lumbar intervertebral disc problems, and Grade I & II spondylo-  
listhesis, has been practised for more than 25 years, and these patients number over 2,000.

We have adapted the use, and evaluated the results of, the Dwyer instrumentation, the Zielke instrumentation, the Harrington instrumentation, the Luque system, Galveston technique, transpedicular systems (including Roy - Camille, Steffee), CD system, TSRH system, etc. Because of the large patient load, and



KCK.  
4yr. 8m. Post-op.



**Titanium mesh implant for lumbar spine**

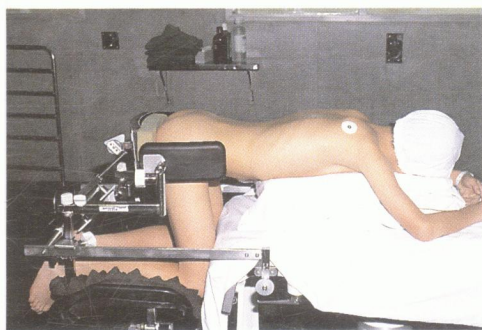
the excellent record system (especially at the DKCH), we feel that our centre is an ideal institution for prospective clinical evaluation of new methods of treatment.

Recent developments include the starting of a Spine Round for both Team A and Team B in Queen Mary Hospital on a Monday afternoon, to coordinate clinical treatment, and facilitate the establishment of new treatment protocols; and the development of a more comprehensive spinal service at the Duchess of

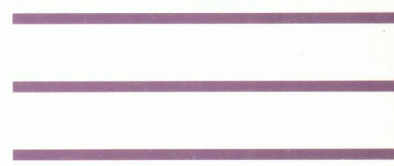
Kent Children's Hospital including an "investigative theatre session" jointly operated with a Lecturer from the Department of Diagnostic Radiology, University of Hong Kong.

**RESEARCH**

Both clinical and basic research are pursued intensively. The main areas and important contributions to the world literature are described in the section on "Research".



**Knee chest position for posterior surgery**



# Sub-Specialty Development

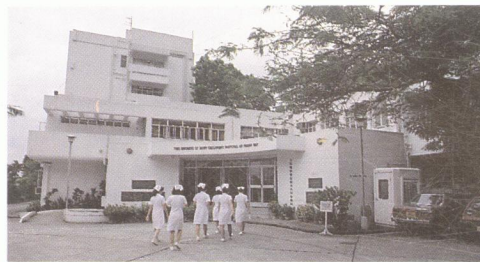
## (PAEDIATRIC ORTHOPAEDICS)

### PAEDIATRIC ORTHOPAEDICS

(At The Duchess of Kent Children's Hospital)

#### HISTORY

The Society for the Relief of Disabled Children, with funding donated mainly from one of Hong Kong's leading citizens, Mr. Noel V.A. Croucher, opened the 50-bed The Convalescent Home



*Duchess of Kent Children's Hospital*

for Crippled Children on 14th November 1956. This was expanded to 100 beds in 1962 together with



*Team B Ward Round*



*Team A Ward Round*

a Physiotherapy Department and a hydrotherapy pool. In 1968, a Children's Orthopaedic Hospital was added to the existing convalescent home bringing the total bed number to 200. In February 1970, following the visit of Her Royal Highness the Duchess of Kent, it was renamed as "The Duchess of Kent Children's Orthopaedic Hospital and Convalescent Home". Since its establishment the Medical Directorship of the Hospital has always been held by a senior member from the University Department of Orthopaedic Surgery. The Hospital at present has a salaried staff of 10 Medical Officers (orthopaedic surgery, paediatric surgery,

anaesthesia & paediatrics), 2 interns, 80 nursing staff, 40 paramedical staff and over 150 ancillary staff.

#### SERVICE

Since its establishment in the early 1950s, the Hospital has witnessed the continual changes in the pattern of orthopaedic disease in Hong Kong. Before the 1960s, because of the poor economic situation and hygiene, infectious diseases were predominant. This trend continued through the early 1970s when over 50% of the work was involved with tuberculosis and poliomyelitis. It has enabled the Department to accumulate a vast experience in the management of these conditions and earned an international reputation in these fields. In the 1980s, with the improvement of economic and living conditions in Hong Kong and the advancement of neonatal and paediatric care, more babies with congenital and developmental abnormalities are now able to survive. The paediatric orthopaedic service has naturally been modified to cater to the demand for treatment of cases like congenital hip dislocations, club feet, cerebral palsies, congenital neurospinal defects, congenital and idiopathic spinal deformities, etc. Like other developed countries, we are also seeing increasing numbers of paediatric trauma and musculoskeletal tumours as we step into the 1990s. Since we have been following up most of the patients treated in this Hospital for the past thirty years, the Hospital is now treating a large number of adult problems related to their previous orthopaedic pathologies.



*Congenital Hand Clinic*

## Sub-Specialty Development

(PAEDIATRIC ORTHOPAEDICS)

New patients are referred to the Duchess of Kent Children's Hospital through all government general clinics, private general practitioners and other orthopaedic specialist clinics. This is the only hospital in Hong Kong that provides in and out-patient services totally free of charge, obviously made possible only with the support of the Society for the Relief of Disabled Children.

The service load is shared by the two teams A and B. There are a total of 100 orthopaedic beds equally shared between



**Occupational Therapy Department**

Society for the Relief of Disabled Children. It occupies an area of approximately 1,400 m<sup>2</sup>, and apart from a hydrotherapy pool it has a child gymnasium and toy library which provides an adventurous playground model for free play and exploration. An advanced treatment area with an isokinetic exerciser and biofeedback machine is for high technology rehabilitation and research. It has at present seven full-time physiotherapists who treat over 20,000 patients per year.

The Prosthetic and Orthotics Department not only manufactures all the routine appliances for both in and out patients but has also helped in developing various new devices like the halo-pelvic apparatus and other surgical instruments. The service in this Hospital is also well supported by an Occupational Therapy Department with six therapists and a Medical Social Work Department. Children who need prolonged hospitalization can continue to receive formal education provided by the in-house Red Cross School. This is a government-subsidized primary school, one of the nine hospital schools run by the Hong Kong Red Cross Society. Children who are confined to bed can have personal bedside tuition given to them by the teachers.



**Physiotherapy Department**



**Out-patient Clinic**

the two teams. Until recently, both teams used to treat similar types of patients. Since July 1992, the workload has been redistributed so that Team A deals with all forms of spine pathologies including congenital, developmental, infective, degenerative and neoplastic conditions; while Team B deals with the whole spectrum of paediatric musculoskeletal conditions and also spinal deformities.

The present Physiotherapy Department is one of the best equipped of its kind in South-east Asia. It was officially opened in 1990 and cost over HK\$25 million. Approximately 50% of the cost was donated by the Li Ka Shing Foundation while the rest was raised by the



**Toy Library**

There are nine orthopaedic out-patient clinics held weekly at the DKCH. Four of these are new case referral and general paediatric orthopaedic clinics and the rest are sub-specialty follow-up clinics seeing spinal deformities, cerebral palsy, paediatric trauma

## ***Sub-Specialty Development*** **(PAEDIATRIC ORTHOPAEDICS)**



and paediatric hand patients. There are also combined clinics with neurologists and urologists. There were over 9,000 orthopaedic out-patients attendances in this Hospital in 1991.



***Red Cross School***

July and August are the peak months for admission and surgery when the school children would come in for treatment during the summer vacation. In 1991, about 1,000 orthopaedic procedures were performed in this Hospital about 1/10 of which have been on the spine. This included about 70 corrections of scoliosis, 30 discectomies and fusions for degenerative disc diseases and a number of other minor procedures. Anterior, posterior or combined approaches to the spine are routine procedures in this Hospital. Most of the latest spinal instrumentations are available in the Hospital and despite the very high costs of these implants they are given free to our patients. Again, part of the expenses incurred are supported by generous benefactors although the Hospital Authority is shouldering the major portion. For instance, in 1990 the Hospital received a HK\$1 million donation from the Ho Tung Fund designated for Cotrel-Dubousset instrumentation for scoliosis surgery.



***Medical Records Office***

This Hospital has been a tertiary referral centre not only for the colony but also for Southeast Asia. We have been receiving regular referrals from Macau, Singapore, Vietnam, India, Indonesia, Malaysia, China and other neighbouring countries and these patients have been treated totally free of charge.

### **TEACHING & TRAINING**

#### ***Undergraduate***

Weekly conferences are held in this Hospital and are attended by all staff in the Department together with the fourth and final year medical students (specialty clerks) of the University of Hong Kong. The medical undergraduates are also given regular tutorials and bedside teaching to ensure an adequate exposure to a wide spectrum of paediatric orthopaedic pathologies. They are required to attend and occasionally assist in operative sessions.



***Orthopaedic Appliance Department***

#### ***Postgraduate and Fellowship***

All orthopaedic trainees are required by the Hong Kong College of Orthopaedic Surgeons to have at least six months of paediatric orthopaedic training before admission to Fellowship Examination. Trainees from the University Department of Orthopaedic Surgery are usually rotated through this service for twelve months. During this period, the trainees gradually assume increasing responsibility in the management of patients and they are expected to learn the principles of treatment and the surgical technique under close supervision of the

team heads. They are responsible for preparing cases for the weekly conferences and are occasionally involved in teaching of medical students. Research is one of the most important aspects of training in this Department and trainees are heavily involved in clinical and basic research projects. Commonly a trainee can publish two to three papers in reputable international journals within this period.

A paediatric orthopaedic fellowship program was first started in 1971. Since then over 80 overseas fellows from many parts of the world have been formally trained in this centre. At present, there are four 6 monthly fellowships each year. Fellows are given ample opportunity to operate under supervision and are encouraged to participate actively in on-going research projects as directed by the team heads. This fellowship program also enables the introduction into the Department of new ideas from abroad.

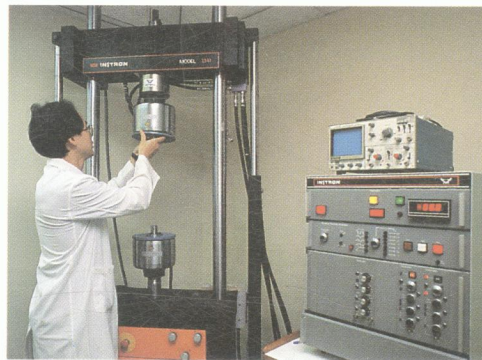
## RESEARCH

### (A) CLINICAL

Earlier on, because of limited research fundings and also the large amount of clinical material presented to the Hospital, most of the research emphasis was on clinical retrospective and prospective studies. In the 1960s most of the work was done on spinal deformities resulting from infective causes like tuberculosis and poliomyelitis. Over 50 publications on the clinical management of these problems have been produced by this Department.

With the changing trends in orthopaedic conditions, research interests have gradually shifted towards congenital and developmental abnormalities. Improvement of physical function of children suffering from cerebral palsy

has become one of the major areas of research. Amongst others, congenital



**Biomechanics Laboratory**

hip dislocation, limb lengthening, muscle and tendon transfers, corrective surgeries for club feet and surgical treatment of difficult spinal deformities have been studied with well prepared protocols.

### (B) BASIC SCIENCE

Basic research on the biomechanics and development of the halo-pelvic apparatus and biomechanics of limb lengthening were performed in the 1970s. However basic scientific research was not very well organised then.

Since the 1980s, the Department of Orthopaedic Surgery has been able to secure more research fundings both from the University, other institutions, and from private



**Ilizarov Technique**



**General Laboratory**

## Sub-Specialty Development

(PAEDIATRIC ORTHOPAEDICS)



**Motion Analysis Laboratory**

donors. Basic research at the DKCH has become more organised with two major streams of work gradually taking shape. Biomechanics was felt to be inseparable from orthopaedic practice and research. With a generous donation mainly from the Liu Po Shan Foundation, a Basic Science Laboratory floor was built in the Duchess of Kent Children's hospital in 1987 housing four laboratories:

1. The Biomechanics Laboratory is now equipped with an Instron tensile testing machine with a hydraulic driven cross head capable of studying cyclic loadings.
2. The General Laboratory has a real time ultrasound machine, a tissue culture chamber and various other supportive equipment.
3. The Motion Analysis Laboratory. In 1990, the Croucher Foundation granted over HK\$1 million towards the purchase of the Elite 3-dimensional motion analysis system. This is one of the most advanced and sophisticated system of its kind and has been most useful in studying motions in the spine, peripheral joints

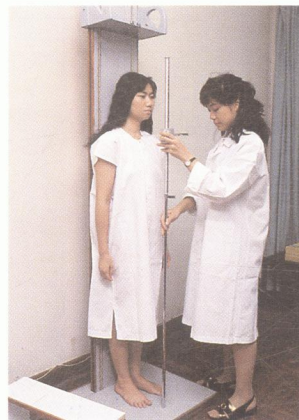
and gait analysis. This laboratory is also equipped with a telemetric electromyography machine, force platforms and other computer equipment.

4. The Department of Orthopaedic Surgery also runs an Audio-Visual Laboratory at the DKCH with a full-time technician. This has largely facilitated documentation of clinical cases in every day service and for publication of research work.



**Audio-Visual Laboratory**

The other main stream of basic research is in the study of scoliosis-related subjects including lung function following spinal fusions and skeletal growth in scoliosis children. A Research Office with computer facilities, research assistants, clerical support and a computer officer is available for use by all medical staff, fellows and postgraduate students.



**Anthropometric study**

The Hospital has kept all its patients' records since 1956. All patient notes are typed, all patients have a thorough assessment (and record) by a physiotherapist and an occupational therapist. All patients have relevant photographic documentation, and radiographs are kept perpetually. These facilities have made the Hospital an ideal centre for both clinical and basic research.





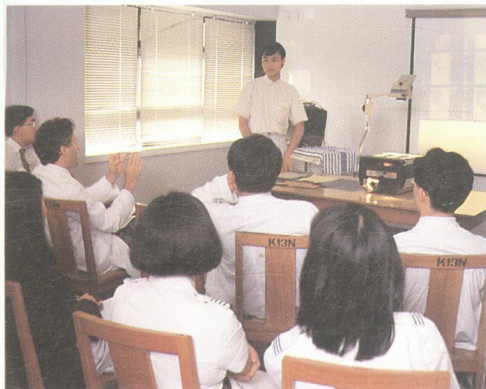
**HAND AND MICROVASCULAR SURGERY**

**HISTORY**

A survey in 1978 showed that 2,800 cases of hand problems were admitted into Queen Mary Hospital during a 12-month period, constituting 35% of all orthopaedic admissions. Such cases consisted of:

- Trauma 80% (industrial 80%, domestic 10%, violence 10%)
- Non-trauma 20%

Some common problems included:  
Flexor tendon injuries (100 cases per year)  
Extensor tendon injuries (100 cases per year)  
Hand fractures (200 cases per year)



**Hand Round**

Mutilating hand injuries (50 cases per year)  
After establishing an expertise in the management of tuberculosis of the spine, Professor A.R. Hodgson realised the potential of developing Hong Kong also into a centre of excellence in Hand Surgery. In 1965, Dr. Y.S. Tsao was sent to Los Angeles to spend a year with Dr. Joseph Boyes. Unfortunately, he had to resign from the University in 1967, due to health problems.

Before 1977, such cases were usually relegated to the most junior doctors on

duty, and rehabilitation was unknown. In 1976, Dr. S.P. Chow was sent abroad for one year to study hand surgery in the United Kingdom and United States. On his return, reorganization was carried out at once. Guidelines for management of serious hand injuries by more senior doctors were laid down; special rehabilitation by doctors, physiotherapists, and occupational therapists were arranged in the form of "hand classes"; and the latest technologies were brought in. In 1977, the first successful microsurgical replantation of a thumb in Hong Kong was performed. In 1987, an external assessor of the Department, Professor Robert Duthie, Nuffield Professor of Orthopaedic Surgery, University of Oxford considered the performance and organisation of the hand surgery and microsurgery service of such a high standard as capable of "..... setting an example for the rest of the world."

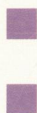
**SERVICE**

Apart from treating the usual hand injuries involving tendon, nerve, bone and skin, other complicated procedures such as replantation, toe to hand transplant, free flaps, composite tissue transplants are regularly performed. Flexor tendon repair has evolved from the old school of delayed grafting to primary repair, which, coupled with a strict post operative program and sophisticated splints, has put our results amongst the best in the world. Thus, flexor



**Hand Class at QMH**

## Sub-Specialty Development (HAND AND MICROVASCULAR SURGERY)



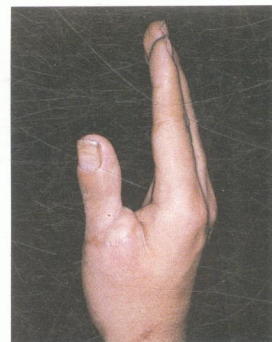
*Hand Class  
at DTRC*

tendon injury in zone II can regularly achieve a satisfactory and excellent result in 85-90% of cases. Bone and joint injuries in the hand also have evolved through K-wire fixation to A-O screws and plates to the latest mini condylar blade plates. By now, our prospective computerised study on 900 problem cases is one of the largest in the world. The development of microsurgery has introduced much more exciting possibilities. Starting from the very primitive Satascope, we now have separate Zeiss and Wild operating microscopes at Queen Mary Hospital, Duchess of Kent Children's Hospital, and our research laboratory. All residents are encouraged to acquire the basic technique of microvascular anastomosis, which can be comfortably achieved by 6 to 7 doctors in our Department at any time. The average success rate for replantation is about 60-70% and in clean cut cases, can be 90%. The hand team is also involved in flap reconstructions in lower limb trauma, vascularized bone grafting in situation like congenital pseudarthrosis of the tibia. We have also pioneered the use of silver sulfadiazine in the treatment of fingertip injuries and the results have been so impressive that many centres, including some in the United States, are following suit. An interesting "toxic swelling of unknown origin" of the

hand, believed to be tuberculosis in origin, had been seen in our boat people, although cultures for tuberculosis were negative. In 1980, together with the Department of Microbiology, we discovered that it was due to infection by mycobacterium marinum, which will yield positive cultures only under low temperature. This is now found to be the most common chronic hand infection in Hong Kong. Such cases are being followed up at the "hand classes" three times a week at Queen Mary Hospital and David Trench Rehabilitation Centre where splints, pressure garments, and special program are provided. Every Thursday afternoon, there is an Upper Limb Clinic at Sai Ying Pun Jockey Club Clinic. A combined Rheumatology Clinic with the University Medical Unit is also held one floor above at the



*Replanted thumb, 1977*



*Thumb reconstruction  
with toe-wrap*

same time. Children hand and congenital hand problems are seen at the Duchess of Kent Children's Hospital on alternate Friday morning. The two chief hand surgeons also entertain consultations for bed sores, special reconstruction and plastic surgical procedures from colleagues and other departments. Artificial limbs, including cosmetic hands and sophisticated myoelectric limbs can be made at the MacLehose Medical Rehabilitation Centre or the David Trench Rehabilitation Centre.

**RESEARCH**

*(A) Clinical*

These include special tendon programs, skin problems such as extensive fingertip injuries treated by silver sulphadiazine, mycobacterium marinum infection of the hand, digital nerve sensory re-education, and internal fixation of hand fractures.

*(B) Basic Science*

A very active Microsurgery Laboratory is set up in our Department with three operating microscopes for various basic research in microsurgery. Joint projects with other departments are currently underway. With the Departments of Anatomy and Physiology of the University of Hong Kong, and the Department of Anatomy of the Chinese University of Hong Kong, research on neurotropism, collateral sensory innervation, and free flap innervation are performed. With the Jockey Club Rehabilitation Engineering Centre of the Hong Kong Polytechnic, biomechanics on nerve adhesion and finger fracture fixations are carried out. With the Department of Biochemistry, the phenomenon of neochondrogenesis with CPM, and small joint replacement with the help of the University Industrial Centre are studied.

*(C) Social Studies*

The epidemiology, aetiology, and prevention of hand injuries are studied together with the Department of Community Medicine. Psychological reaction after hand injuries is jointly studied with the Department of Psychology. A large scale study of the functional recovery of digital amputees involving six major hospitals in Hong



**General and Microsurgery Research Laboratory**

Kong has been completed at the end of a three-year period.

Such research activities involve senior and junior staff, supported by technical assistants and a computer officer in our laboratory. Various scholars from China, United Kingdom, Australia, United States, Taiwan, Japan, Ireland, and other Southeast Asian countries have participated in such research under supervision.



**Visiting surgeon doing microsurgical animal experiment**

**TEACHING & TRAINING**

Undergraduate teaching in the form of didactic lectures, tutorials, out-patient clinics are given by the senior hand surgeons. Postgraduate rotation to the hand surgery service is an integral part of every resident's

**Sub-Specialty Development**  
(HAND AND MICROVASCULAR SURGERY)



program. The resident is also given free access to the micro-surgery laboratory for technical skill training or to participate in animal experiments. Residents see cases side by side with the senior hand surgeons every Wednesday afternoon and Thursday morning at the hand classes. A special Hand Round on Thursday after-noon features case discussions, short talks, multiple choice questions, and sometimes research discussions. Scholarships are provided for visitors from all over the



**Partially cut chicken tendon**



**Collateral sprouting experiment**

world, and starting 1991, a special hand research fellowship has been established for overseas doctors.

Looking back into the past fifteen years, the development of hand surgery and microsurgery can be regarded as the second wave of achievement since our pioneering work on spinal surgery. Senior staff from this Department are now represented on the editorial boards of international journals

of hand surgery and microsurgery, and also sit on committees of various international learned societies of this specialty.

**WEEKLY PROGRAM FOR HAND SURGERY**

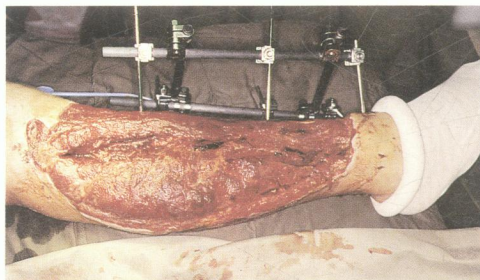
| Monday            | Tuesday          | Wednesday  | Thursday           | Friday   | Saturday   |
|-------------------|------------------|------------|--------------------|--|------------|
| a.m.              |                  |            |                    |  |            |
| Operation at DKCH | Operation at QMH | Conference | Hand Class at DTRC | Operation at QMH<br>Congenital Hand Clinic at DKCH | Conference |
| p.m.              |                  |            |                    |  |            |
| Operation at DKCH | Operation at QMH | Conference | Hand Class at DTRC |  |            |

- DKCH – Duchess of Kent Children's Hospital
- QMH – Queen Mary Hospital
- DTRC – David Trench Rehabilitation Centre
- SYPJCC – Sai Ping Pun Jockey Club Clinic

### TRAUMA

Queen Mary Hospital is the regional hospital of Hong Kong Island which has a population of one and a half million. There are 150 beds allocated to patients with orthopaedic problems. Many patients are admitted as emergency cases through the Chai Wan Accident & Emergency Department, Tang Shiu Kin Hospital or Queen Mary Hospital. Other patients are electively admitted from various out-patient departments or by referral from other hospitals or doctors. More than 7,000 patients are admitted annually into the orthopaedic wards of Queen Mary Hospital, with over 3,000 operations being performed every year. About 70 to 80% of these admissions and operations are related to traumatic cases. All sorts of injuries are encountered. (see Figure on pg. 27) Apart from Queen Mary Hospital, we also treat over 500 paediatric fractures per year in the Duchess of Kent Children's Hospital. More than 300 trauma patients are transferred from Queen Mary Hospital to the Orthopaedic Units of the Grantham Hospital and Nethersole Hospital for operations every year.

About 700 to 800 annual admissions into Queen Mary Hospital are due to proximal femoral fractures. This problem is increasingly common nowadays. We employ a comprehensive approach to such patients, with detailed assessment of the psychological and social aspects. We work in collaboration with colleagues from the Department of Social Work and Social Administration, and the Department of Community Medicine, University of Hong Kong. Operations for such patients are also performed in the Grantham Hospital and Nethersole Hospital. For the orthopaedic management, we used the dynamic compression screw system for inter-tro-



*External Fixator*

chanteric fractures. Previously, we investigated into the effects of Dimon-Hughston osteotomy, Sarmiento osteotomy and cement augmentation for unstable trochanteric fractures. Now, we use anatomical reduction and immediate full weight bearing and the results are quite promising. For younger patients with displaced subcapital femoral neck fractures, we used primary total hip replacements and had achieved satisfactory results after a 6-year follow-up. Now, we employ AO/ASIF cancellous screw fixation followed by immediate full weight bearing. Apart from the types of implants, we also look into other aspects, such as the effect of a pre-existing cerebrovascular accident, the occurrence of proximal femoral fractures over both sides, etc. We feel that for management of such patients, a comprehensive approach is of utmost importance.



*Continuous passive motion apparatus*



*New Block K, QMH*

Hand injuries are also very common and account for over 2,000 annual admissions into Queen Mary Hospital. This has been covered in another section.

Fractures affecting the upper extremities (excluding hand injuries) and lower extremities (excluding hip fractures) each accounts for 1,000 to 1,500 annual admissions. We are seeing more high energy and

## Sub-Specialty Development

(TRAUMA)



**Cast bracing**

high velocity injuries. Closed interlocking nailing for femoral or tibial shaft fractures are performed on an average twice every week. Open reduction and internal fixation of acetabular and pelvic fractures are increasingly performed. Compound fractures due to road traffic accidents are not uncommon. About 10 patients every year requires micro-surgical operations for coverage of extensive soft tissue loss of the extremities

after type III compound fractures. The free lateral arm flap and latissimus dorsi flap are used for such purpose. For proximal humeral fractures, we have used Neer's II proximal humeral replacements for severe fractures in selected patients over the past three years. The results are most encouraging. Previously we treated all os calcis fractures conservatively, and now we perform open reduction and internal fixation for displaced, intra-articular fractures with promising early results.

Sports injuries are also increasingly common. A sports clinic under the jurisdiction of the Department is established in the MacLehose Medical Rehabilitation Centre.

We also treat many construction site injuries. Majority of these patients complain of back pain. Excluding the osteoporotic spinal fractures and minor injuries, we treat 50 to 100 patients with significant



**Overcrowded female ward in old Block B**

trauma to the spinal column every year. A spinal trauma team is responsible for the coordination of the management of such patients. One of the commonest spinal injuries is thoracolumbar burst fractures. We manage such patients aggressively and, since five years ago, routinely perform computed axial tomography for every patient suspected to have this fracture. Spinal cord compression due to osteoporotic collapse of the vertebrae is a rare entity in the literature, but we have encountered about ten patients recently and the treatment is by anterior decompression. Some of the spinal trauma patients are also managed in the Duchess



**Male ward in new Block K**

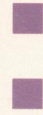
of Kent Children's Hospital and MacLehose Medical Rehabilitation Centre.

Patients with multiple trauma are seen with increasing frequency. On an average, about one such patient is seen every two to three weeks. We employ an aggressive approach and perform internal fixation of all the fractures as soon as possible, so as to allow earlier mobilization.

Rehabilitation is a very important aspect of management of patients with trauma. Over 200 beds are available for rehabilitation of trauma patients in MacLehose Medical Rehabilitation Centre, Fung Yiu King Convalescent Hospital, Grantham Hospital and Nethersole Hospital. Paediatric trauma patients are rehabilitated in the Duchess of Kent Children's Hospital. Patients with trauma will be followed up in the

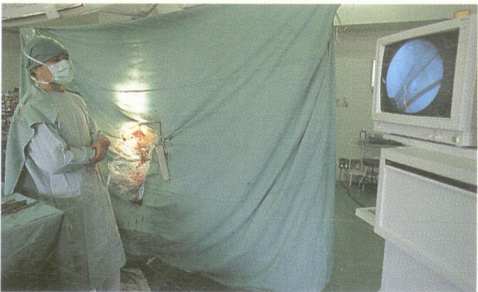
# Sub-Specialty Development

(TRAUMA)



**Grantham Hospital**

Orthopaedic Out-patient Departments of the Sai Ying Pun Jockey Club Clinic, specialist clinics in Queen Mary Hospital, and the follow-up clinics in Duchess of



**Internal fixation of hip fracture**

Kent Children's Hospital, Grantham Hospital and Nethersole Hospital.

Despite the very heavy workload, the Department has been very active on the research side. More than 30 papers from our Department which were related to trauma have been published in the recent years. There are currently a number of ongoing clinical and basic studies. These will be covered in the section on Research Accomplishments.

For postgraduate training related to trauma, the Department has a meeting every week when the Interns present the operated and discharged cases and the Registrars discuss the various aspect of trauma management. The staff of the Department are also privileged to have the opportunities to attend courses and meetings, either locally or in foreign countries, being subsidised by the Department.

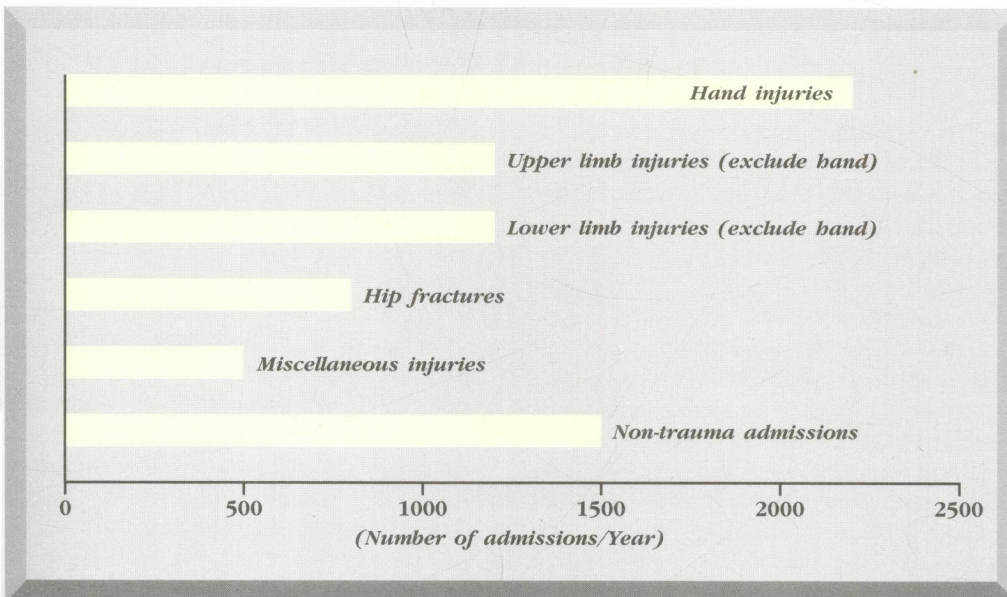


**Physiotherapy Department, Grantham Hospital**



**Female ward, Grantham Hospital**

## Annual Admissions Orthopaedic Wards, QMH



# Sub-Specialty Development

## (JOINT REPLACEMENT SURGERY)

### JOINT REPLACEMENT SURGERY

#### HIP REPLACEMENT

As in other countries, our experience with hip arthroplasty has evolved since the 1950s from Smith Petersen cup arthroplasties and the Judet glass femoral prosthesis to the present array of cemented and non-cemented total hip replacements.



**Hip replacement using body exhaust system**

The Austin Moore hemiarthroplasty remains the most popular for older patients with displaced femoral neck fractures. Around 500 are performed by our staff in different hospitals annually.

In the 1960s the McKee-Farrar was in fashion and many were implanted. A large proportion have since been revised, but a substantial number still survive.



**Right rotational osteotomy and left uncemented hip replacement**

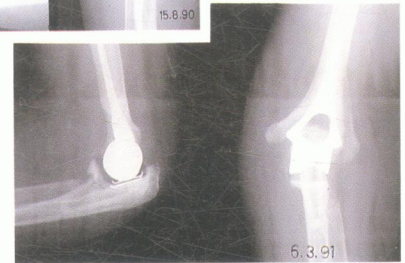
In the early 70s, because of our close association with Dr. Harlan Amstutz of Los Angeles, we were particularly enthusiastic with the T28 total hip arthroplasty. Nearly all of them have since failed and have been revised.

The Charnley total hip was introduced here about 1970, and to date remains the gold standard of comparison with other total hips. The Charnley was particularly popular in the late 70s and early 80s, but because of the young age of our patients, non-cemented total hips started to take over in 1986.

An analysis of our age groups reveals that many patients requiring either hip replacements or hip fusion are in their 20s and 30s, suffering from avascular necrosis. For several years we tried the Sugioka rotational osteotomy for patients with suitable indications. However the results were incon-



**Rheumatoid arthritis**



**Total elbow replacement**

sistent, leaving the surgeon with little choice in those patients who were sufficiently symptomatic. Fusion was also increasingly declined by patients.

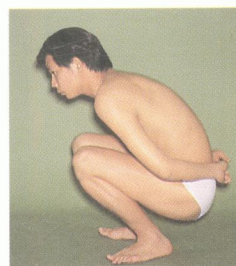
We have performed over 200 PCA THR in the Department, and have studied these cases prospectively, following patients in a special hip clinic. So far, the results appear excellent, but the follow-up is at most six years, and we are still waiting for the development of possible complications such as massive osteolysis.



**Shoulder hemiarthroplasty**

Thigh pain was not a significant complication, being present in a mild form in 6% of patients.

Other models of non-cemented hip replacement have also been tried, including especially the AML. Our experience with both the PCA and the AML has shown a disproportion of the femoral stem design, leading to a loss of press fit in a high proportion of patients. For this reason, we conducted a study on 216 adult Chinese femora, using the CT to analyse the detailed osteometry. The results show a very significant difference when compared with Caucasian



**Patient after bilateral total hip replacement**



femora, especially in the following parameters: femoral head offset, sagittal and coronal endosteal dimensions at both the metaphyseal and diaphyseal (isthmus) levels.

In view of these discrepancies, we have found it appropriate to develop our own femoral stem design, with the help of Biomet. Employing three dimensional CAD CAM techniques, a prototype femoral stem has been produced. This Asian femoral stem design is now undergoing biomechanical and other trials.

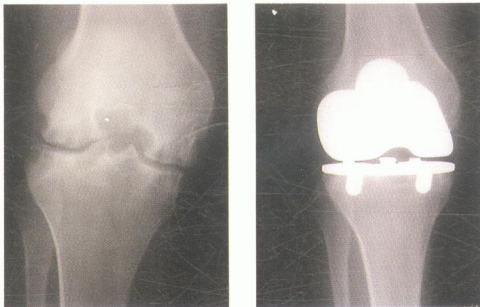


*Patient after shoulder arthroplasty*

been discarded, surprisingly few have required revision in our patients. From the mid 70s onwards, the Total Condylar took over, and since 1982 we have performed mostly PCAs.

The majority of knee replacements remain totally cemented. However we have routinely left the femoral component uncemented when using the PCA.

Although some size discrepancy remains, on the whole, the results of total knee replacements have been very satisfactory, irrespective of the model used. As against the reported results of failure of thinner tibial inserts, many of our patients have had 7 mm HDP tibial inserts, but none has failed to date. We have not seen any overt failure of metal-backed patellar components either. It may be only a matter of time, or it may be explained by lower mechanical stress in the Asian population.



*Uncemented total hip replacement in a haemophiliac*



*Patient after total elbow replacement*

#### KNEE REPLACEMENT

Whereas primary osteoarthritis of the hip is rare in the Chinese, primary osteoarthritis of the knee is commonplace. The mainstay of treatment for our patients is either high tibial osteotomy or total knee replacement. In the 1960s the Geomedic surface replacement was much used in the Department. Although this model has now

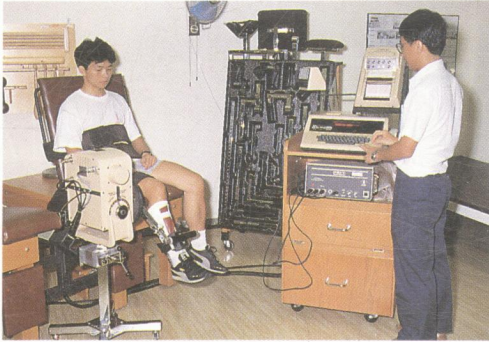
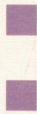
#### OTHER JOINT REPLACEMENTS

The other joints replaced on a regular or occasional basis include finger joints, elbow, shoulder and toes. Souter elbows are regularly performed at the Grantham Hospital, and early results from a small series are available. Because of conditions of overcrowding in Queen Mary Hospital, especially in the female ward, much joint replacement surgery now takes place electively at the Grantham Hospital.

The excellent rehabilitation service of the MacLehose Medical Rehabilitation Centre has no doubt contributed to the good results of our joint replacement arthroplasty. Hip and knee replacements have been specially followed up in a special clinic organized in the Professorial Block, Queen Mary Hospital, since 1983.



*Surviving bilateral McKee-Farrar replacement at 20 years*



**Cybex assessment of knee function**

### SPORTS MEDICINE

Arthroscopic surgery of the knee was started in this Department in the early 1960s, using the No. 21 Watanabe arthroscope. Up to 1980, however, less than 300 cases had been performed. From 1982 onwards, the annual rate increased rapidly, and the knee remained the most frequent joint scoped. Over 2,000 cases of arthroscopy have been performed to date, still a relatively small number compared with other centres.

fitness assessment program is available, with contributions by honorary consultants in general practice, cardiology, respiratory medicine, exercise physiology, and other medical and surgical sub-specialties.

Upon its inception, the Institute started a Certificate Course in Sports and Health Science, in conjunction with the University's Physical Education Unit and School of Professional and Continuing Education (SPACE). So far, 4 classes of about 35 students each have graduated, and we are onto our fifth year.

The Institute runs a sports injuries clinic, subscribed by a wide-based clientele, including the physically disabled, the superbly fit, students and executives, and public service personnel. Its weekly out-patient session is managed by a Consultant (Dr. D. Fang), with 1-2 residents rotating through over a period of 6 months - 1 year. Facilities in the ISM are already stretched. Since many patients coming to the clinic have spinal problems, a new Spine Clinic will be opened adjacent to the ISM in late 1992. Construction is currently underway with a sponsorship of HK\$2.5 million from Mr. William M.W. Mong. The clinic will be named the Serena Mong Spine Centre, University of Hong Kong.



**Cardio-respiratory stress test**

Hong Kong owes much in the development of arthroscopic surgery to certain individuals, especially Dr. Robert Jackson of Toronto, and the International Arthroscopic Association, which held its First Arthroscopic Instructional Course and Workshop (organised by our Department) in Hong Kong in 1985.

Arising from popular demand, the Helen Lee Siu Foon Institute of Sports Medicine (ISM) was established through a generous donation of HK\$3.5 million by Dr. Lee Wing Tat in 1988.

The Institute is situated on the 4th floor of the MacLehose Medical Rehabilitation Centre. It is a non-profit making, self-financing public service. It offers a range of services including the prevention, investigation, treatment, and rehabilitation of injuries and disorders related to sports. A comprehensive physical



**Sports Injuries Clinic**



### REHABILITATION

This Department has always played an active role in rehabilitation. In 1955 Dr. A.R. Hodgson, then Senior Lecturer in Orthopaedic Surgery, Dr. Harry S.Y. Fang, then Lecturer in Orthopaedic Surgery, and Mrs. Margaret Trench started the Society for the Relief of Disabled Children. The Sandy Bay Convalescent Home (now The Duchess of Kent Children's Hospital) was built by that Society in 1956. The Hong Kong Society for Rehabilitation (HKSR), seeking to run a comparable service for adults, was inaugurated on 9th July 1959 with Sir Kenneth Fung Ping Fun as President and Dr. A.R. Hodgson Chairman of the Executive Committee.



**MacLehose Medical Rehabilitation Centre**

The successors to the Presidency of the HKSR were Lady Margaret Trench (1965-1975), Mr. John L. Marden (1975-1989) and Dr. Harry S.Y. Fang (since 1989). Successive Chairman of the Executive Committee were Dr. Harry Fang (1965-1979), Mr. Tom G. Garner (1979-1980), and Mr. M.B. Lee (since 1980).

The Hong Kong Society for Rehabilitation opened Hong Kong's first full time residential Medical Rehabilitation Centre (MRC) in Kwun Tong on 18th September 1962. This was later renamed The Margaret Trench Medical Rehabilitation Centre (MTMRC) in 1971. Members of our Department made monthly sojourns to that "far away" corner of Hong Kong to look after patients, many of whom had undergone surgery in Queen Mary Hospital.

In September 1984, HKSR proudly opened its second medical rehabilitation centre in Sandy Bay, opposite the Duchess of Kent, named after Sir Murray MacLehose, who had just retired as Governor of Hong Kong. The Centre has 150 beds and boasts a comprehensive team of professional staff. It is recognized as a World Health Organization collaboration centre in rehabilitation.



**Spinal Injuries Unit**

The MacLehose Medical Rehabilitation Centre provides an excellent spacious environment for the nurturing of patients back to physical and economic capability. 70% of its in patients are referred from Queen Mary Hospital, the majority from this Department. It also provides facilities and expertise for the subacute management of spinal injuries, via its Spinal Unit comprising 20 beds, set up in January 1989.



**Female general ward**

Besides patient care, the Department has provided a continuous input in the Centre's management. In December 1991, the MMRC was taken over by the Hospital Authority (HA). A Hospital Governing Committee (HGC) was established in accordance with the HA's rules. Members of the Department currently sitting on the HGC are Professor J.C.Y. Leong, Professor S.P. Chow, and Dr. D. Fang (Chairman).



**Hydrotherapy Pool**

#### BONE BANK

In recognition of the increasing demand for and wide applications of bone allograft, a small Bone Bank was set up in the Department's laboratory in Queen Mary Hospital in 1983. Dr. S.P. Chow was instrumental in obtaining financial backing and getting the Bone Bank started. This utilized thick steel containers for mostly femoral heads collected at the time of Austin Moore arthroplasty. The storage medium was liquid nitrogen, which later proved too expensive to maintain. Since then banked bone has been stored fresh frozen at  $-80^{\circ}\text{C}$  in a Harris refrigerator. Continued development of the Bank was taken over by Dr. D. Fang and Dr. C.L. Cheng (Senior Medical & Health Officer), both of whom had trained with Dr. Allan Gross in Toronto.

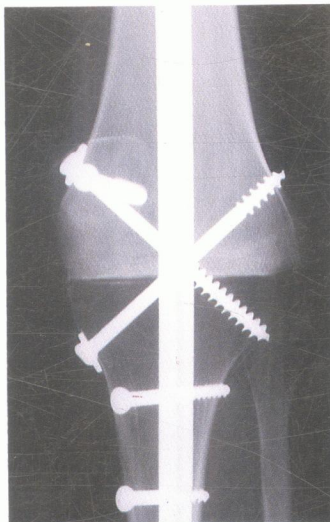
At first, there was resistance to donating bones after death, because of traditional Chinese thinking, and also because of the lack of public health education. Upon his return from training with Dr.



*Allograft storage*

Henry Mankin in Boston and Dr. William F. Enneking in Florida, Dr. K.C. Chan (Lecturer) widely publicized the need for a modern Bone Bank in Hong Kong. Since then we have received several offers from donors, thus greatly increasing our capacity for massive bone allografts in tumour and joint revision surgery. We can now supply allograft bone to any other user in Hong Kong.

The Bone Bank was formally removed to its present site in the new K Block of Queen Mary Hospital in January 1992. In addition to bone and osteochondral allografts, tendons and ligaments are also banked, for use mostly in knee ligament reconstruction. When the need for sterilization arises, arrangements are made for gamma irradiation to take place in the China Shenzhen Irradiation Centre, a facility set up by the Canadian Nordion Group.



*Allograft replacement for osteosarcoma*

It looks likely that our Bone Bank will in future be integrated into a multi-purpose transplant centre.



#### CHIROPODY SERVICE

Chiropody is one of the allied health professions. The chiropodist is a specialist who provides a fully comprehensive foot health service for conditions affecting the foot and lower limb. There are seven chiropodists working in the Hospital Authority and one in the Hospital Services Department of the Government. Chiropody services are established at the two university hospitals, Princess Margaret Hospital and three geriatric day hospitals.

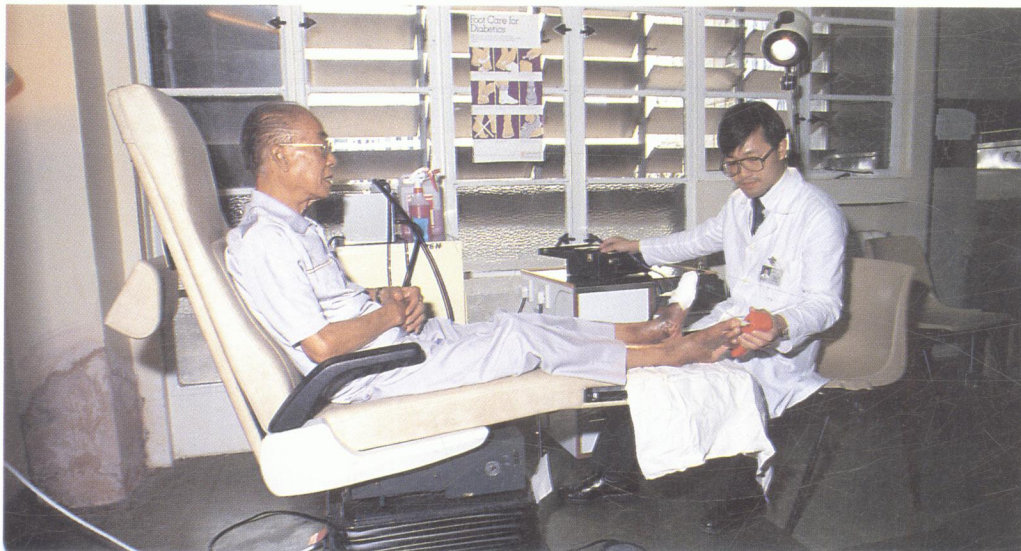
The chiropody service at Queen Mary Hospital was established in May 1990, and is now under the administration of our Department. It provides treatment and foot care advice to both in-patients and out-patients referred from all specialties. In 1991, 1,745 patients were treated. Mr. Michael Yam is the person in charge.

The chiropodist plays a major role in the

care of the diabetic and rheumatoid arthritic patient, as well as the neuropathic, ischaemic, pre-gangrenous and ulcerative foot. Time is also devoted to the analysis of biomechanical and locomotor dysfunctions of the foot and lower limb. Sports injuries of the foot are also treated.

The modalities of treatments include corrective and functional orthoses, protective and accommodative appliances, invasive surgical procedures with or without the use of local analgesics, topical chemotherapy, cryotherapy, electrosurgical techniques, ultrasonics and other physical therapies, and specialised dressings to protect against trauma.

Furthermore, the service, including regular foot-health assessment and education, is extended to patients of the Diabetic Clinics of the Department of Medicine, at Queen Mary Hospital and Sai Ying Pun Jockey Club Clinic.



*Chiropody Service*

# DEPARTMENTAL ACTIVITIES



# Departmental Activities

## ACADEMIC ACTIVITIES & WARD ROUNDS - DEPARTMENT OF ORTHOPAEDIC SURGERY

Queen Mary Hospital (QMH), Duchess of Kent Children's Hospital (DKCH), Grantham Hospital (GH), Nethersole Hospital (NH), MacLehose Medical Rehabilitation Centre (MMRC), David Trench Rehabilitation Centre (DTRC), Fung Yiu King Convalescent Hospital (FYKCH)

| Monday                         | Tuesday                   | Wednesday  | Thursday   | Friday                                   | Saturday  |
|--------------------------------|---------------------------|--|--|--|---|
|                                |                           | 8.00 a.m.<br>Conference - DKCH<br><br>10.30 a.m.<br>Grand Round - QMH<br><br>10.30 a.m.<br>Grand Round - DKCH (Team A) | 8.30 a.m.<br>Grand Round - GH                                      | 8.30 a.m.<br>Grand Round - DKCH (Team B) | 8.30 a.m.<br>Ward Round - QMH<br><br>10.30 a.m.<br>Conference - QMH |
| 5.00 p.m.<br>Spine Round - QMH | 5.00 p.m.<br>Census - QMH | 2.00 p.m.<br>Hand Class - QMH  | 4.30 p.m.<br>Hand Round/<br>Radiology Round (once per month) - QMH |  |   |

- \* Ward Rounds for convalescing patients in FYKCH are
  - Team A Tuesday 9.30 a.m., Friday 11.00 a.m.
  - Team B Tuesday 2.15 p.m., Friday 11.00 a.m.
- \* Ward Rounds for rehabilitation patients in MMRC are
  - Team A Thursday p.m.
  - Team B Monday p.m., Tuesday p.m., Wednesday p.m.

## CLINICS - DEPARTMENT OF ORTHOPAEDIC SURGERY

Queen Mary Hospital (QMH), Duchess of Kent Children's Hospital (DKCH), Sai Ying Pun Jockey Club Clinic (SYP), MacLehose Medical Rehabilitation Centre (MMRC), Nethersole Hospital (NH), Grantham Hospital (GH), David Trench Rehabilitation Centre (DTRC)

| Monday   | Tuesday  | Wednesday  | Thursday  | Friday  | Saturday |
|--|--|--|---|---|----------|
| Spine Clinic<br>QMH<br><br>Lower Limb Clinic<br>SYP OPD<br><br>Spine Clinic<br>DKCH<br><br>Milwaukee Brace Clinic<br>DKCH - 2nd & last Mon.<br><br>Stanley Clinic<br>Monthly | GS Consultation Clinic<br>QMH (TLP)<br><br>EMG<br>QMH<br><br>Fracture Clinic<br>DKCH<br><br>Clinic<br>NH<br><br>Clinic<br>GH |  | Consultation Clinic<br>GS/P<br>QMH (SPC)<br><br>GS Consultation Clinic<br>QMH (FRK)<br><br>Hand Clinic<br>DTRC - Weekly | OPD<br>NH<br><br>Hand Clinic<br>DKCH - 2nd & Last Fri.  |          |
| Hip & Knee Clinic<br>QMH<br><br>Tumour Clinic<br>QMH - Alt. week<br><br>Consultation Clinic<br>GS/P<br>QMH (SPC)<br><br>Clinic<br>GH   | Consultation Clinic<br>GS/P<br>QMH (JL/KL)   | General OPD<br>DKCH<br><br>Hand Class<br>QMH - Weekly<br><br>Sports Medicine<br>MMRC<br><br>T.B. Clinic<br>SYP - Monthly | Consultation Clinic<br>GS/P<br>QMH (DF)<br><br>Follow-up Clinic<br>DKCH<br><br>Upper Limb Clinic<br>SYP OPD             | Consultation Clinic<br>GS/P<br>QMH (JL)<br><br>Cerebral Palsy Clinic<br>DKCH - Last Fri.<br><br>Genera OPD<br>SYP |          |

\* Clinics are held weekly unless otherwise stated

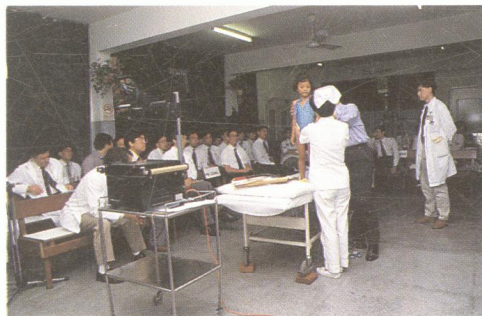
## OPERATION SESSIONS - DEPARTMENT OF ORTHOPAEDIC SURGERY

Queen Mary Hospital (QMH), Duchess of Kent Children's Hospital (DKCH), Grantham Hospital (GH), Nethersole Hospital (NH),

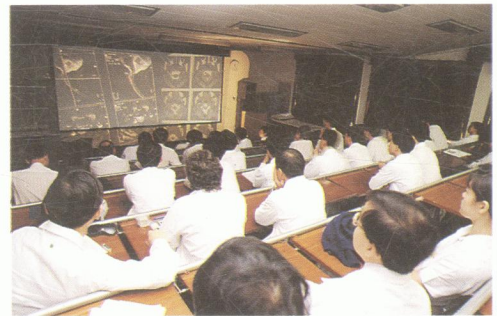
| Monday                                 | Tuesday   | Wednesday                              | Thursday  | Friday  | Saturday |
|--|---|--|---|---|----------|
| 8.30 a.m.<br>1 OT - QMH<br>1 OT - DKCH | 8.30 a.m.<br>2 OT - QMH<br>1 OT - DKCH                          |  | 8.30 a.m.<br>1 OT - QMH<br>1 OT - DKCH<br>1 OT - NH | 8.30 a.m.<br>2 OT - QMH (1 G.A.)<br>(1 L.A.)<br><br>1 OT - DKCH<br><br>9.00 a.m.<br>2 OT - GH |          |
| 1.30 p.m.<br>2 OT - QMH<br>2 OT - DKCH | 1.30 p.m.<br>2 OT - QMH<br><br>2 OT - DKCH (1 G.A.)<br>(1 L.A.) | 1.30 p.m.<br>1 OT - QMH<br>1 OT - DKCH | 1.30 p.m.<br>1 OT - QMH<br>2 OT - DKCH<br>1 OT - NH | 1.30 p.m.<br>2 OT - GH  |          |



*Departmental staff meeting*



*DKCH Clinical Case Conference*



*QMH Clinical Case Conference*



*QMH Clinical Case Conference*



*QMH Grand Round – Team A*

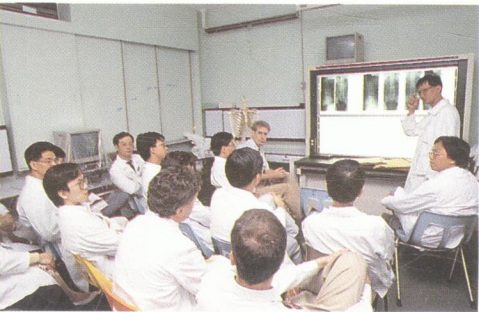




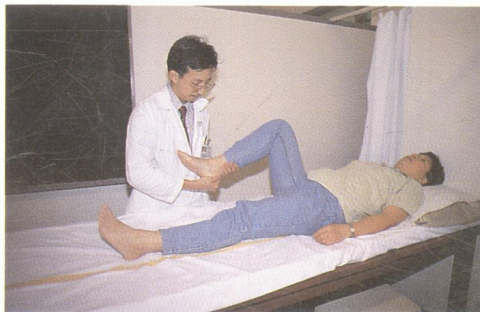
*QMH Grand Round – Team B*



*Sai Ying Pun General Out-patient Clinic*



*Orthopaedic Radiology Combined Round*



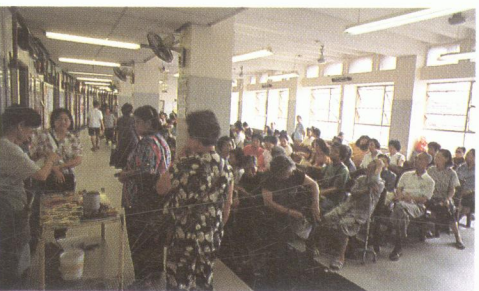
*Sai Ying Pun Lower Limb Clinic*



*Sai Ying Pun Jockey Club Clinic*



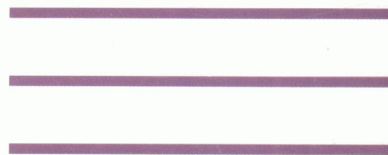
*Electromyographic examination*



*Patient waiting area in Sai Ying Pun Jockey Club Clinic*



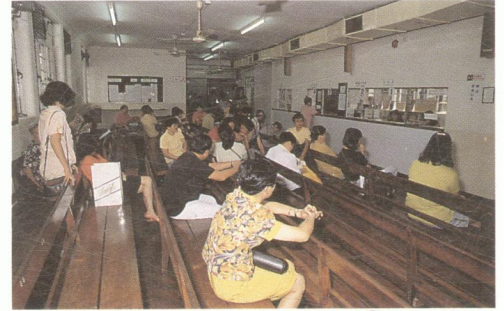
*Minor O.T. in Block K, QMH*



## Departmental Activities



*Prosthetics & Orthotics Service*



*Out-patient Department  
Nethersole Hospital*



*Nethersole Hospital*



*Football match with general surgeons*



*Karaoke singing at departmental  
Christmas party*



*Barbecue*



*Magic show*



*Fairwell Party*

U n d e r g r a d u a t e

&

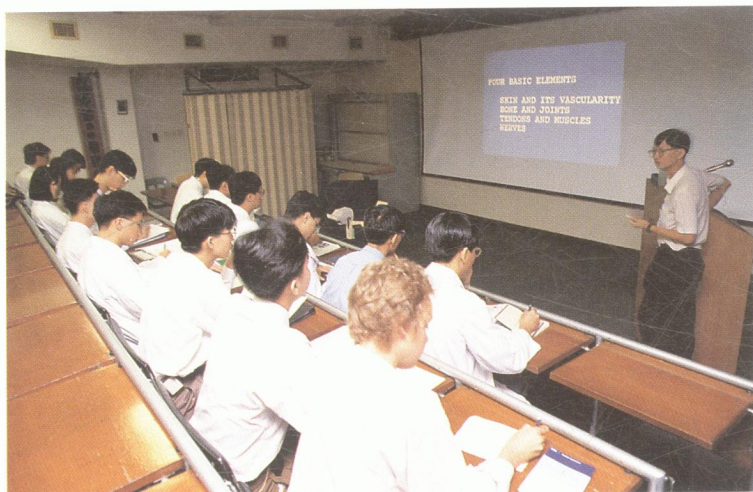
P o s t g r a d u a t e

T e a c h i n g



### UNDERGRADUATE TEACHING

The forerunner of the Faculty of Medicine, University of Hong Kong, was the Hong Kong College of Medicine for Chinese, which was established in 1887. The Medical Faculty was a Founding Faculty of the University of Hong Kong, when the latter was founded in 1911. At present, it is one of the two medical faculties involved in the teaching of medical students, the other one being at the Chinese University of Hong Kong.



*Specialty Clerks teaching*

Our Medical Faculty has a very stringent set of requirements for admission, drawing applicants mainly from local matriculants taking the Hong Kong Advanced Level Examination, but also from overseas candidates taking the General Certificate Examination of the United Kingdom or equivalent, as well as graduates with a first or higher degree in other subjects. It has an annual intake of 160 students.

The medical course runs for five years, with the first two years being mainly in pre-clinical subjects, and the last three years in clinical subjects. Orthopaedic Surgery is taught in the third, fourth, and final years. Students go through a "Junior Surgical Clerkship", a "Senior Surgical Clerkship", and a "Specialty Clerkship".

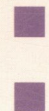
### JUNIOR SURGICAL CLERKSHIP

The clerkship spans a period of approximately 12 weeks. Half the class are involved, in a general surgical program. The main emphasis is on small-group teaching. Each group consists of about 9 to 10 students. During this period, students will have five sessions of orthopaedic bedside teaching, each lasting for one and a half hours, where physical examination of a patient with a musculoskeletal problem is demonstrated. Students are taught how to take a proper history, and a systematic approach to physical examination of the shoulder, elbow, wrist, hip, knee, and ankle joints, as well as the hand and the foot is demonstrated on a normal subject as well as a patient. The clerkship is either in the first or the second term of the third year.

### SENIOR SURGICAL CLERKSHIP

This also spans approximately 12 weeks. Again half of the class is divided into small groups for teaching. This is much more intensive than during the Junior Clerkship. On Tuesday afternoons, there is orthopaedic case demonstration/seminar for one and a half hours for the whole half class. On Wednesday and Thursday mornings, there is small-group (6 students) bedside teaching for one and a half hours. Physical examination of the spine, and neurological examination of the upper and lower limbs are demonstrated. In addition, the discussion will include relevant investigations to make a diagnosis, and principles of treatment. On Friday afternoons, there is a seminar for one and a half hours on common fractures and dislocations of the upper and lower limbs for half the class.

The Senior Clerkship is a mixed clerkship of general surgical and orthopaedic teaching, and students are taught mainly by Honorary Clinical Lecturers (HA Consultants or Senior Medical & Health Officers and orthopaedic surgeons in private



practice). In order to expose them to hospitals in another setting, the teaching is in Queen Elizabeth Hospital and Kwong Wah Hospital, two regional hospitals on the Kowloon peninsula. The Senior Clerkship takes place either in the third term of the 3rd year or the first term of the 4th year.

## SPECIALTY CLERKSHIP

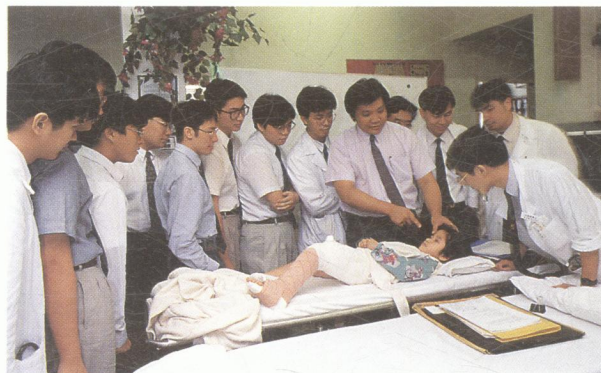
Before 1988, the teaching of orthopaedics to 4th and 5th year medical students was part of a general surgical program. Over the years, this had become inadequate and unsatisfactory, due to very rapid advances in orthopaedics and the increasingly important role it played in primary health care.

When the Faculty finally approved an orthopaedics specialty block teaching of five weeks, this proved an exceedingly popular move with both students and staff.

The 5-week specialty program begins with an orientation and ends with a written class test. Training takes place in the following forms : seminars on set topics, bedside teaching, ward rounds, case conferences, out-patient clinics, operation theatre attendance and assistance, and special visits. Teaching continues throughout the year except for a two-week break.

All of the senior orthopaedic staff participate in the teaching. Each staff member is responsible for one to two seminars. Honorary Lecturers contribute to bedside and out-patient teaching. Students are encouraged to participate in a hands on approach so as to develop essential skills for their future practice. They are especially exposed to critical discussions so as to promote independence of mind and clinical acumen.

Elective students from abroad also participate in the specialty clerkship, and occasionally, when the elective period is



*Clinical bedside teaching*

sufficiently long, in research projects. From their feedback, it would appear that orthopaedic teaching in this University compares very favourably with that of any other part of the world.

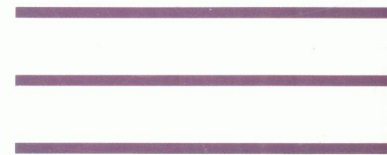
## LECTURES

During the first term of the 3rd year, there are 7 to 8 one-hour lectures, each being given on a Saturday morning, starting with an introduction to the problems of the musculoskeletal system, and followed by a broad overview of deformities, reconstruction, trauma, the joints and arthritis, children's orthopaedics, and engineering in relationship to the musculoskeletal system. During the third term of the 3rd year, continuing through the summer vacation of the rest of the University, and through the first term of the 4th year (middle of April to middle of October inclusive) there are another 20 to 22 lectures, with a more systematic and in-depth exposition of the common problems in orthopaedics and traumatology (see table).

## TEACHING OF NURSES

Since the establishment of this Department, its medical staff have taught student nurses in the 2nd-and 3rd-year curriculum of the Queen Mary Hospital School of General Nursing.

There are two blocks of 10 lectures each on injuries and disorders of the musculo-





**Senior Surgical Clerks teaching at Kwong Wah Hospital**

skeletal system. Students are given an introduction to common orthopaedic subjects with an emphasis on nursing management. These lectures merge with didactic and practical sessions given by the nursing tutors. At the end of each teaching block, a written test is conducted to assess students' performance.

Nurses, including nursing officers, attend the Department's weekly case conferences and participate in the discussion on patient management. Continuing education courses are also organized from time to time by the Department for nursing and paramedical staff who work in the University-related hospitals.

### **POSTGRADUATE TEACHING AND HIGHER DEGREE STUDENTS**

#### **HIGHER SURGICAL TRAINING**

Although the Government has never made provision for postgraduate medical education in Hong Kong, training of doctors has all along been carried out in all Government or subvented hospitals.

Six new graduates from the Medical Faculties of the two universities in Hong Kong rotate through the Department of Orthopaedic Surgery in Queen Mary Hospital as Interns every three months. Externs, or Licentiate doctors, are required to do three 6-month periods of clinical training with orthopaedic surgery as one of the options as part of their pre-registration requirement.

Although the Interns and Externs are not given any clinical responsibilities, they are heavily involved in all the postgraduate training activities being conducted in the

Department.

Postgraduate orthopaedic training in Hong Kong is organised by the Hong Kong College of Orthopaedic Surgeons of the Academy of Medicine. Trainees are required to undergo six years of training after full registration before they are eligible to sit for the Orthopaedic Fellowship Examination. The first two years can be spent in any non-orthopaedic disciplines. This will be followed by four years of orthopaedic rotation with one year in general surgery and rotating periods of six months each in general orthopaedics, traumatology, hand surgery, paediatric orthopaedics, sports medicine and spine surgery. The Department of Orthopaedic Surgery at the Queen Mary Hospital is one of the two departments in Hong Kong that can provide all the sub-specialty rotation program. There are two clinical case conferences weekly, one on paediatric and the other on adult orthopaedic problems. The chief resident would do a daily ward round with the junior trainees and the consultant would conduct a grand round with all trainees and paramedical staff every other day. Specialty ward rounds like the hand round and spine round are also held once weekly. Other weekly teaching activities include a medical audit meeting, a journal club, a registrar round and an X-ray meeting. Prominent overseas speakers are invited regularly throughout the year to give lectures and conduct workshops in the Department. Besides the departmental teachings, orthopaedic trainees are also required to attend monthly didactic lectures organised by the Hong Kong College of Orthopaedic Surgeons. The syllabus of these lectures is repeated every two years.

Trainees employed by the Hospital Authority working in this Department are more privileged than trainees in other hospitals in that they can have access to all the laboratory and supportive facilities of the Department and the University. They are

also eligible for financial support towards research, academic travelling and conference attendance.

### ORTHOPAEDIC FELLOWSHIPS

The Department of Orthopaedic Surgery offers two unique Fellowships at the Duchess of Kent Children's Hospital. Since its establishment in 1971, more than 80 fellows from all parts of the world have been trained in this Hospital and a great number of them have already become prominent figures in the orthopaedic scene. The fellows are usually at chief resident or senior registrar level and have completed an orthopaedic training program in their own country. At present there are four 6 month fellowships in paediatric and spine surgery each year. The fellows can choose to spend three months in each sub-specialty or six months in either one. They will automatically be appointed as Honorary Clinical Associates to the Department of Orthopaedic Surgery, University of Hong Kong. This enables them to be registered temporarily with the Hong Kong Medical Council irrespective of their parent medical institution. They will be paid a fixed honorarium and provided with hospital accommodation at a subsidized rent. Duties involve in-/out-patient care, operating sessions under supervision, teaching and research. They are encouraged to take part in ongoing research or initiate new projects. The Hospital is equipped with biomechanical, gait and motion analysis and general laboratories and other facilities for carrying out basic research. This fellowship program is one of the most famous and popular programs which explains the present long waiting list of about two years.

A similar Hand Fellowship has just been started in 1991. Besides these regular six-monthly fellowships, the Department also entertain other shorter term visiting research fellowships for one to nine months. Visiting researchers from Japan, China, USA and the UK, some of them funded by their own

country, have in the past collaborated extensively with the Department. Again short-term accommodation can be arranged at the Duchess of Kent Children's Hospital.

The fundings available to visitors and fellows include:

1. The China Medical Board (CMB) Fellowship
2. The Sun Yat-Sen Foundation Medical Fellowship
3. The Vice-Chancellor's Fund (for visiting Chinese academics)



*Senior Surgical Clerks teaching at Queen Elizabeth Hospital*

### HIGHER DEGREE STUDENTS

In the past, many staff from this Department have obtained higher degrees by coursework or by research from abroad. The Department, however, has been slightly slow in accepting higher degree research students mainly because of limited funding and teaching time. In 1985, a graduate in Mechanical Engineering from this University was recruited as the first M.Phil. candidate. He took up a research project in biomechanics of the iliolumbar ligaments and was jointly supervised by the Department of Mechanical Engineering and the Department of Orthopaedic Surgery. After successfully obtaining his degree he is now continuing his Ph.D. studies in bioengineering with the University of Strathclyde while conducting his research in Hong Kong under joint supervision by staff from this Department and the Hong Kong Polytechnic. There are now two M.Phil. and two Ph.D. students working on gait and electromyographic analysis, knee mechanics, spinal mechanics and cartilage culture. There is pressing demand for more candidatures.



**JUNIOR SURGICAL CLERKS  
BEDSIDE TEACHING IN ORTHOPAEDIC SURGERY**

December 30, 1991 - March 7, 1992

Orthopaedic Bedside Teaching: Bedside Teaching will be held on **MONDAYS** and **THURSDAYS**. **FIVE** sessions will be given to each group altogether and each session shall last for at least one hour. Time and Date should be arranged with Tutors in Department of Orthopaedic Surgery, Queen Mary Hospital, and Duchess of Kent Children's Hospital.

**GROUP A**  
Tutor : Dr. D. Fang

**GROUP C**  
Tutor : Prof. J.C.Y. Leong

**GROUP E**  
Tutor : Dr. K.D.K. Luk

**GROUP G**  
Tutor : Dr. J.J. O'Flanagan

**GROUP B**  
Tutor : Dr. D. Chan

**GROUP D**  
Tutor : Dr. S.C. Bong

**GROUP F**  
Tutor : Dr. P.K.Y. Chiu

**GROUP H**  
Tutor : Prof. S.P. Chow

**SENIOR SURGICAL CLERKS  
ORTHOPAEDIC SEMINAR & BEDSIDE TEACHING**

**July 13 - October 10, 1992**

**TUESDAY**

**Orthopaedic Case Demonstration/Seminars**

by Dr. York Chow, Dr. Vincent Chan & Dr. Robert Chang/Dr. Harry Fang

(ALL GROUPS): 2.15 p.m. - 3.30 p.m.

Seminars: Block B, 1/F, Lecture Room, Queen Elizabeth Hospital

Case Demonstrations: Large Lecture Theatre, 1/F, School of General Nursing,  
Queen Elizabeth Hospital

Suggested Lecture Topics/Case Demonstrations

for Dr. Harry Fang/Dr. York Chow, Dr. Vincent Chan & Dr. Robert Chang

**July 13 - October 10, 1992 : TUESDAYS, 2.15 p.m. - 3.30 p.m.**

Venue: Block B, 1/F, Lecture Room, Queen Elizabeth Hospital

- |   |        |
|---|--------|
| 1. Cervical Spondylosis and Torticollis               | Aug 4  |
| 2. Ankylosing Spondylitis and Ankylosing Hyperostosis | Aug 11 |





- |  |        |
|--|--------|
| 3. Amputations in the Upper Limb           | Aug 18 |
| 4. Amputations in the Lower Limb           | Aug 25 |
| 5. Rehabilitation of the Paralysed Patient | Sept 1 |

Dr. York Chow/Dr. Vincent Chan

Venue: Large Lecture Theatre, 1/F, School of General Nursing, Queen Elizabeth Hospital

Time: 4.00 p.m. - 5.00 p.m.

|                    |     |         |
|--------------------|-----|---------|
| Case Demonstration | I   | Sept 8  |
|                    | II  | Sept 15 |
|                    | III | Sept 22 |
|                    | IV  | Sept 29 |
|                    | V   | Oct 6   |

**WEDNESDAY & THURSDAY:** 11.00 a.m. – 12.30 p.m.

**Bedside Teaching** in Kwong Wah Hospital & Queen Elizabeth Hospital

**Kwong Wah Hospital:** Dr. K.H. Mak & Dr. K.Y. Fung

- July 13 - Aug 8: Gps A1 - A4 (Please meet Dr. K.H. Mak/Dr. K.Y. Fung  
Aug 10 - Sept 5: Gps C1 - C4 at Ward N7 on the first day)  
Sept 7 - Oct 3: Gps B1 - B4

**Queen Elizabeth Hospital:** Dr. York Chow, Dr. Vincent Chan & Dr. Robert Chang

- July 13 - Aug 8: Gps B1 - B4 (Please meet Dr. York Chow, Dr. Vincent Chan  
Aug 10 - Sept 5: Gps A1 - A4 & Dr. Robert Chang at Ward H3 on the first day)  
Sept 7 - Oct 3: Gps C1 - C4

**FRIDAY:** 2.00 p.m. - 3.15 p.m.

Orthopaedic Seminar given by: Dr. S.K. Wong

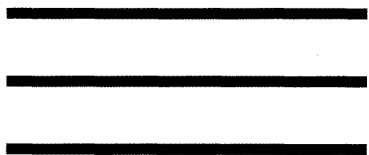
Lecture Hall, 10/F, New Wing, Kwong Wah Hospital

Suggested Lecture Topics for Dr. S.K. Wong

July 13 - October 10 11, 1992 : FRIDAYS, 2.00 p.m. - 3.15 p.m.

Venue: Lecture Hall, 10/F, New Wing, Kwong Wah Hospital

- |   |         |
|---|---------|
| 1. Indication for Open Reduction and Internal Fixation of Fractures | July 17 |
| 2. Common Fractures in the Upper Limb                               | July 24 |
| 3. Common Dislocations in the Upper Limb                            | July 31 |
| 4. Fractures around the Hip   | Aug 7   |
| 5. Fractures of the Long Bones of the Lower Limbs                   | Aug 21  |
| 6. Ankle Injuries   | Aug 28  |
| 7. Pelvic Injuries  | Sept 4  |
| 8. Fractures of the Foot  | Sept 11 |
| 9. Internal Derangement of the Knee                                 | Sept 25 |
| 10. Common Minor Problems in Orthopaedic Surgery                    | Oct 2   |



# Undergraduate & Postgraduate Teaching

## Department of Orthopaedic Surgery Specialty Clerks Timetable

**1st Week** July 20 - 25, 1992

| Monday   | Tuesday  | Wednesday   | Thursday   | Friday   | Saturday   |
|--|--|---|--|--|--|
| 8.30 a.m.<br>Orientation (1) - (15)<br>Dr. K.Y. Chiu<br>(5/F Lecture Theatre)  | 9.30 a.m. - 11.00 a.m.<br>Q.M. Seminar:<br>"P/E of the Hand and<br>Peripheral Nerves"<br>Dr. F.K. Ip | 8.00 a.m. - 10.00 a.m.<br>D.K. Conference   | 8.30 a.m. - 12.30 p.m.<br>Q.M. OT: (11) (12)<br>D.K. OT: (13)                    | 8.30 a.m. - 12.30 p.m.<br>D.K. OT: (2)<br>G.H. OT1: (3)<br>G.H. OT2: (4)           | 8.30 a.m. - 10.30 a.m.<br>Q.M. Round<br>Team A: (5) (6)<br>Team B: (7) (8) |
| 9.00 a.m. - 10.30 a.m.<br>Q.M. Seminar:<br>"Fractures of Hip"<br>Dr. K.Y. Chiu |  | 10.30 a.m. - 12.30 p.m.<br>Q.M. Grand Round<br>Team A: (1) (2)<br>Team B: (3) (4)   | 11.30 a.m.<br>DTRC Hand Class<br>(1) (14) (15)                                   | 9.00 a.m. - 10.00 a.m.<br>Q.M. Bedside Teaching<br>(1), (5) - (15)<br>Dr. S. Chang | 10.30 a.m. - 12.30 p.m.<br>Q.M. Conference                                 |
| 2.00 p.m. - 3.30 p.m.<br>D.K. Seminar:<br>"CDH"<br>Dr. Y.H. Li                 | 3.30 p.m. - 4.30 p.m.<br>Q.M. Seminar;<br>"Spinal Injury"<br>Dr. D. Fang                             | 2.00 p.m. - 5.00 p.m.<br>D.K. Clinic<br>Team A: (5) (6) (7)<br>Team B: (8) (9) (10) | 2.00 p.m. - 4.00 p.m.<br>S.Y.P. Upper Limb<br>Clinic<br>(1) - (7)<br>Dr. F.K. Ip | 2.00 p.m. - 4.00 p.m.<br>S.Y.P. Orthopaedic<br>Clinic<br>Prof. J. Leong            |  |

## Department of Orthopaedic Surgery Specialty Clerks Timetable

**2nd Week** July 27 - Aug 1, 1992

| Monday  | Tuesday  | Wednesday   | Thursday  | Friday   | Saturday  |
|---|--|---|---|--|---|
| 9.00 a.m. - 10.30 p.m.<br>Q.M. Seminar:<br>"Question Time"<br>Dr. D. Fang                                 | 9.30 a.m. - 11.00 a.m.<br>Q.M. Seminar:<br>"Fractures"<br>Dr. K. Cheung  | 8.00 a.m. - 10.00 a.m.<br>D.K. Conference   | 8.30 a.m. - 12.30 p.m.<br>Q.M. OT: (4) (5)<br>D.K. OT: (6)                        | 8.30 a.m. - 12.30 p.m.<br>D.K. OT: (10)<br>G.H. OT1: (11)<br>G.H. OT2: (12)                | 8.30 a.m. - 10.30 a.m.<br>Q.M. Round<br>Team A: (13) (14)<br>Team B: (1) (15) |
|   |  | 10.30 a.m. - 12.30 p.m.<br>Q.M. Grand Round<br>Team A: (9) (10)<br>Team B: (11) (12)  | 11.30 a.m.<br>DTRC Hand Class<br>(7) (8) (9)                                      | 8.45 a.m. - 10.00 a.m.<br>Q.M. Bedside Teaching<br>(1) - (9), (13) - (15)<br>Dr. S.Y. Chun | 10.30 a.m. - 12.30 p.m.<br>Q.M. Conference                                    |
| 2.00 p.m. - 3.30 p.m.<br>Q.M. Seminar:<br>"P/E and Management<br>of Low Back<br>Discorders"<br>Dr. K. Luk | 3.30 p.m. - 4.30 p.m.<br>Q.M. Seminar:<br>"Hand Injuries"<br>Dr. S. Chan | 2.00 p.m. - 5.00 p.m.<br>D.K. Clinic<br>Team A: (13) (14) (15)<br>Team B: (1) (2) (3) | 2.00 p.m. - 4.00 p.m.<br>S.Y.P. Upper Limb<br>Clinic<br>(8) - (15)<br>Dr. F.K. Ip | 2.00 p.m. - 4.00 p.m.<br>S.Y.P. Orthopaedic<br>Clinic<br>Prof. J. Leong                    |   |

# Undergraduate & Postgraduate Teaching



## Department of Orthopaedic Surgery Specialty Clerks Timetable

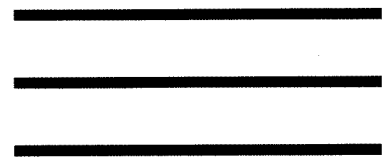
3rd Week Aug 3-8, 1992

| Monday   | Tuesday  | Wednesday  | Thursday   | Friday   | Saturday   |
|--|--|--|--|--|--|
| FREE   | 9.30 a.m. - 11.00 a.m.<br>Q.M. Seminar:<br>"P/E of the Knee"<br>Prof. J. Leong | 8.00 a.m. - 10.00 a.m.<br>D.K. Conference<br><br>10.30 a.m. - 12.30 p.m.<br>Q.M. Grand Round<br>Team A: (2) (3)<br>Team B: (4) (5) | 8.30 a.m. - 12.30 p.m.<br>Q.M. OT: (12) (13)<br>D.K. OT: (14)<br><br>11.30 a.m.<br>DTRC Hand Class<br>(1) (2) (15) | 8.30 a.m. - 12.30 p.m.<br>D.K. OT: (3)<br>G.H. OT1: (4)<br>G.H. OT2: (5)<br><br>9.00 a.m. - 10.00 a.m.<br>Q.M. Bedside Teaching<br>(1) - (2), (6) - (15)<br>Dr. P.C. Lee | 8.30 a.m. - 10.30 a.m.<br>Q.M. Round<br>Team A: (6) (7)<br>Team B: (8) (9)<br><br>10.30 a.m. - 12.30 p.m.<br>Q.M. Conference |
| 3.30 p.m. - 4.30 p.m.<br>Q.M. Seminar<br>"P/E and Management<br>of Hip Disorders"<br>Dr. T.K. Ho | FREE   | 2.00 p.m. - 5.00 p.m.<br>D.K. Clinic<br>Team A: (6) (7) (8)<br>Team B: (9) (10) (11)   | 2.00 p.m. - 4.00 p.m.<br>S.Y.P. Upper Limb<br>Clinic<br>(1) - (7)<br>Dr. F.K. Ip                                   | 2.00 p.m. - 4.00 p.m.<br>S.Y.P. Orthopaedic<br>Clinic<br>Dr. A. Yau  |  |

## Department of Orthopaedic Surgery Specialty Clerks Timetable

4th Week Aug 10-15, 1992

| Monday   | Tuesday  | Wednesday  | Thursday  | Friday   | Saturday   |
|--|--|--|---|--|--|
| 10.30 a.m. - 12.00 noon<br>D.K. Seminar<br>"P/E and Management<br>of Ankle and Foot<br>Disorders"<br>Dr. K.Y. Chiu | 9.30 a.m. - 11.30 a.m.<br>Q.M. Seminar:<br>"Musculoskeletal<br>Tumours"<br>Dr. T.L. Poon | 8.00 a.m. - 10.00 a.m.<br>D.K. Conference<br><br>10.30 a.m. - 12.30 p.m.<br>Q.M. Grand Round<br>Team A: (10) (11)<br>Team B: (12) (13) | 8.30 a.m. - 12.30 p.m.<br>Q.M. OT: (5) (6)<br>D.K. OT: (7)<br><br>11.30 a.m.<br>DTRC Hand Class<br>(8) (9) (10) | 8.30 a.m. - 12.30 p.m.<br>D.K. OT: (11)<br>G.H. OT1: (12)<br>G.H. OT2: (13)<br><br>9.00 a.m. - 10.00 a.m.<br>Q.M. Bedside Teaching<br>(1) - (10), (14) - (15)<br>Dr. T.L. Poon | 8.30 a.m. - 10.30 a.m.<br>Q.M. Round<br>Team A: (14) (15)<br>Team B: (1) (2)<br><br>10.30 a.m. - 12.30 p.m.<br>Q.M. Conference |
| 2.00 p.m. - 3.30 p.m.<br>D.K. Seminar:<br>"Scoliosis"<br>Dr. S.S. Upadhyay   | 3.30 p.m. - 4.30 p.m.<br>Q.M. Seminar:<br>"Chronic Arthritis"<br>Dr. J.J. O'Flanagan     | 2.00 p.m. - 5.00 p.m.<br>D.K. Clinic<br>Team A: (1) (14) (15)<br>Team B: (2) (3) (4)   | 2.00 p.m. - 4.00 p.m.<br>S.Y.P. Upper Limb<br>Clinic<br>(8) - (15)<br>Prof. S.P. Chow                           | 2.00 p.m. - 4.00 p.m.<br>S.Y.P. Orthopaedic<br>Clinic<br>Dr. A. Yau  |  |



# Undergraduate & Postgraduate Teaching

## Department of Orthopaedic Surgery Specialty Clerks Timetable

5th Week Aug 17-22, 1992

| Monday   | Tuesday  | Wednesday  | Thursday  | Friday  | Saturday  |
|--|--|--|---|---|---|
| 10.30 a.m. - 12.00 noon<br>D.K. Seminar:<br>"Skeletal Infection"<br>Dr. M.J. Saji                                | 9.00 a.m. - 10.30 a.m.<br>Rehabilitation Round<br>Dr. M. Lee<br>(MacLehose Medical<br>Rehabilitation Centre) | 8.00 a.m. - 10.00 a.m.<br>D.K. Conference<br><br>10.30 a.m. - 12.30 p.m.<br>Q.M. Grand Round<br>Team A: (3) (4)<br>Team B: (5) (6) | 8.30 a.m. - 12.30 p.m.<br>Q.M. OT: (13) (14)<br>D.K. OT: (15)<br><br>11.30 a.m.<br>DTRC Hand Class<br>(1) (2) (3) | 8.30 a.m. - 12.30 p.m.<br>D.K. OT: (4)<br>G.H. OT1: (5)<br>G.H. OT2: (6)<br><br>9.00 a.m. - 10.00 a.m.<br>Q.M. Bedside Teaching<br>(1) - (3), (7) - (15)<br>Dr. S. Chan | 8.30 a.m. - 10.30 a.m.<br>Q.M. Round<br>Team A: (7) (8)<br>Team B: (9) (10)<br><br>10.30 a.m. - 12.30 p.m.<br>Q.M. Conference |
| 2.00 p.m. - 3.30 p.m.<br>D.K. Seminar:<br>"P/E and Management<br>of Cervical Spine<br>Disorders"<br>Dr. A. Ohlin | 3.30 p.m. - 4.30 p.m.<br>Q.M. Seminar:<br>"P/E of the Shoulder,<br>Elbow and Wrist"<br>Prof. S.P. Chow       | 2.00 p.m. - 5.00 p.m.<br>D.K. Clinic<br>Team A: (7) (8) (9)<br>Team B: (10) (11) (12)  | 2.00 p.m. - 4.00 p.m.<br>S.Y.P. Upper Limb<br>Clinic<br>(1) - (7)<br>Prof. S.P. Chow                              | 2.00 p.m. - 4.00 p.m.<br>S.Y.P. Orthopaedic<br>Clinic<br>Dr. L. Hsu   |   |

### ORTHOPAEDIC SURGERY LECTURES 3RD YEAR M.B.,B.S. (1990-91)

August 27 - October 19, 1991 : SATURDAYS: 9.30 a.m. - 10.30 a.m.  
Underground Lecture Theatre 2, Queen Mary Hospital

|         |  |                    |
|---------|--|--------------------|
| Aug 31  | An Introduction to Problems<br>of the Musculoskeletal System | Prof. J.C.Y. Leong |
| Sep 7   | Reconstruction   | Prof. S.P. Chow    |
| Sept 14 | The Joints and Arthritis                                     | Dr. P.K.Y. Chiu    |
| Sept 21 | Deformities (The Limbs & The Spine)                          | Dr. E.K.W. Ho      |
| Sept 28 | Trauma   | Dr. D. Fang        |
| Oct 5   | Children's Orthopaedics                                      | Dr. D. Chan        |
| Oct 12  | Engineering and the Musculoskeletal System                   | Dr. K.D.K. Luk     |

**ORTHOPAEDIC SURGERY LECTURES**

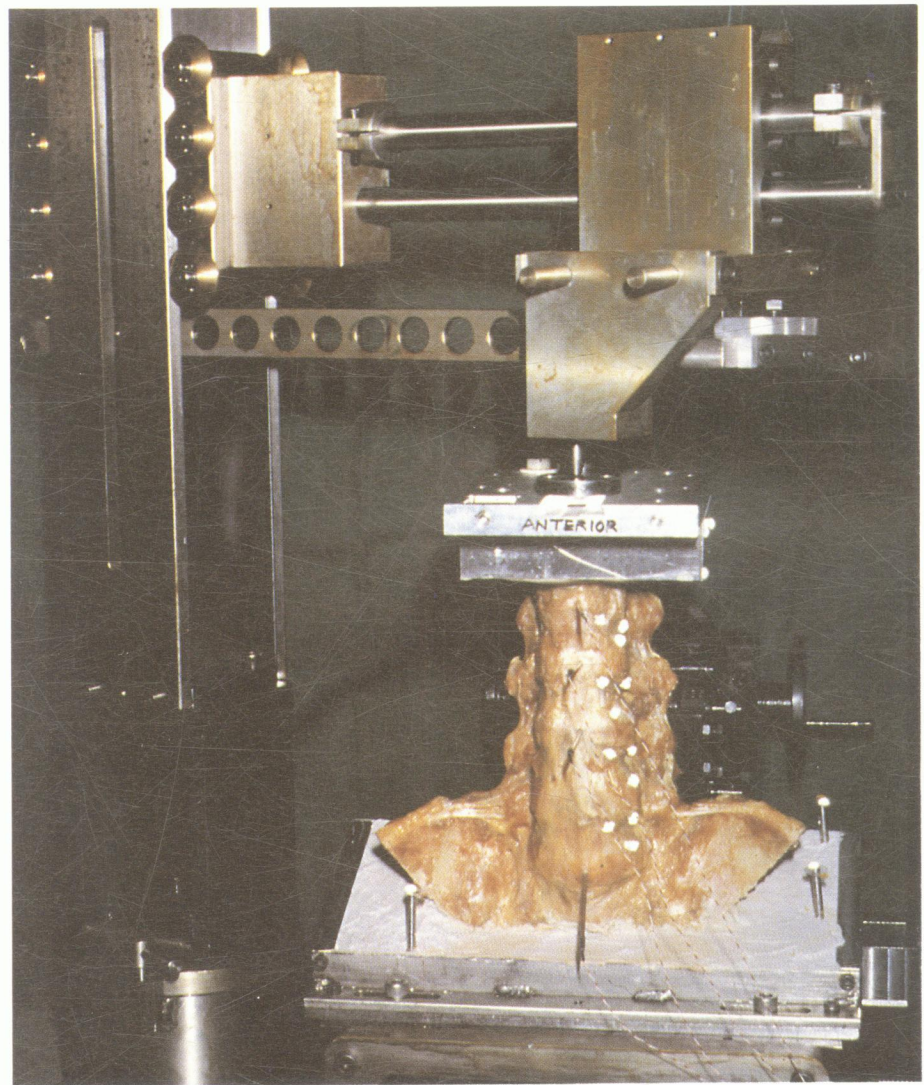
**3rd/4th Year M.B.,B.S. (1992)**

**Underground Lecture Theatre 1, Queen Mary Hospital**

**April 13 - October 10, 1992 : MONDAYS : 8.30 a.m. - 9.25 a.m.**

|         |   |                     |
|---------|---|---------------------|
| Apr 27  | Fractures: (a) Classification, Complications & Principles of Management | Dr. K.D.K. Luk      |
| May 4   | Fractures: (b) Management of Common Examples                            | Dr. F.K. Ip         |
| May 11  | Peripheral Nerve Injuries   | Prof. S.P. Chow     |
| May 18  | Common Congenital Abnormalities   | Dr. Y.H. Li         |
| May 25  | Osteoarthritis: Aetiology, Pathology, Principles of Management          | Dr. K.M.C. Cheung   |
| June 1  | Chronic Inflammatory Arthritis  | Prof. S.P. Chow     |
| June 8  | Disorders of Growth   | Dr. P.K.Y. Chiu     |
| June 22 | Spastic & Paralytic Disorders   | Dr. K.D.K. Luk      |
| June 29 | Neck Pain   | Dr. D. Fang         |
| July 6  | Spinal Deformities  | Prof. J.C.Y. Leong  |
| July 13 | Spinal Injuries   | Dr. D. Fang         |
| July 20 | Bone Tumours  | Dr. P.K.Y. Chiu     |
| July 27 | Common Foot Problems  | Dr. K.M.C. Cheung   |
| Aug 3   | Biomechanics & Applied Anatomy  | Dr. K.D.K. Luk      |
| Aug 10  | Back Pain   | Prof. J.C.Y. Leong  |
| Aug 17  | Ligamentous Injuries of the Knee  | Prof. J.C.Y. Leong  |
| Sept 7  | Bone & Joint Infections (including the spine): Pyogenic                 | Dr. J.J. O'Flanagan |
| Sept 14 | Bone & Joint Infections (including the spine): T.B.                     | Dr. J.J. O'Flanagan |
| Sept 21 | Hand Injuries & Infections  | Prof. S.P. Chow     |
| Sept 28 | Knee Pain   | Dr. D. Fang         |

# R E S E A R C H





**RESEARCH ACCOMPLISHMENTS**

In this section, an overview of the more important contributions that clinical and basic research in this Department have produced, will be outlined. The mentioned contributions are not meant to be exhaustive, and the reader is invited to read through those parts in the "Publications" section that may interest him or her. That section lists all the full papers published from this Department.

**THE ERA OF TUBERCULOSIS AND POLIOMYELITIS**

The main non-trauma workload in the 60s was tuberculosis of the bone and joint, and poliomyelitis. The anterior radical resection of tuberculous lesions, now known internationally as the "Hong Kong Operation" was a major breakthrough, which put Hong Kong on the world map of Orthopaedic Surgery; and the first paper on this operation published in the *British Journal of Surgery* in 1956 still remains a classic.

More importantly, this work provided the stimulus to the Medical Research Council of Britain to undertake extensive and multiple clinical trials, in different parts of the world, to scientifically assess the merits and demerits of conservative treatment, versus limited debridement, versus anterior radical resection for tuberculosis of the spine. Their studies have objectively demonstrated that whilst tuberculosis of the spine can be treated conservatively, there are major and important advantages of the "Hong Kong Operation".

In the past, numerous papers in major journals, and invited chapters in monographs and textbooks have been published on the management of tuberculosis of the various regions of the spine from this Department. In the last few years, publications were focused on long-term studies (20 or more years), including "Pott's Paraplegia of Late Onset: The

Cause of Compression and Recovery after Anterior Decompression", "Tuberculosis of the Lumbosacral Junction", etc. A recent paper on "17-Year Prospective Study of Surgical Management of Tuberculosis of the Spine" submitted for presentation in the Scoliosis Research Society (USA) has won the Russell Hibbs Award for 1992. The part of the paper concerned with patients treated in childhood has been invited for publication in the *European Spine Journal*.

**SCOLIOSIS**

The expertise gained on the anterior approach to the spine was used in the treatment of spinal deformities. The development of the halo-pelvic apparatus, as an external fixation device to correct severe spinal deformities, was the second milestone in Hong Kong's contribution to orthopaedic innovations. This device was used to correct severe and rigid deformities due to tuberculosis, paralytic deformities of the spine, and other types of scoliosis.

In 1977 a large-scale longitudinal program of anthropometric measurement to assess the growth and development of girls with adolescent idiopathic scoliosis was started at the Duchess of Kent Children's Hospital, in collaboration with Dr. W.D. Low of the Department of Anatomy, University of Hong Kong. Through this study, several papers establishing the normal standards of growth in Chinese, taking into account secular changes, were published. The next phase was the demonstration that scoliotic girls are taller than normal controls, and the sitting height contributes more than lower limb length; and that girls with idiopathic adolescent scoliosis mature more rapidly during early adolescence than the controls, but thereafter their rate of maturity slows down.

In the early 80s we found ultrastructural changes in the nerve fibres and muscle spindles in patients with adolescent idiopathic scoliosis. This work was nominated for the Russell Hibbs Award of the



**Research**  
**(RESERACH ACCOMPLISHMENTS)**

■  
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Scoliosis Research Society in 1981, and later published in *Clinical Orthopaedics & Related Research*.

The anthropometric measurement program has been refined and continued since 1988, and continues to bear fruit. In 1988/89 we discovered a compensatory increase in leg length in girls with scoliosis who have a shortened spine due to spinal fusion. This new phenomenon, when presented in the Hong Kong Orthopaedic Association's Annual Meeting (1988) won the Hodgson Prize for the best research paper. Subsequent developments on this important topic were presented in several international conferences, leading to the formation of an international growth study group involving European countries, North America and Hong Kong. Hong Kong was elected one of the founder members of this group, representing the Middle East and Asia.

More recently, we discovered new prognostic features to predict the final outcome of brace treatment for scoliosis. We found that a reduction in both spinal curvature and vertebral rotation by 5° or more following the application of a brace, is a good predictor of the successful outcome of brace treatment (the accuracy of prediction is 97%). This work and further developments related to it have been presented in several international conferences and symposia and a full length paper will appear shortly in *Spine*, by invitation. These new prognostic features to predict the outcome of brace treatment are under further evaluation in a joint project with Malmo, Sweden.

We have developed new methods for measuring anterior and posterior spinal column rotation in scoliotic deformities using computed tomography (CT). Papers related to their inter/intra observer reliability, the correlation between previously published radiological methods (Nash & Moe) and CT methods of measuring vertebral rotation, and differential deformation of the vertebral body versus the

posterior elements in scoliosis have been presented in major conferences and accepted for publication in *Spine*. On the basis of this work, we have been invited by The Working Party on 3-D Spinal Deformities of the Scoliosis Research Society (USA), to join the group.

Our recently published original findings regarding disproportionate changes in the pulmonary functions of girls with scoliosis following spinal fusion, where vital capacity was found to be reduced and associated with highly increased residual volume, led to a comprehensive project plan to study factors related to these changes in pulmonary functions. The project proposal resulted in a HK\$1.3 million grant from the Croucher Foundation in July 1992.

For congenital and neurofibromatotic spinal deformities, we have taken an aggressive approach, excising lumbosacral hemivertebrae through a combined one-stage anterior and posterior approach, and fusing the spine anteriorly and posteriorly in dystrophic spinal deformities, and have established this Department as one of the world's leading authorities in these fields.

**ADULT SPINE DISORDERS**

In the past, there has been intense research activity on the surgical management of spinal deformities apart from scoliosis. There is an impressive list of publications from the Department covering various aspects of: lumbar spondyloptosis; spondylolisthesis; and the management of the ankylosing spondylitic spine. Ankylosing spondylitis had been studied extensively, made possible by the establishment of a special clinic, with a patient population of over 300. We have clarified the confusion in the literature of "spondylodiscitis" in this condition, and shown histologically that these are true pseudarthrosis, and studied the natural history as well as results of surgical treatment. Another problem of the ankylosing spondylitic spine, severe fixed flexion deformity (kyphosis), has also been





studied, and a new and safe technique "transpedicular decancellation osteotomy" to correct the deformity was developed here and invited to be published in a German textbook on spinal surgical techniques.

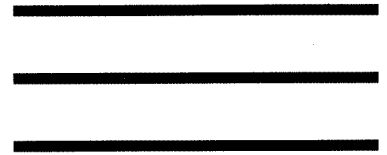
In the management of degenerative diseases of the spine, the Department holds an excellent record. A titanium mesh implant was developed in conjunction with the University of Chicago to use in anterior spinal fusion, for deranged lumbar intervertebral discs. We now have a 13-year follow-up. This pioneering work has been invited to be published in a symposium on spinal disorders in *Clinical Orthopaedics & Related Research*. Other areas of research in this field were extensive, covering anterior spinal surgery for lumbar and cervical intervertebral discs; long-term results of anterior spinal fusion for lumbar intervertebral discs; atlanto axial instability; and cervical spondylotic myelopathy.

#### **HAND AND MICROVASCULAR SURGERY**

Clinical research was centred around hand injuries because of its local prevalence. The pathology of the moulding press injury has been studied, and one of the subtypes, the thenar burst injury in over 200 cases was analysed in detail, with a new proposal on classification and assessment. Thousands of fingertip injuries presented each year, as a result of which, the open method of treatment was adopted. The results were surprisingly good and the method is being tried in a prospective study on large fingertip injuries. Flexor tendon injuries were treated by primary repair and their results carefully analysed. The design and mechanical testing of a post-operative splint for repaired flexor tendons was published. A prospective trial on a similar splint for extensor tendon repair is underway. We have just been asked to join the Tendon Committee of the International Federation of Societies for Surgery of the Hand. Since seven years ago, a prospective study on digital fractures has been started. Different

stages of treatment with K-wires, A-O screws and plates, and minicondylar blades and plates have been tried and their results analysed. Almost 300 cases of compound digital fractures have been analysed and a grading of severity proposed in the *Journal of Hand Surgery*. The computerised record of over 900 cases constitutes one of the largest series of digital fractures in the world. Similarly, over 150 cases of intra-articular fracture of the distal radius in young patients were prospectively studied since 1987. Our method of open reduction and T-plate fixation has shown very good results. Different patterns of carpal malalignment were also discovered, signifying concomitant ligamentous injuries in many cases. Various studies on digital nerve injuries such as the "jump phenomenon", "collateral innervation", and long-term follow-ups have been completed in several hundred cases. The function after digital amputation in over 100 patients were prospectively studied and will be published in the *Journal of Hand Surgery*. An interesting induration infection of the hand occurs frequently among fishermen in Hong Kong. We identified mycobacterium marinum as the culprit. The experience gained from over 100 patients has given some golden guidelines for treatment and prognosis.

Basic research on various factors affecting microvascular anastomosis, including the behaviour of homografts, heterografts, and the effect of infection, etc. has resulted in over 20 publications in international journals. Over 350 rats were operated on to study the phenomenon of venous flaps, a joint project with Shanghai, and has yielded five papers so far. Neurotropism, neurotrophism and collateral innervation were studied in the rat and rabbit in conjunction with the University of Hiroshima, University of Osaka and Sun Yat-Sen University of Medical Sciences. Local scientists from the Departments of Physiology and Anatomy, University of Hong Kong, Department of Anatomy, Chinese University of Hong Kong, and the Rehabilitation Engineering Centre, Hong Kong Polytechnic have formed a core



## **Research**

### **(RESEARCH ACCOMPLISHMENTS)**

group. With a continuous supply of cadaveric hand skeletons from Anatomy, biomechanical studies of finger fracture fixation are being performed, in the Hong Kong Polytechnic at first, and with our own Instron machine (Biomechanics Laboratory in DKCH) lately. Flexor tendon healing in the rabbit after freeze drying and partial flexor tendon injury in chickens have been reported, adding to our understanding on the cellular mechanism of tendon healing. A new concept of spacer, periosteum, and continuous passive motion has been tried in 36 rabbits and the follow-up at one year showed very good "cartilage" formation. Human trial is being contemplated soon.

Research will not be complete unless we can make an impact on social policy as well. The social, economic, psychological, and epidemiological aspects of hand injuries in Hong Kong have been studied and results conveyed to various government bodies.

Research in hand surgery and microsurgery, therefore, has stood up to its mission as the "second wave" of excellence, after our initial success with spinal surgery.

#### **BIOMECHANICS**

In January 1988, a Biomechanics Laboratory was established at the Duchess of Kent Children's Hospital through a generous donation of HK\$250,000 from the Liu Po Shan Foundation. Dr. K.D.K. Luk and Prof. J.C.Y. Leong, through various grant applications equipped the laboratory with an Instron tensile testing machine. Later on, a new telemetric electromyographic system with a flexible goniometer was installed and this led to the EMG studies of selective quadriceps activity in anterior knee pain. Subsequently, an M.Phil. candidate working on "Biomechanical Study of the Iliolumbar Ligament in Maintaining Stability of the Lumbar Junction" was registered under the supervision of Dr. Luk and Prof. Leong. In January 1990, a 3-D motion analysis system, coupled to an EMG

system, was installed, enabling very fine and minute to gross and high-speed movement patterns to be studied, and if necessary correlated with muscle activity.

A number of original observations have been published in various international journals related to the development and biomechanics of the iliolumbar ligaments, their role in the stabilization of the lumbar junction, and the influence of erect posture on the development of the lumbar junction. We have demonstrated that the iliolumbar ligaments do not exist in quadrupeds, but do exist in primates. They are absent at birth in the human being, and probably formed by metaplasia of muscle as the erect posture is gradually assumed. We showed that the distally unfused intervertebral spaces in patients with long spinal fusion for idiopathic scoliosis were hypermobile in extension, and this spearheaded the recent work done on motion of the lumbar spine adjacent to an interbody fusion, a radiologic and cadaveric biomechanical study, which is being used as a basis for his thesis by a Ph.D. student in our Department.

#### **FRACTURE OF BONE AND JOINT**

Our earlier experience of elderly Chinese patients with hip fractures generated the impression that such patients had a lower mortality rate than those reported in the western literature. A study in our Department in 1975 confirmed a mortality of only 3.6% during the first two months. On the other hand, using intraosseous venography method, we found an incidence of 53.5% deep vein thrombosis, although the majority occurred in the soleus venous system as minor clots. Indeed when we compared conservative treatment with operative treatment in fracture hips in 1976-77, the mortality rate and final functional results were comparable. However, in order to hasten recovery in patients with unstable trochanteric fractures, we embarked on a series of prospective studies of Dimon-Hughston osteotomy, Sarmiento osteotomy,



Enders nailing, with or without cement augmentation and our reported results showed minor differences in each group. In fact, the latest method i.e. simple dynamic hip compression with immediate weight bearing seems to give the best result.

Soon, we realised that the prognosis of patients with hip fractures depends on other medical, psychological, familial, social and economic factors, and therefore a large scale prospective study was done together with sociologists, psychologists, metabolic physicians, and other paramedical professionals. From 1985 to 1991, data from 1,700 patients were entered into a data-base. Numerous publications have come out of this, so much so that this project had been named as an outstanding project by the Strategic Grants Committee of our University. At this moment, some on-going analysis include hip fractures in the elderly, bilateral fractures, combined sub-capital and trochanteric fractures, fractures in patients with cerebro-vascular accidents, long-term follow-up of total hip replacements for hip fractures, A-O screw for sub-capital and transcervical fractures, and total analysis for prognostication on the 1,700 patients. Initial results showed that surgical expertise has probably reached its peak. Any further advance has to come from improving the socio-economic aspects.

We have studied residual joint stiffness after functional bracing of tibial shaft fractures in 98 patients, followed up for an average of 1.86 years (maximum 5 years), at which point 32% of the patients still had residual stiffness in ankle motion, and 40% had residual stiffness in subtalar motion. Even in those with more than two years' evaluation, 25% had residual ankle stiffness, and 29% had residual subtalar stiffness. In another study, we reviewed 30 children with isolated closed femoral shaft fractures followed to skeletal maturity, to assess leg length discrepancy after such injuries. We found that between ages of 7 and 13 years, the limb overgrew about 1 cm regardless of sex, upper limb dominance, age, fracture site or configuration. Angulation of the fracture remodelled in children injured under 10 years of age. We recommend

therefore that treatment of the 7 to 13-year old patient should aim at 1 cm overlap at union, with correction of angular deformity being more important in children over 10 years of age.

**PAEDIATRIC ORTHOPAEDICS**

In the field of paediatric orthopaedics, many publications have arisen from clinical research in children with neuromuscular diseases, especially poliomyelitis and cerebral palsy. We have shown that it is possible to correct a severe rigid drop foot to plantigrade position by Lambrinudi triple arthrodesis; and that a simple supracondylar femoral osteotomy to treat fixed flexion deformity of the knee in poliomyelitis can be very effective, and sometimes convert a non-ambulatory patient to a community worker. In cerebral palsy patients, we have shown the merits of a supramalleolar derotation osteotomy for equinovarus feet; that a combination of Batchelor-Grice extra-articular subtalar arthrodesis has a much higher percentage of solid arthrodesis; that split tibialis posterior tendon transfer through the interosseous membrane is useful in dynamic equinovarus feet. We have also published on viscoelastic behaviour of tissue in leg lengthening, and as far back as 1979 shown that multiple small lengthenings per day is desirable. One should distract at equally spaced time intervals to obtain repetitive load cycles and thereby reduce peak values of load and maintain similar stress relaxation patterns for each instantaneous load increase. This concept has only recently caught on in centres doing a lot of limb lengthening, and is being pursued on a commercial basis by the development of machines that distract continuously at extremely slow rates.



**OTHER AREAS OF ACHIEVEMENT**

The Department is involved in research in almost all the sub-specialties of orthopaedic surgery. We have published on the results of total joint replacement in ankylosing spondylitis, non-cemented PCA hip replacements, the use of allograft in reconstructive surgery, bound feet, etc.

**Research**  
(RESERACH GRANTS)



**RESEARCH GRANTS**

Medical Faculty Research Grant Funds

*(including donations from various private institutions and individual benefactors)*

Medical Faculty Research Fund (China Medical Board)

Wing Lung Bank

Sun Yat Sen Foundation Fund (Faculty Centennial Celebration 1987)

Dr. Pauline Chan

Madam Fung Wong Fung Ting & Madam Ester F.Y. Fung

Dr. Lee Wing Tat

Mr. Wu Chung

CRCG: Committee on Research and Conference Grants, University of Hong Kong

Strategic Research Grants: University of Hong Kong

UPGC: University & Polytechnic Grants Committee, Hong Kong Government

Croucher Foundation Research Grants: Private institution

Jessy & Thomas Tam Charitable Foundation: Private institution

| PROJECT  | GRANT GIVING BODY                    | MONTH/YEAR    | GRANT HOLDERS              | HK\$   |
|--|--------------------------------------|---------------|----------------------------|--------|
| The Adventitia in Micro-vascular Anastomosis   | Donation from Mr. David Mok          | 1978          | S.P. Chow                  | 5,000  |
| Microarterial Grafting: Homograft vs Allograft   | CRCG                                 | 1981          | S.P. Chow                  | 10,000 |
| Biomechanics of the Lumbosacral Spine  | Medical Faculty Research Fund        | July 1983     | K.D.K. Luk<br>J.C.Y. Leong | 15,000 |
|  | CRCG                                 | January 1986  |                            | 11,865 |
|  | Pauline Chan Medical Research Fund   | August 1983   |                            | 93,200 |
|  |                                      | June 1986     |                            | 25,230 |
| Lone-term Study of Hip Fractures in the Elderly  | CRCG                                 | June 1985     | S.P. Chow<br>W.K. Pun      | 30,000 |
|  | Pauline Chan Medical Research Fund   | June 1986     |                            | 30,000 |
|  | Donation from Richards International | February 1986 |                            | 8,000  |
| Development of a High Strength Polyethylene Prosthetic Ligament for the Human Knee Joint | CRCG                                 | June 1986     | D. Fang                    | 43,200 |
|  | Wing Lung Bank Medical Research Fund | June 1986     |                            | 15,000 |

**Research**  
(RESERACH GRANTS)

| PROJECT  | GRANT GIVING BODY   | MONTH/<br>YEAR                   | GRANT HOLDERS  | HK\$                               |                  |
|--|---|----------------------------------|--|------------------------------------|------------------|
| Spinal Stenosis in Chinese & Biomechanics of the Iliolumbar Ligaments  | CRCG<br>Wing Lung Bank<br>Medical Research<br>Fund                      | December 1986<br>February 1987   | K.D.K. Luk<br>J.C.Y. Leong                             | 77,800<br>5,000                    |                  |
|  | CRCG<br>Lee Wing Tat<br>Medical Research<br>Fund                        | December 1987<br>April 1988      |  | 24,370<br>16,820                   |                  |
|  | Strategic Research<br>Grants<br>CRCG                                    | 1987<br>June 1991                |  | S.P. Chow<br>W.K. Pun<br>K.Y. Chiu | 50,000<br>11,000 |
| Study of Hand Function After Injuries  | CRCG<br>Madam Fung Wong<br>Fung Ting & Madam<br>Ester F.Y. Fung<br>Fund | December 1987<br>March 1988      | K.D.K. Luk   | 9,150<br>12,200                    |                  |
| Study of Hand Function After Injuries  | CRCG  | 1988                             | S.P. Chow<br>Y.C. So<br>K.D.K. Luk                     | 60,000                             |                  |
| Human Allograft Replacement of the Anterior Cruciate Ligament  | CRCG<br>Madam Fung Wong<br>Fung Ting & Madam<br>Ester F.Y. Fung<br>Fund | May 1988<br>July 1988            | D. Fang  | 60,538<br>29,597                   |                  |
| Biomechanical Studies of the Effects of Spinal Fusion on Fused Segment and the Adjacent Free Motion Segments of the Human Lumbar Spine | CRCG<br>UPGC<br>Croucher Foundation<br>Research Grants                  | May 1989<br>May 1989<br>May 1989 | K.D.K. Luk<br>J.C.Y. Leong                             | 73,980<br>60,000<br>1,121,960      |                  |
|  | Lee Wing Tat<br>Medical Research<br>Fund                                | August 1989                      |  | 59,604                             |                  |
|  | Hong Kong<br>Medical<br>Supplies Ltd                                    | January 1990                     |  | D. Fang                            | 50,000           |
|  | UPGC<br>Madam Fung Wong<br>Fung Ting & Madam<br>Ester F.Y. Fung<br>Fund | May 1990<br>May 1990             |  | J.C.Y. Leong<br>S.S. Upadhyay      | 80,400<br>14,000 |
| Biomechanical Analysis of Local Effects of Lumbar Interbody Fusion   | UPGC  | July 1990                        | J.C.Y. Leong<br>K.D.K. Luk<br>E.K.W. Ho<br>D.H.K. Chow | 400,000                            |                  |
| Biomechanical Study of Anterior Knee Pain  |   |                                  |  |                                    |                  |
| Gait Analysis of Cerebral Palsy Patients   |   |                                  |  |                                    |                  |

**Research**  
(RESERACH GRANTS)

| PROJECT  | GRANT GIVING BODY                                      | MONTH/ YEAR              | GRANT HOLDERS                                | HK\$              |
|--|--|--------------------------|--|-------------------|
| Rotational Deformity of Spine in Soliosis  | CRCG   | 1990-1991                | S.S. Upadhyay<br>E.K.W. Ho                   | 49,700            |
| Growth and Development in Girls with Scoliosis   | Jessy & Thomas Tam Charitable Foundation               | 1990-1992                | S.S. Upadhyay                                | 600,000           |
| Meniscal Excursion   | CRCG   | May 1991                 | D. Fang                                      | 102,120           |
| Clinical Information System  | CRCG   | June 1992                | A.J. Hedley<br>J.C.Y. Leong                  | 160,300           |
| Biomechanical Study of Anterior Knee Pain  | CRCG   | June 1992                | J.C.Y. Leong<br>K.D.K. Luk                   | 64,463            |
| Biomechanics of Normal and Injured Human Knee Menisci  | CRCG   | June 1992                | D. Fang                                      | 134,700           |
| A Prospective Study to Assess the Incidence of Venous Thromboembolism in Chinese Subjects After Total Hip Replacement and to Correlate this with Changes in Coagulation Parameters | CRCG   | June 1992                | H.W. Liu<br>L.C. Chan<br>K.H. Lee<br>D. Fang | 40,000            |
| Intervertebral Disc Grafting   | CRCG<br>Wu Chung Medical Research Fund                 | June 1992<br>August 1992 | K.D.K. Luk<br>D. Ruan<br>Z.J. Lue            | 100,000<br>36,000 |
| Evaluation of Changes in Pulmonary Functions in Children with Scoliosis Pre-and Post-operatively and Comparative Analysis with Healthy Southern Chinese Children                   | Croucher Foundation Research Grants                    | July 1992                | J.C.Y. Leong<br>S.S. Upadhyay                | 1,392,060         |
| Study of Hand function After Injuries  | Madam Fung Wong Fung Ting & Madam Ester F.Y. Fung Fund | August 1992              | S.P. Chow                                    | 68,580            |

**ONGOING RESEARCH PROJECTS**

**I. Spine**

Prospective longitudinal study of thoracolumbar burst fractures treated conservatively and surgically

Long-term results of anterior spinal fusion in patients with tuberculosis of the spine

Radiologic evaluation of stable and unstable types of spondylolisthesis

Biomechanics of adjacent motion segments after anterior interbody fusion – cadaveric and radiologic study

Autotransplantation of whole intervertebral disc in primates

Development of an anterior spinal fixation implant

Problem back pain clinic

Photo-densitometry to study mineral contents of bone and soft tissue in patients with ankylosing spondylitis

Results of radical anterior decompression for cervical spondylotic myelopathy – clinical and electrophysiological study

**II. Scoliosis**

Respiratory biomechanics, exercise tolerance and pulmonary function evaluations in patients with adolescent idiopathic and congenital scoliosis following spinal fusion

Computed tomographic methods to measure vertebral rotation in adolescent

idiopathic scoliosis

Evaluation of brace treatment in adolescent idiopathic scoliosis

Longitudinal growth and development in girls with adolescent idiopathic scoliosis

Prospective clinical trial of different modalities of surgical treatment in scoliosis

**III. Hand Surgery**

Finger fractures: prospective study of 900 cases

Design of a permanent tendon prosthesis

Results after digital nerve repair, major nerve repair, and the phenomenon of collateral overlap after nerve injuries

Mycobacterium marinum infection of the hand

Comminuted intra-articular fractured lower end of radius in the young

Biomechanical studies and clinical correlation of partially cut flexor tendons

Opponenplasty in "thenar crush injuries"

Pressure and posture studies of hand bandages

Large fingertip injuries

Metacarpal lengthening in congenital constriction syndrome

Subdermal plexus skin graft in the hand

# **Research**

## **(ONGOING RESEARCH PROJECTS)**



Porous metal + periosteum + continuous passive motion in rabbits for re-shaping and re-surfacing of joint

### **IV. Microsurgery**

Venous flap - haemodynamic factors affecting survival, and quality study

Anterior horn cell changes in brachial plexus injuries

Neurotropism and neurotrophism in peripheral nerves

Prevention of claw-toe deformity in toe-to-hand transplant

Collateral sprouting of sensory nerve

Nerve adhesions after repair - mobilization vs immobilization

### **V. Joints**

In-vitro cartilage growth studies

Arthroscopy and manipulation for frozen shoulder

Asian femoral stem design

Meniscal excursion - an MRI study

Selective quadriceps function in anterior knee pain

### **VI. Paediatric Orthopaedics**

Femoro-acetabular anteversion in unstable and dislocated hips due to poliomyelitis and other neuromuscular disorders

Surgical treatment and radiologic monitoring of acetabular development in congenital dislocation of the hip in older children

Ultrasound evaluation for femoral anteversion in Southern Chinese children

EMG & motion analysis in neuromuscular paediatric problems

Split tibialis posterior tendon transfer in neuromuscular equinovarus feet

### **VII. Fractures**

Open reduction and internal fixation of os calcis fractures

Intramedullary interlocking nails for femoral and tibial fractures

Prospective study of 1,700 cases of hip fractures





**NATIONAL/INTERNATIONAL  
COLLABORATION FOR RESEARCH**

**INTERNATIONAL COLLABORATION**

**U.S.A.**

Fat embolism study in Hong Kong Chinese, deep vein thrombosis in Hong Kong Chinese after hip fracture, congenital hip dislocation and dysplasia in Southern Chinese (*with F.T. Hoaglund, Vermont*)

Titanium mesh implant for replacement of intervertebral disc (*with Rostoker & Galante, Chicago*)

Member of Scoliosis Research Society Working Party on 3-D Terminology of Scoliosis

**U.K.**

International group to study growth and development in adolescent idiopathic scoliosis (*with Nottingham, Liverpool and Belfast*)

Motion of adjacent vertebrae after anterior interbody fusion (*with J. Paul, Strathclyde*)

Design of press fit femoral prosthesis for non-cemented hip replacement in Asians (*with T. Cracknell, Swindon*)

**SWEDEN**

Brace effectiveness in adolescent idiopathic scoliosis (*with S. Willner, Malmo*)

International group to study the growth and development in adolescent idiopathic scoliosis (*with Malmo*)

**PEOPLE'S REPUBLIC OF CHINA**

Microvascular anastomosis of 0.2 mm vessels, tension in microvascular anastomosis (*with C.D. Huang, Guangzhou*)

Incompletely cut chicken tendon (*with O.D. Yu, Guangzhou*)

Long-term effect of long spinal fusion on the lumbar spine in scoliotics (*with F.B. Lee, Guangzhou*)

Bipolar coagulation and occlusion clamping in microvascular anastomosis (*with J.K. Zhu, Guangzhou*)

Placental vessel heterografts (*with K.F. Yang, Beijing*)

Infection on microvascular anastomosis (*with L.R. Zhou, Hunan*)

Venous flaps (*with D.Z. Chen, Shanghai*)

Intervertebral disc grafting (*with D. Ruan, Xian*)

**JAPAN**

Neurotropism and neurotrophism in peripheral nerves (*with University of Hiroshima*)

Finger fracture (*with University of Osaka*)

There are also numerous publications resulting from collaborative research when Fellows from overseas countries spend six months to one year of formal training in this Department. These have not been listed above.

**NATIONAL COLLABORATION**

**UNIVERSITY OF HONG KONG**

Occupational hand injury (*with Community Medicine*)

Clinical information system (*with A.J. Hedley, S.G. Ong, Community Medicine*)

Mycobacterium marinum infection of the hand (*with Microbiology & Pathology*)

Dupuytren's contracture (*with T.M. Kung, Pathology*)

Psychology after hand injury (*with M. Tsoi, Psychology*)



## **Research**

### **(NATIONAL/INTERNATIONAL COLLABORATIONS)**

Psychology in chronic back pain (*with Psychiatry*)

Vitamin D in hip fractures (*with Medicine*)

Permanent tendon prosthesis (*with Mechanical Engineering*)

Iliolumbar ligaments biomechanics (*with C.W. Woo, Mechanical Engineering*)

Halo-pelvic traction (*with J. Clark, Mechanical Engineering*)

Viscoelastic behaviour of tissues in leg lengthening (*with J. Clark, Mechanical Engineering; L. Cornish & R.Y.P. Ma, Electronic Services Unit*)

Hip fracture study (*with I. Chi, Social Work and Social Administration*)

Peripheral nerve research (*with Physiology*)

#### **CHINESE UNIVERSITY OF HONG KONG**

Effect of davaline orientalism in bone healing (*with H.W. Yeung, Biochemistry*)

Peripheral nerve research (*with Anatomy*)

#### **HONG KONG POLYTECHNIC**

Clinical information system (*with R. Liang, Computing Studies*)

Continuous passive motion and new joints (*with T. Tse & A. Mak, Jockey Club Rehabilitation Engineering Centre*)

Biomechanics of anterior cruciate ligament (*with A. Mak, Jockey Club Rehabilitation Engineering Centre*)

Spinal biomechanics (*with J. Evans, Jockey Club Rehabilitation Engineering Centre*)

Brace effectiveness in adolescent idiopathic scoliosis (*with M.S. Wong, M.Phil. student, Jockey Club Rehabilitation Engineering Centre*)

#### **QUEEN MARY HOSPITAL**

Osteotomy of the Chinese femur, retroperitoneal fibrosis after anterior spinal fusion, spinal pseudarthrosis in ankylosing spondylitis, migrating spinal pseudarthrosis, postsurgical recurrent stress fracture in the spine affected by ankylosing spondylitis (*with F.L. Chan, Diagnostic Radiology*)

Long-term effect on the cervical spine of halo-pelvic traction (*with Diagnostic Radiology*)

Acupuncture for Sudeck's atrophy, intravenous forearm regional analgesia (*with C.S. Chan, Anaesthesiology*)

HLA-B27 in ankylosing spondylitis (*with S.T. Yuen, Immunology*)

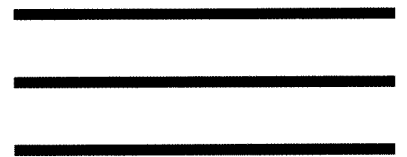
Venous thromboembolism in Chinese subjects after total hip replacement (*with Hospital Pathology Service*)

#### **ST. PAUL'S HOSPITAL**

Knee meniscal excursion, an MRI study (*with N.C. Tang, Radiology & MRI Service*)

**E D I T O R I A L**

**B O A R D S**



**EDITORIAL BOARDS**

**(I) INTERNATIONAL JOURNALS**

***SPINE SURGERY***

|                               |  |
|-------------------------------|--|
| Spine                         | J.C.Y. Leong (Advisory Editor)         |
| Journal of Spinal Disorders   | D. Fang (Member, Editorial Board)      |
| European Spine Journal        | J.C.Y. Leong (Member, Editorial Board) |
| The Journal of Spine Research | J.C.Y. Leong (Member, Editorial Board) |

***HAND & MICROVASCULAR SURGERY***

|   |                                  |
|---|----------------------------------|
| Journal of Hand Surgery (Great Britain) | S.P. Chow (Corresponding Editor) |
| Journal of Reconstructive Microsurgery  | S.P. Chow (Honorary Adviser)     |

***TRAUMATOLOGY***

|   |  |
|---|--|
| Injury  | J.C.Y. Leong (Corresponding Editor)    |
| Journal of Orthopaedic<br>Surgical Techniques | J.C.Y. Leong (Member, Editorial Board) |

***REVIEW JOURNAL***

|                                 |   |
|---------------------------------|---|
| Current Orthopaedics            | J.C.Y. Leong (Member, International<br>Advisory Board of Editors) |
| Current Opinion in Orthopaedics | J.C.Y. Leong (Member, Editorial Board)                            |

**(II) REGIONAL JOURNALS**

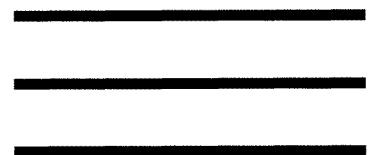
|  |  |
|--|--|
| Journal of The Western Pacific<br>Orthopaedic Association                          | J.C.Y. Leong (Deputy Editor)                   |
| Journal of The American<br>Medical Association<br><i>(Southeast Asian edition)</i> | J.C.Y. Leong (Advisory Editor)                 |
| Journal of Reconstructive Surgery <i>(China)</i>                                   | S.P. Chow (Honorary Adviser)                   |
| Journal of The Western Pacific<br>Orthopaedic Association                          | D. Fang (Member, Business<br>Management Board) |

**(III) LOCAL JOURNALS**

|  |  |
|--|--|
| Journal of Hong Kong Medical Association | D. Fang (Member, Editorial Board)                            |
| The Hong Kong Practitioner               | J.C.Y. Leong (Honorary Contributing<br>Editorial Consultant) |

C O M M U N I T Y

S E R V I C E

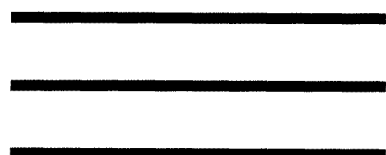




**COMMUNITY SERVICE**

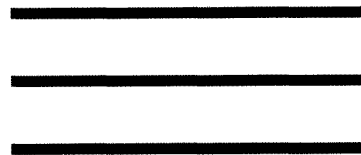
**Prof. J.C.Y. Leong**

- (a) Member, Executive Committee, Hong Kong Society for Rehabilitation  
*since 1981*
- (b) Member, Executive Committee, Society for the Relief of Disabled Children  
*since 1981*
- (c) Honorary Consultant in Orthopaedic Surgery, Army of Hong Kong  
(appointed by Ministry of Defence, U.K.)  
*since 1982*
- (d) Member, Government Hahn Working Party on  
Postgraduate Medical Education and Training  
*1986-1988*
- (e) Member, Licentiate Committee, Medical Council of Hong Kong  
*May 1986 - May 1995*
- (f) Member, Government Working Party on Primary Health Care  
(appointed by Governor)  
*1989-1991*
- (g) Co-opted Member, Committee of Management and Financing of  
Teaching Hospitals, Provisional Hospital Authority  
*1989-1991*
- (h) Member, Hong Kong Academy of Medicine Preparatory Committee  
(appointed by Governor)  
*February 1990 - April 1992*
- (i) Member, Hospital Authority, Hong Kong (appointed by Governor)  
*December 1990 - November 1991*
- (j) Member, Joint Committee on Student Finance (appointed by Governor)  
*May 1991 - April 1993*
- (k) Adjudicator, Immigration Tribunal (appointed by Governor)  
*July 1991 - February 1993*
- (l) Honorary Consultant, Hospital Authority  
*December 1991 - November 1992*
- (m) Member, Hospital Governing Committee, Duchess of Kent Children's Hospital  
*December 1991 - March 1993*
- (n) Member, Hospital Governing Committee, MacLehose Medical Rehabilitation Centre  
*December 1991 - March 1993*
- (o) Member, Hospital Governing Committee, Ruttonjee Hospital  
*December 1991 - March 1993*
- (p) Chairman, Joint Committee on Student Finance (appointed by Governor)  
*May 1992 - April 1993*



**Prof. S.P. Chow**

- (a) Voluntary doctor, charity clinic, Yuen Long, Hong Kong  
*1968-1969*
- (b) Voluntary doctor, charity clinic, Sha Tau Kok, Hong Kong  
*1968-1969*
- (c) Voluntary doctor, Vietnam Refugee Camp, Shamshuipo, Hong Kong  
*1980*
- (d) Voluntary visiting specialist, CARE-MEDICO program, Dacca, Bangladesh  
*1982*
- (e) Council Member, British Medical Association (Hong Kong Branch)  
*since 1984*
- (f) Board of Directors, Hong Kong Physically Handicapped and Able-Bodied Association  
*since December 1984*
- (g) Education Officer, British Medical Association (Hong Kong Branch)  
*1984-1986*
- (h) Council Member, The Federation of Medical Societies of Hong Kong  
*1984-1988*
- (i) Member, Program & Centre Service Committee,  
Hong Kong Physically Handicapped and Able-Bodied Association  
*since 1985*
- (j) Member, Pharmacy and Poisons Board, Hong Kong Government (Statutory)  
*January 1985 - January 1986*
- (k) Member, Credentials Sub-Committee, Licentiate Committee of the  
Medical Council of Hong Kong (Statutory)  
*July 1986 - May 1990*
- (l) Member, Supplementary Medical Professions Council (Statutory)  
*October 1986 - September 1989*
- (m) Chairman, Research and Evaluation Committee, Hong Kong Physically Handicapped  
and Able-Bodied Association  
*since 1988*
- (n) Voluntary doctor, Medecins sans Frontieres (Hong Kong),  
Vietnamese Refugee Camps, Hong Kong  
*May - June 1989*
- (o) President, British Medical Association (Hong Kong Branch)  
*1990-1992*
- (p) Member, Hospital Governing Committee, MacLehose Medical Rehabilitation Centre  
*December 1991 - March 1993*
- (q) Chairman, Program & Centre Service Committee, Hong Kong Physically Handicapped  
and Able-Bodied Association  
*since 1992*





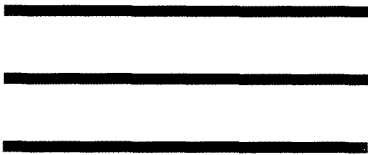
**Dr. D. Fang**

**Statutory Boards & Councils**

- (a) Member, Advisory Board on Optometry  
*1983-1985*
- (b) Member, Credentials Subcommittee of the Licentiate Committee of the  
Medical Council of Hong Kong  
*October 1985 - September 1986*
- (c) Member, Optometrists Board  
*May 1986 - April 1988*
- (d) Member, The Dental Council of Hong Kong  
*October 1986 - September 1989*
- (e) Member, Physiotherapists Board  
*April 1988 - March 1993*
- (f) Member, Hong Kong Medical Council  
*March 1989 - May 1995*
- (g) Member, Supplementary Medical Professions Council  
*October 1989 - September 1992*
- (h) Member, Hong Kong Academy of Medicine Preparatory Committee  
*February 1990 - April 1992*
- (i) Honorary Secretary, Interim Council of the Hong Kong Academy of Medicine  
*since August 1992*

**Non-Statutory Organizations**

- (I) The Hong Kong Society for Rehabilitation :
  - (a) Member, Executive Committee  
*1986-1990*
  - (b) Vice-Chairman  
*1990-1994*
- (II) MacLehose Medical Rehabilitation Centre :
  - (a) Vice-Chairman, MacLehose Medical Rehabilitation Centre Management  
Subcommittee  
*since 1988*
  - (b) Chairman, Hospital Governing Committee  
*December 1991 - March 1993*
- (III) Chairman, Hong Kong Academy of Medicine Foundation  
*1991 - 1992*







(IV) Director, Challenge Ventures Limited  
*1985-1991*

(V) Council Member, Hong Kong Medical Association  
*1983-1992*  
President, Hong Kong Medical Association  
*1992-1994*

**Dr. K.D.K. Luk**

(a) Honorary Medical Adviser, Rheumatoid Arthritis Association  
*since 1990*

**Dr. F.K. Ip**

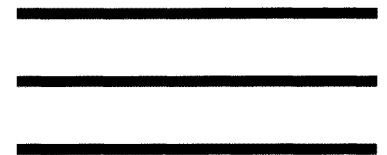
- (a) Director, Hong Kong Workers Health Centre  
*1984*
- (b) Vice-President, Hong Kong Workers Health Centre  
*1992-93*
- (c) Director, Chuan Yan Association (for promotion of education in villages in China)  
*1992-93*
- (d) Council Member, Asian Association of Dynamic Osteosynthesis  
*1992-93*

**Dr. Y.H. Li**

- (a) Honorary Medical Adviser, John Ford Kennedy School  
*since 1992*
- (b) Honorary Medical Adviser, Princess Alexandra School  
*since 1992*
- (c) Honorary Medical Adviser, Princess Margaret Red Cross School  
*since 1992*
- (d) Honorary Medical Adviser, Aberdeen Pre-School Centre  
*since 1992*

**Dr. T.L. Poon**

- (a) Medical Officer, Paramedical Training, The British Red Cross Society (Hong Kong)  
*since 1986*
- (b) First-Aid Instructor, The British Red Cross Society (Hong Kong)  
*since 1986*
- (c) Received "Service Award" in 1991



V I S I T I N G

P R O F E S S O R S H I P S



F E L L O W S H I P S



**M.B. LEE VISITING PROFESSOR**

|      |                        |             |      |                    |           |
|------|------------------------|-------------|------|--------------------|-----------|
| 1973 | Mr. J. Chalmers        | U.K.        | 1982 | Prof. G. Bentley   | U.K.      |
| 1974 | Dr. W.W. Lovell        | U.S.A.      | 1983 | Prof. B. McKibbin  | U.K.      |
| 1975 | Dr. N.J. Giannestras   | U.S.A.      | 1984 | Sir G.M. Bedbrook  | Australia |
| 1976 | Mr. A.G. Apley         | U.K.        | 1985 | Dr. J.W. Fielding  | U.S.A.    |
| 1977 | Dr. D.R. Gunn          | U.S.A.      | 1986 | Dr. M. Tile        | Canada    |
| 1978 | Prof. D.H. Gray        | New Zealand | 1988 | Dr. A.E. Gross     | Canada    |
| 1979 | Mr. G.C. Lloyd-Roberts | U.K.        | 1990 | Dr. D.M. Spengler  | U.S.A.    |
| 1980 | Dr. H.E. Kleinert      | U.S.A.      | 1991 | Prof. L. Klenerman | U.K.      |
| 1981 | Mr. M.W.J. Older       | U.K.        | 1992 | Dr. A. Sarmiento   | U.S.A.    |

**S.C. FONG VISITING PROFESSOR**

|      |                      |          |      |                    |        |
|------|----------------------|----------|------|--------------------|--------|
| 1968 | Dr. R.B. Salter      | Canada   | 1979 | Prof. J.I.P. James | U.K.   |
| 1969 | Dr. D.L. Griffiths   | U.K.     | 1981 | Prof. Y. Sugioka   | Japan  |
| 1970 | Dr. N.J. Giannestras | U.S.A.   | 1982 | Dr. R.W. Jackson   | Canada |
| 1971 | Dr. O.D. Chrisnan    | U.S.A.   | 1983 | Prof. N. Tsuyama   | Japan  |
| 1972 | Dr. E.V. Bovill      | U.S.A.   | 1987 | Prof. S.H. Wang    | China  |
| 1973 | Dr. M.B. Howorth     | U.S.A.   | 1988 | Dr. E.Y.S. Chao    | U.S.A. |
| 1973 | Prof. M. Makin       | Israel   | 1990 | Prof. H. Yamamoto  | Japan  |
| 1974 | Mr. A.L. Eyre-Brook  | U.K.     | 1991 | Dr. R.W. McGraw    | Canada |
| 1976 | Prof. J.F. Silva     | Malaysia | 1992 | Mr. M.J. McMaster  | U.K.   |
| 1978 | Prof. H. Stark       | U.S.A.   |      |                    |        |

**CILAG VISITING PROFESSOR**

|      |                   |        |      |                   |        |
|------|-------------------|--------|------|-------------------|--------|
| 1984 | Dr. C.R. Ashworth | U.S.A. | 1987 | Prof. T. Tajima   | Japan  |
| 1985 | Prof. K. Ono      | Japan  | 1988 | Prof. T. Yamamuro | Japan  |
| 1986 | Prof. M.S. Moon   | Korea  | 1990 | Dr. J.R. Urbaniak | U.S.A. |

**OCCASIONAL VISITING PROFESSORS**

|      |                    |           |      |                      |             |
|------|--------------------|-----------|------|----------------------|-------------|
| 1981 | Prof. C.D. Huang   | China     | 1988 | Prof. R. Roy-Camille | France      |
| 1982 | Prof. I. Goldie    | Sweden    | 1989 | Mr. W.A. Souter      | U.K.        |
| 1984 | Dr. D.S. Bradford  | U.S.A.    | 1990 | Dr. R.B. Winter      | U.S.A.      |
| 1984 | Dr. H. LaRocca     | U.S.A.    | 1990 | Mr. D.C. Davidson    | Australia   |
| 1984 | Prof. S.P.F. Huges | U.K.      | 1991 | Prof. A.G. Rothwell  | New Zealand |
| 1985 | Dr. A.B. Swanson   | U.S.A.    | 1991 | Dr. R.B. Winter      | U.S.A.      |
| 1985 | Dr. R.B. Winter    | U.S.A.    | 1991 | Prof. N. Bogduk      | Australia   |
| 1986 | Prof. K. Bose      | Singapore | 1992 | Mr. C.M. Court-Brown | U.K.        |
| 1987 | Prof. A. Nachemson | Sweden    |      |                      |             |

**Fellowships**

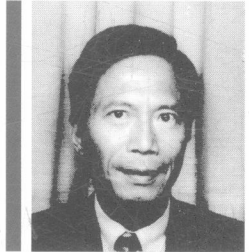


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**Dr. John Wilhelmy**  
USA

*Photograph  
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Available*

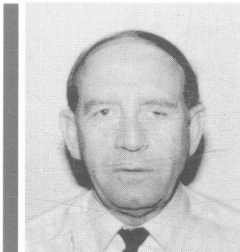
**Dr. Taylor K. Smith**  
Private Practice  
San Francisco, USA



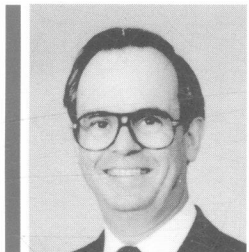
**Mr. Raymond N.W. Chan**  
Consultant  
Leicester, UK  
(January - June 1972)

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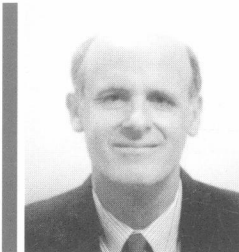
**John D.H. Bell**  
South Africa  
(January 1972)



**Dr. John P. Sage**  
Clinical Senior Lecturer  
Newcastle University  
Australia  
(July - December 1972)



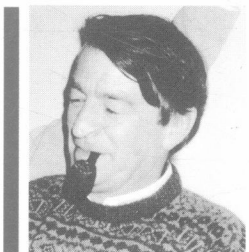
**Dr. Stephen J. Tredwell**  
Clinical Associate Professor  
University of British Columbia  
Canada  
(January - June 1973)



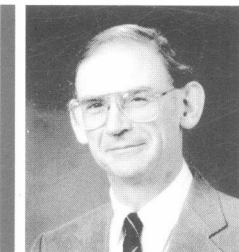
**Dr. William J. Coyle**  
Private Practice,  
Canberra, Australia  
(January - June 1973)



**Dr. Paul M. Tsou**  
Clinical Assistant Professor  
UCLA, Santa Monica, USA  
(July 1972 - May 1973)



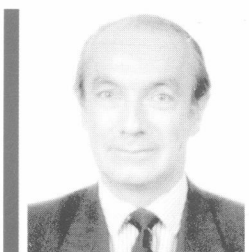
**Mr. David H.R. Jenkins**  
Consultant/Lecturer  
Cardiff University, UK  
(July 1973 - June 1974)



**Dr. Anthony P. Dwyer**  
Professor, Colorado University  
Director of Spinal Disorders  
Denver, USA  
(July 1973 - 1974)



**Steven S. Fountain**  
Private Practice  
USA  
(July 74 - June 1975)



**Philip V. Seal**  
Consultant, The General  
Hospital  
Hereford, UK  
(June 1974 - May 1975)



**Mr. Philip Cheong-Leen**  
 Consultant  
 Queen Mary's Hospital for  
 Children Carshalton, UK  
 (July - December 1975)



**Dr. Ali Kalamchi**  
 Private Practice  
 Wilmington, Delaware, USA  
 (July 1975 - March 1976)



**Dr. Antonio A. Rivera**  
 Philippine Orthopedic Institute  
 Makati, Philippines  
 (January - September 1976)



**Mr. Alistair G. Thompson**  
 Consultant  
 Royal Orthopaedic Hospital  
 Brimingham, UK  
 (July - December 1976)



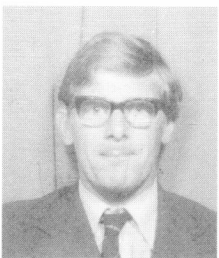
**Dr. Leonido C. Castillo**  
 Assistant Professor  
 University of the Philippines  
 Philippines  
 (June 1976 - January 1977)



**Dr. Romeo Du**  
 Philippines  
 (January - June 1977)



**Dr. Ramon Moreira**  
 Argentina  
 (January - June 1977)



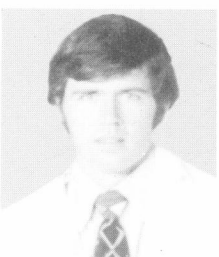
**Mr. Michael A. Simith**  
 Consultant, St. Thomas' Hospital  
 London, UK  
 (June - December 1977)



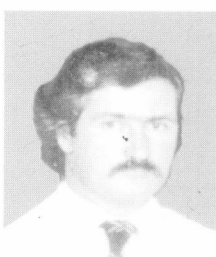
**Dr. David R. Godley**  
 Orthopaedic Surgeon  
 Permanente Medical Group  
 San Jose, USA  
 (July - December 1977)



**Dr. Kaley Wilding**  
 Private Practice,  
 Caringbah, Australia  
 (January - December 1977)



**Dr. Michael J. Casey**  
 USA  
 (January - June 1978)

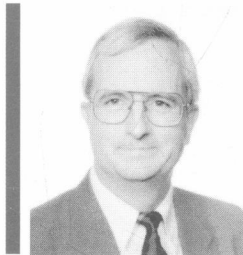


**Dr. David McNicol**  
 Private Practice,  
 Canberra, Australia  
 (January - June 1978)

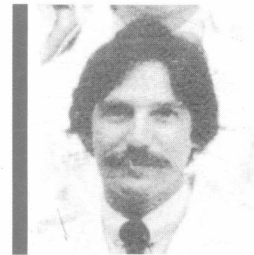


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**Dr. Robert L. Cameto**  
USA  
(July - December 1978)



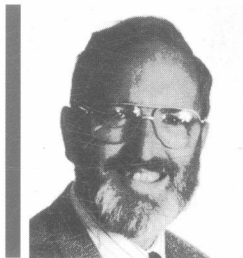
**Dr. R. Charles Ray**  
Private Practice  
Tacoma, USA  
(July - December 1978))



**Dr. Peter E. Diamond**  
Private Practice  
Honolulu, USA  
(July - December 1978)



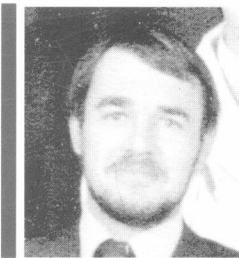
**Dr. Philip J. Mayer**  
Head, Section of Spine Surgery  
Henry Ford Hospital  
Detroit, USA  
(January - June 1979)



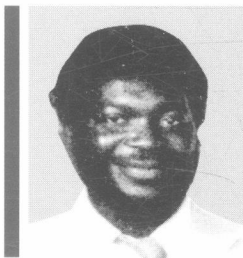
**Mr. John Dove**  
Director  
Stoke-on-Trent Spinal Service  
UK  
(January - June 1979)



**Dr. Tiong Sam Lim**  
Staff member  
University of Santo Tomas  
Philippines  
(July - December 1979)



**Mr. A. David Meredith**  
Consultant  
Bronglais General Hospital,  
Aberystwyth, UK  
(July - December 1979)



**Dr. Clement O. Alade**  
USA  
(January - June 1980)



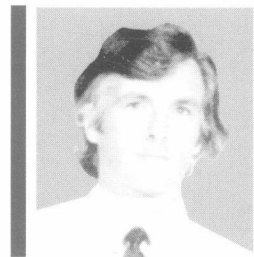
**Dr. Joyce E. Johansson**  
McGill University  
Westmount, Canada  
(January - June 1980)



**Prof. Dr. Ashiq Pervaiz**  
Professor & Consultant  
Nishtar Medical College & Hospital  
Multan, Pakistan  
(July - December 1980)



**Mr. Geoffrey Hooper**  
Consultant/Honorary Senior Lecturer  
University of Edinburgh, UK  
(July - December 1980)



**Dr. William J. Grange**  
Consultant  
London, UK  
(January - June 1981)

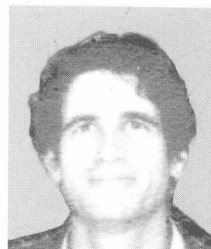
## Fellowships



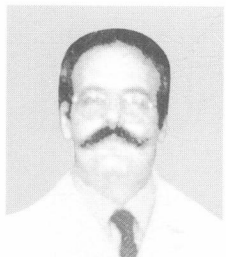
**Dr. Richard A. Buxton**  
Consultant  
Fife Health Board  
Scotland, UK  
(January – June 1981)



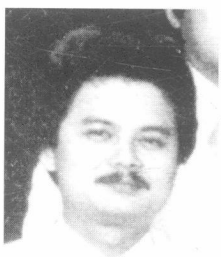
**Mr. Mark Rowntree**  
UK  
(1 June – 31 July 1981)



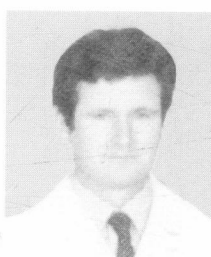
**Dr. James F. Zucherman**  
Private Practice  
San Francisco, USA  
(July 1981 – January 1982)



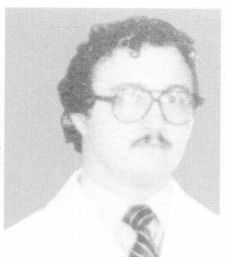
**Dr. Len Swanson**  
Chief of Orthopedics  
Brockville General Hospital  
Canada  
(January – June 1982)



**Dr. Robert V. Dominquez**  
Philippines  
(January – June 1982)



**Mr. Peter J.F. Wade**  
UK  
(July – December 1982)



**Dr. Robert G. Hamilton**  
USA  
(July – December 1982)



**Mr. David Jaffray**  
Assistant Director of Clinical Studies  
The Robert Jones & Agnes Hunt  
Orthopaedic & District Hospital,  
Oswestry, UK  
(January – June 1983)



**Mr. Wilson K.C. Lee**  
Private Practice  
North Adelaide, Australia  
(January – June 1983)



**Dr. Ken Y. Hsu**  
Director of Orthopaedic Services,  
St. Mary's Spine Center  
San Francisco, USA  
(July – December 1983)  
(January – May 1984)



**Dr. Leslie M. Reyes**  
Consultant  
Los Banos Doctors Hospital  
Laguna, Philippines  
(July – December 1983)

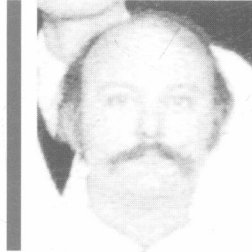


**Dr. Jeffrey Parker**  
USA  
(January – June 1984)

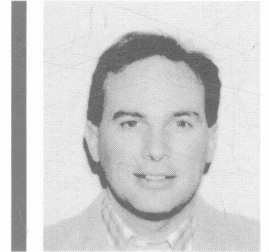
## Fellowships



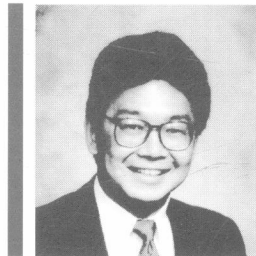
**Dr. Tomas Aparisi**  
Professor  
Instituto Karolinska  
Valencia, Spain  
(July - December 1984)



**Dr. Mark S. Byrne**  
Australia  
(July - December 1984)



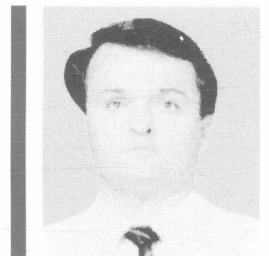
**Dr. Kevin P. Schoenfelder**  
Private Practice  
Tacoma, USA  
(January - June 1985)



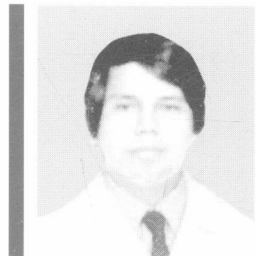
**Dr. Vernon K. Fong**  
Private Practice  
Modesto, California, USA  
(July - December 1985)



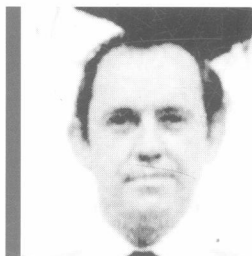
**Dr. Montree Changtor**  
Head, General Surgery  
Railway Hospital  
Bangkok, Thailand  
(July - December 1985)



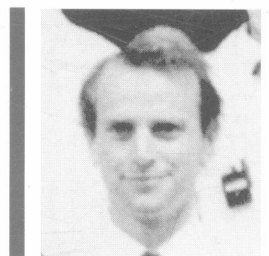
**Dr. Paul Stalley**  
Staff Specialist  
Royal Prince Alfred Hospital  
Redfern, Australia  
(January - June 1986)



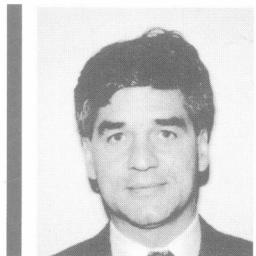
**Dr. Michael Z. Rivera**  
Philippines  
(January - June 1986)



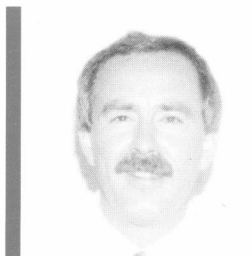
**Mr. Malcolm S. Binns**  
Consultant  
Pontefract General Infirmary  
Pontefract, UK  
(July - December 1986)



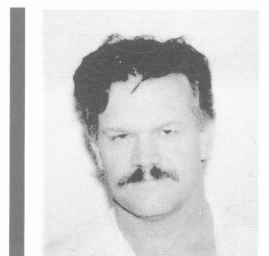
**Mr. Lawrence S. Freedman**  
Consultant  
Northwick Park Hospital  
Harrow, UK  
(July - December 1986)



**Mr. Peter C. Gray**  
Private Practice  
Parramatt, Australia  
(January - June 1987)



**Mr. Martin C. Lynch**  
Consultant & Honorary Senior  
Lecturer, Broadgreen Hospital  
Liverpool, UK  
(January - June 1987)

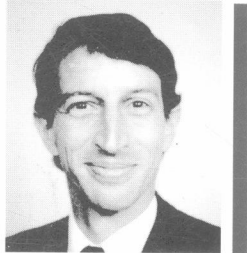


**Dr. Bruce Low**  
Orthopaedic Surgeon  
townsville General Hospital  
Australia  
(July - December 1987)





**Dr. Daniel Robbins**  
Private Practice  
Bennington, USA  
(July - December 1987)



**Mr. Richard Lander**  
Visiting Orthopaedic Surgeon  
Manawatu-Wanganui Area  
Health Board  
New Zealand  
(January - June 1988)



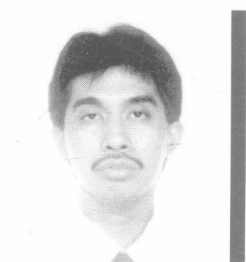
**Dr. L.R. Ferris**  
Private Practice  
Akrom, Ohio, USA  
(January - June 1988)



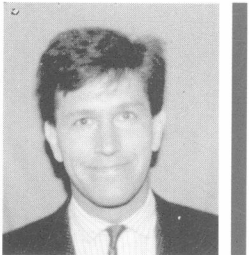
**Mr. Grant L. Cowley**  
Consultant  
Waikato Hospital  
Hamilton, New Zealand  
(July - December 1988)



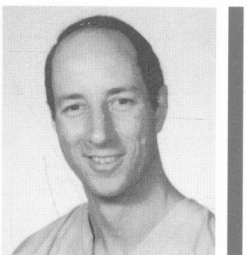
**Dr. S.S. Upadhyay**  
Senior Medical Officer  
Duchess of Kent Children's Hospital  
Hong Kong  
(July-December 1988,  
January-June 1989)



**Dr. Adrian B. Catbagan**  
Clinical Assistant Professor  
Philippines General Hospital  
Philippines  
(January - June 1989)



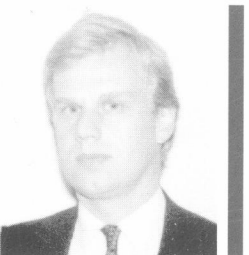
**Mr. Ian Nelson**  
Consultant  
Frenchay Hospital  
Bristol, UK  
(January - December 1989)



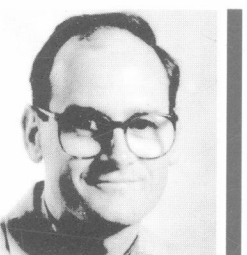
**Dr. Eugene J. Carragee**  
Director  
Orthopaedic Spine Center  
Stanford University, USA  
(July - December, 1989)



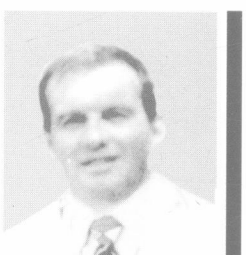
**Mr. Robert A. Hill**  
Consultant  
The Hospital for Sick Children  
London, UK  
(January - June 1990)



**Mr. Roger Emery**  
Consultant  
Royal Middlesex Hospital  
NHS Trust, UK  
(January - June 1990)



**Dr. Donald R. Johnson II**  
Clinical Assistant Professor  
Medical University of South Carolina  
Charleston, USA  
(January - December 1990)

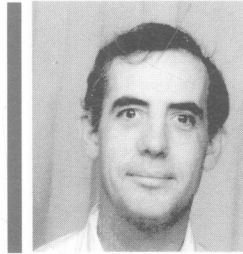


**Mr. J.B. Williamson**  
Senior Lecturer  
University of Manchester, UK  
(July - December 1990)

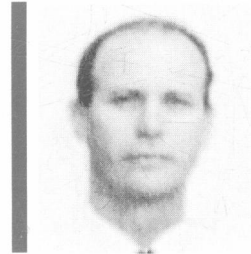
## Fellowships



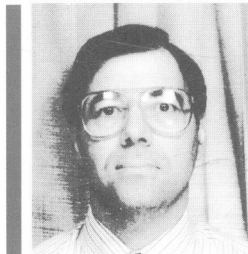
**Mr. Daniel Chan**  
Senior Registrar  
Gwynedd Hospital  
Gwynedd, UK  
(January – June 1991)



**Mr. Philip J. Sell**  
Senior Orthopaedic Registrar  
Sir Robert Jones & Agnes Hunt  
Orthopaedic & District Hospital,  
Oswestry, UK  
(January – June 1991)



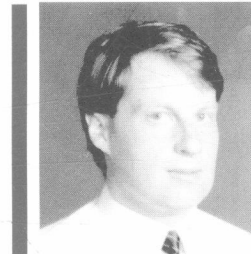
**Mr. Gregory Day**  
Deputy Director  
Orthopaedic Surgery  
Royal Brisbane Hospital  
Queensland, Australia  
(July – December 1991)



**Mr. G.V. Johnson**  
Consultant  
Hull Royal Infirmary  
Hull, UK  
(July – December 1991)



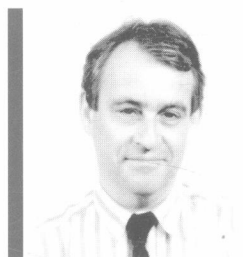
**Dr. T. Shibata**  
Medical Staff  
Sumitomo Hospital  
Osaka, Japan  
(September 1991 – February 1992)



**Dr. Peter Wilde**  
Spine Fellow  
Leatherman Spine Centre  
Louisville, USA  
(January – June 1992)



**Dr. M.J. Saji**  
Assistant Professor  
St. John's Medical College  
Bangalore, India  
(January – December 1992)



**Dr. A. Ohlin**  
Associate Professor  
Lund University  
Lund, Sweden  
(July – December 1992)



**Dr. M.F.P. Davies**  
Registrar  
Derriford Hospital  
Plymouth, UK  
(September 1992 –  
February 1993)

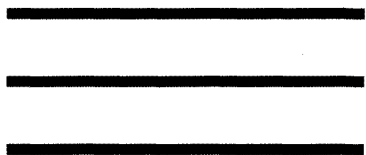
The Fellowships were started in 1968. The caption below each photograph refers to the name of the Fellow, his or her present clinical commitment and the year of training in our Department.



PAPERS

**SPINE (GENERAL)**

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15. **Jenkins DHR, Hodgson AR, Yau A, Dwyer AP, O'Mahoney G.** Stabilization of the spine in the surgical treatment of severe spinal tuberculosis in children. *Clin Orthop* 1975; 110:69-80.
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19. **Schulitz KP, Best S, Leong J, Schoning B, Yau A.** Stabilisierung und Dekompression der Wirbelsaule bei Kyphosen tuberkuloser Genese. *Orthop Prax* 1977; 13/12:937-941.
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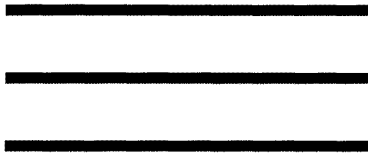
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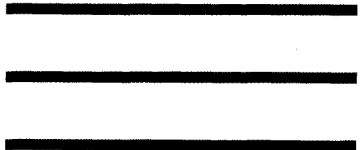
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