4.4 Latin America and the World Federation of Neurosurgical Societies

Jorge Mendez

The first World Congress of Neurosurgery was held in 1957 in Brussels, Belgium. With delegations from neurosurgical societies of Europe and North and South America, this event marked the beginning of the World Federation of Neurosurgical Societies. Ten years earlier, the First South American Congress of Neurosurgery was organized in Montevideo, Uruguay, a landmark in the history of international neurosurgical meetings around the world. Organized by Alejandro Schroeder from Uruguay, Elyseu Paglioli from Brazil, Ramón Carillo and Rafael Babini from Argentina and Alfonso Asenjo from Chile, this group formed the Permanent Committee to oversee that every two years the South American Congress of Neurosurgery (CSN, later named CLAN) would convene. In the years which followed, the remaining Latin American countries joined the group. The Permanent Committee governed up to 1979 when the Federation of Latin American Societies of Neurosurgery (FLANC) was founded with representation of all member countries through their elected delegates. Meetings have been held at two-yearly intervals ever since.

During the XVIIIth CLAN the Constitution and Bylaws of the FLANC were created. The FLANC Administrative Committee (A.C.), just like the WFNS, has a President, Vice-President, General Secretary, Treasurer, Editor, Historian, Parliamentarian, Chairman of the Constitution and Bylaws Committee, Executive Secretary, Education Committee Secretary, Past-President, delegates to the WFNS and President of the corresponding CLAN. The President of the FLANC holds office for two years and is then succeeded by the Vice-President. The Executive Committee includes delegates from the fifteen member countries, one delegate from the Brazilian Academy of Neurosurgery and one from the North American Chapter of the Latin American Neurosurgeons. The Executive Committee meets during the CLAN and at Interim Meetings coinciding with the World Congress of Neurosurgery or with the European Congress of Neurosurgery. Subspecialty Chapters were created which organize symposia and courses during the CLAN and at individual Latin American national congresses and pre-congress courses. These include Functional and Stereotactic Neurosurgery, Peripheral Nerve and Plexus Surgery, Paediatric Neurosurgery and Cerebrovascular Neurosurgery. They are currently headed by Drs. Francisco Velasco (Mexico), Hector Giocoli (Argentina), Sergio Valenzuela (Chile) and Leonidas Quintana (Chile), respectively. Courses and symposia have been held in fifteen countries since their inception four years ago. The creation of other Chapters on Trauma, Spine and Tumours is in progress. The Medal of Honour Committee, created in 1988, bestows a medal on a distinguished Latin American neurosurgeon. Candidates are considered twelve months before the CLAN and the honourees are selected by the Executive Committee. Humberto Hinojoza from Peru is the Parliamentarian. He assisted in creating the Constitution and Bylaws of FLANC and is a consultant on these matters for the Administrative and Executive Committees. The Historian, Jorge Mendez, edited the book 'History of the Latin American Federation of Neurosurgical Societies' in 2002.

Congresses of the Latin American Federation of Neurosurgical Societies from 1945 to 2004

1945	Ist CSN	Montevideo, Uruguay; President (P): Alejandro Schroeder
1947	IInd CSN	Santiago, Chile; P: Alfonso Asenjo
1949	IIIrd CSN	Buenos Aires, Argentina; P: Ramón Carrillo
1951	IVth CSN	Porto Alegre, Brazil; P: Elyseu Paglioli
1953	Vth CSN	Lima, Peru; P: Esteban Rocca
1955	VIth CLAN	Montevideo, Uruguay; P: Ramón Arana
1957	VIIth CLAN	Medellín, Colombia; P: Ernesto Bustamente
1959	VIIIth CLAN	Santiago, Chile; P: Alfonso Asenjo
1961	IXth CLAN	Mexico, Mexico; P: Manuel Velasco-Suarez
1963	Xth CLAN	Buenos Aires, Argentina; P: Ricardo Morea
1965	XIth CLAN	São Paulo, Brazil; P: Alfonso Mattos Pimenta
1967	XIIth CLAN	Lima, Peru; P: Esteban Rocca
1969	XIIIth CLAN	Bogotá, Colombia; P: Mario Camacho Pinto
1971	XIVth CLAN	Montevideo, Uruguay; P: Ramón Arana
1973	XVth CLAN	Panama, Panama; P: Feliz Pitty
1975	XVIth CLAN	Caracas, Venezuela; P: Alberto Martínez Coll
1977	XVIIth CLAN	Santiago, Chile; P: Reinaldo Poblete
1979	XVIIIth CLAN	Buenos Aires, Argentina; P: José Benaim
1981	XIXth CLAN	Guayaquil, Ecuador; P: Emilio Harb
1983	XXth CLAN	São Paulo, Brazil; P: Gilberto Machado de Almeida
1984	XXIst CLAN	Caracas, Venezuela; P: Abraham Krivoy
1986	XXIInd CLAN	Lima, Peru; P: Humberto Hinojosa
1988	XXIIIrd CLAN	Acapulco, Mexico; P: Horacio Martinez-Romero
1990	XXIVth CLAN	Miami, USA.; P: Sergio González Arias
1992	XXVth CLAN	La Paz, Bolivia; P: Oscar Quiroga
1994	XXVIth CLAN	Cartagena, Colombia; P: Germán Peña
1996	XXVIIth CLAN	San Pedro Sula, Honduras; P: Cesar Castellanos
1998	XXVIIIth CLAN	Santiago, Chile; P: Jorge Mendez
2000	XXIXth CLAN	Fortaleza, Brazil; P: Djacir Figueiredo
2002	XXXth CLAN	Lima, Peru; P: Uldarico Rocca
2004	XXXIst CLAN	Panama, Panama; P: Guzmán Arand

Congresses of the Latin American Federation on Neurosurgical Societies from 1945 to 2004.

This book includes sections on all FLANC member countries and Chapters from their early development to the present, as well as pre-Columbian Neurosurgery in Peru. This book is unprecedented in its nature, emphasis being placed on the founders of neurosurgery and their struggle to initiate the specialty in Latin America.

Publications
From 1940 to 1979, abstracts and papers presented at CLANs were published in 'Neurocirugia', created by Dr. Alfonso Asenjo. This was the first publication on neurosurgery in Latin America and the second on this topic in the world. With the initiation of the FLANC, there was a need for a journal to disseminate scientific and

Officers of the FLANC at the XXVI th CLAN in Cartagena, Colombia, 1994. From left to right: Germán Peña (Colombia), President CLAN XXVI, Marco Molina (Honduras), Vice-President FLANC, Fernando Rueda-Franco (Mexico), Past-President FLANC, Second Vice-President WFNS, Hector Giocoli (Argentina), President FLANC, Tito Perilla Colombia), Past-President FLANC, Jorge Méndez (Chile), Past-President FLANC, President CLAN XXVIII, Historian FLANC, Juan Mendoza Vega (Colombia), Past-President FLANC, Armando Basso (Argentina), Past-President FLANC and WFNS, Fredy Holzer (Chile), Past-Editor FLANC, Cesar Castellanos (Honduras), President CLAN XXVII, Manuel Dujovny (USA), Past-Secretary of FLANC.
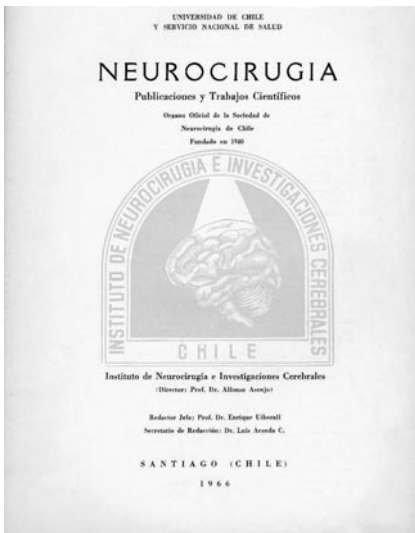
Neurocirugia and Neurocirugia-Neurocirurgia

administrative communications but this encountered the same financial and editorial difficulties as the 'WFNS Bulletin' and 'Modern Neurosurgery' of the WFNS. In 1985, Juan Mendoza Vega (Colombia), Jorge Mendez (Chile) and Manuel Dujovny (USA), published the journal 'Neurocirugia-Neurocirurgia', with financial assistance from Codman, Inc. The journal was discontinued when communications changed to an online format at www.linemed.com.

FLANC *and the World Federation of Neurosurgical Societies*

FLANC is one of the continental components of the WFNS and its members have held various administrative positions over the years. Armando Basso from Argentina was President of the WFNS from 1993 to 1997. Currently, Fernando Rueda-Franco (Mexico) is Second Vice-President. Honorary Presidents include Armando Basso, Mauro Loyo-Varela and Jorge Mendez. Eduardo Karol (Argentina) is Internet Editor. Member of the Auditing Committee is Carlos Trelles (Brazil); of the Public Relations Committee, Fredy Holzer (Chile); Constitution and Bylaws Committee, Julio Ramirez (Peru); of the Nominating Committee, Ramiro del Valle (Mexico) and of the Peripheral Nerve Surgery Committee, Hector Giocoli (Argentina). Two world congresses have been held in Latin America: in Sao Paulo, Brazil in 1977, presided over by Aloyso de Mattos Pimenta and in Acapulco, Mexico in 1993, with Mauro Loyo-Varela as President.

FLANC *and Other International Societies*

Spain
Since the participation of Sixto Obrador Alcalde at the VIIIth CLAN in Chile (1959), neurosurgeons from Spain have continued to participate actively in the Latin American Congresses with conferences at the Sixto Obrador Alcalde session.

France
The French Speaking Society of Neurosurgery also initiated its participation at the VIIIth CLAN in Santiago. Both groups have a one-day session at the CLANs. This active exchange has facilitated important cooperation for postgraduate training of Latin American residents.

Argentina
The outstanding contribution of Raul Carrea to the development of paediatric neurosurgery gave rise to the Symposium that bears his name in the CLANs.

FLANC *and the World*
The relationship between Latin American neurosurgery and that of other countries has been very productive. Most Latin American neurosurgeons have trained or complemented their studies abroad, primarily in the United States, Germany, France, Spain, Belgium and Japan. Numerous renowned neurosurgeons of these countries have participated from the onset of the CLANs in conferences and courses.

Neurosurgery in Latin America
The history of neurosurgery in Latin American countries can be divided into three periods, similar to the evolution of the specialty in other nations.
  In the first period, before the twentieth century, most of the neurosurgical pro-

cedures were limited to the treatment of trauma, haemorrhages and abscesses performed by general surgeons. In 1890, Juan Justo from Argentina performed the first reported osteoplastic cranial flap. In 1893, David Benavente from Chile presented the paper 'Cerebral Localization and Posterior Fossa Drainage' and in 1908, Gregorio Amunategui (Chile) presented 'Craniotomy for Brain Tumours and Depressed Fractures' at the Argentinean Congress of Surgery. Numerous examples of such early interventions are found in all Latin American countries.

The second period starts around 1930-1940 during which neurosurgeons, trained in Europe (mainly England, France and Germany) and USA, returned to their respective countries and initiated neurosurgery there.

In the third period, the national schools of neurosurgery created residency programmes, especially in Chile, Argentina, Uruguay, Mexico and Brazil. Dr. Alfonso Asenjo was particularly active receiving trainees from the entire continent at the Institute of Neurosurgery in Santiago. Formal training in residency programmes started in most countries and fruitfully continues while most neurosurgeons visit the European and North American centres to supplement their training after graduation. The following pages present a succinct review of the development of Neurosurgery in each member country and chapter.

Argentina

Ernesto Dowling and Manuel Balado visited Adson, Dandy, Frazier and Cushing in the USA in 1920. Dowling became Cushing's first assistant and initiated the specialty in Argentina in 1925 followed by Balado in 1926, who introduced lipiodol ventriculography. Later, Raul Carrea developed paediatric neurosurgery and participated as Editor of the Book of Abstracts of the 6th WFNS Congress held in Sao Paulo in 1977.

He was succeeded by Jorge Monges at the Children's Hospital in Buenos Aires, and Julio C. Suarez in Cordoba. The list of distinguished neurosurgeons from Argentina who followed the pioneers is immense: Ramón Carillo presided over the IIIrd CSN, Ricardo Morea the Xth CLAN and Jose Benaim the XVIIIth in Buenos Aires; Julio Ghersi was the Dean of the College of Neurosurgeons. Others are Juan C. Christensen, Raul Matera, Carlos and Enrique Pardal, Leon Turjansky. Armando Basso was President of both the FLANC and the WFNS. Osvaldo Betti developed
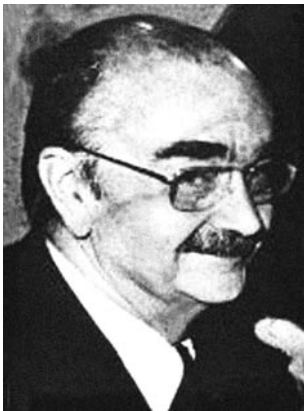

Raul Carrea

Juan C. Christensen

linear accelerator radiosurgery for the treatment of AVMs and tumours. Guido Gioino trained with Irving Cooper in New York and introduced stereotactic surgical therapy for Parkinson's disease in the area. Angel Viruega has to his credit one of the largest series of high-flow cerebral by-passes in the world. All provinces of Argentina have neurosurgery departments and the Argentine Association of Neurosurgery, founded in 1959, has two hundred and fifty members. Dr. Fernando Knezevich is its current President.

Bolivia

Trained in Saint Louis, Dr. Mario Michel Zamora started neurosurgery in La Paz in 1948. While working in a general hospital, he introduced angiography, electro-encephalography and pneumoencephalography although each technique was still at an early stage of development. During the 1950s, Nestor Enriquez and Hugo Rodriguez (trained with Asenjo) and later Gustavo Sanchez Criales and Javier Endara began their neurosurgery practice in La Paz. Oscar Quiroga and Juan C. Trigo practised in Cochabamba. The former chaired the XXVth CLAN in La Paz. The Bolivian Society of Neurosurgery was founded in 1976 and the President is Carlos Dabdoub.

Brazil

The same evolution in the treatment for neurotrauma, initially performed by general surgeons and later by neurosurgeons, also occurred in Brazil. Interestingly, in 1710, Luis Gomez Ferreira wrote in the book 'Erario Mineral': 'the removal of skull bone fractured fragments was performed in a slave with the application thereafter of brandy at the wound and complete recovery'. The general surgeons Augusto Brandao Filho and Alfredo Monteiro were the precursors of neurosurgeons in Brazil at the beginning of the twentieth century; Brandao was the first to perform a cerebral angiography in America with the assistance of Egaz
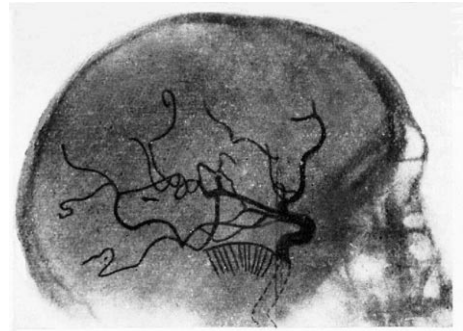
First cerebral angiography in
South America by Augusto Brandao Filho

Moniz who was visiting. Jose Ribe Portugal initiated neurosurgery in Brazil as a separate specialty, becoming chief in Rio de Janeiro; he frequently visited Scarff, Ingraham, Matson and Dandy in the USA and other neurosurgeons in Europe. He also founded the Neurosurgical Society, which became affiliated to the WFNS in 1957. During the second half of the twentieth century, neurosurgery blossomed in Brazil with an expanding number of neurosurgeons and numerous internationally recognized experts. Among these, Elyseo Paglioli was one of the founders of the Permanent Committee and Mario Brock is at present Chairman of Neurosurgery in Berlin. Outstanding vascular neurosurgeons are Evandro de Oliveira and Athos de Souza, both of whom participate in numerous national and international congresses. Ricardo Ramina trained with Madjid Samii in Hannover, Germany and developed skull base neurosurgery; Raul Marino is renowned for his work in epilepsy surgery. The Brazilian Society of Neurosurgery and the Academy of

Jose Ribe Portugal   Elyseo Paglioli   Paulo Niemeyer
                                                        Recipient, Medal of Honour
                                                                 1997

Neurosurgery became full members of the WFNS. Marcos Masini is the President
of the Society with one thousand and twenty-two members and Carlos Parisi of
the Academy with six hundred and twenty members. Brazil organized the Sixth
WFNS International Congress in 1977 in Sao Paulo (chaired by Aloyso de Mattos
Pimenta), the IVth CSN in Porto Alegre, the XIth CLAN in Sao Paulo, the XXth CLAN
in Sao Paulo and the XIXth CLAN in Fortaleza

Chile

In 1939, Alfonso Asenjo founded the Institute of Neu-
rosurgery in Santiago that bears his name. He trained
with Wilhelm Tönnis in Berlin and initiated neuro-
surgery in 1935 with his colleagues of long standing,
Hector Valladares, Mario Contreras, Juan Fierro and
Carlos Villavicencio. The Institute has trained numer-
ous neurosurgeons from Chile and all Latin American
countries including Reinaldo Poblete, President of the
XVIIth CLAN (1977), Luciano Basauri, Gustavo Diaz,
Renato Chiorino, Fredy Holzer, Patricio Loayza,
Sergio Valenzuela and many others. Asenjo founded
the Chilean Society of Neurosurgery in 1957. He was
Second Vice-President of the WFNS and co-founder of
the Journal of Neurosurgery. During the 1950s, two
other neurosurgical centres were developed in San-
tiago: one at the University of Chile where Eduardo
Fuentes was succeeded by Emilio Morales and Selim
Concha and another at the Catholic University with

Alfonso Asenjo

Ricardo Olivares, followed by Jorge Mendez. Mendez trained with James Poppen
and was responsible for introducing microsurgery and computerized tomography in
Chile before being succeeded by Patricio Tagle. A department of stereotactic neuro-
surgery was initiated by Mario Poblete and can claim one of the largest number of
Parkinson's disease interventions in the world. In Valparaiso, Leonidas Quintana,
the President of the Cerebrovascular Chapter of the FLANC, has performed important

research in cerebral vasospasm. The Chilean Society of Neurosurgery organized the IInd CSN in 1947, the VIIIth CLAN in 1959, XVIIth CLAN in 1977 and XXVIIIth CLAN in 1998. The President of the Chilean Society of Neurosurgery is David T. Rojas. The Society has ninety-five members.

Colombia

The early pioneers in Colombia were Alvaro Fajardo and Mario Camacho Pinto, both trained in the USA, initiating neurosurgery in 1955. Salomon Hakim, who enjoys international recognition, described the Normal Pressure Hydrocephalus Syndrome and developed a multiple pressure valve that bear his name and which is used worldwide. Jaime Gomez Gonzalez founded the Colombian Neurological Institute and Ernesto Bustamante is well known for his considerable experience with aneurysm surgery. Since 2002, Tito A. Perilla is the Past President of the FLANC; he also participated in the Nominating Committee of the WFNS from 1998 to 2001. The Neurosurgical Section of the Neurological Society of Colombia was founded in 1962 and is a member of the FLANC and the WFNS. Colombia organized the VIIth CLAN in Medellin, the XIIIth CLAN in Bogotá, and the XXVIth CLAN in Cartagena. The President of the Section is Himmler Serrato
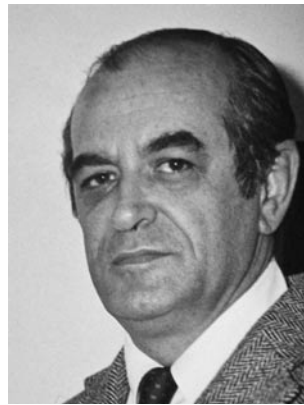
Mario Camacho Pinto   Jaime Gomez Gonzales

Cuba

Carlos Ramirez Corría trained with Clovis Vincent in France and with Pio del Rio Ortega and Santiago Ramón y Cajal in Spain. He returned to Cuba in 1934 initiating neurosurgery in a basement of a hospital in Havana with instruments acquired in France and with the help of a group of volunteers. Carlos Ramirez Corria organized the Department of Neurosurgery at the University Hospital in 1949. Other groups were organized by Jorge Picaza (trained at the Mayo Clinic) and Francisco Garcia Bengochea (trained in Tulane). In 1959 there were twenty-two neurosurgeons, but after the Cuban revolution in 1959, an important migration ensued and only seven remained in the country. This situation prompted the medical authorities to initiate neurosurgical residencies in 1962. At that time they were directed by Rafael Estrada, later by Roger Figueredo and the present incumbent is Francisco

Goyenechea Gutierrez. From 1964 onwards, neurosurgery expanded to all Cuban provinces. In the 1980s a centre for neural transplantation and rehabilitation was created in Havana. The decline of economic assistance from Russia during the 1990's has affected the resources available for health care. Cuba is affiliated to the FLANC.

Ecuador
Julio Navas trained at the Karolinska Hospital with Olivercrona and returned to Ecuador to initiate neurosurgery in Guayaquil, where years later the XIXth CLAN would be held. Neurosurgery in Quito was initiated by Francisco Risso. Numerous neurosurgeons have been trained in Ecuador and abroad. Ecuador's Society of Neurosurgery was founded in 1971 and has forty members. Its current President is Roberto Ramirez Cucalón.

Honduras
Neurosurgery began with Carlos Mena, trained at the Walter Reed Hospital, and Rafael Molina Castro, trained at the Institute of Neurosurgery in Santiago. Later Rene Valladares and Cesar A. Castellanos (also trained in Chile) developed the specialty followed by a large group, all trained abroad. Castellanos was the President of the XXVIIth CLAN held in San Pedro Sula. Tragically he died in an air accident in 1998 while assisting hurricane victims. Marcos Molina, trained in Mexico, is the FLANC Vice-President.

Mexico
The residency programme was created by a generation of neurosurgeons trained in the USA, particularly during the Second World War when American neurosurgeons were needed in the front lines. In 1955, the Mexican Society of Neurological Surgeons was founded by its first President, Eutimio Calzado. Representatives attended the International Congress of Neurological Surgery in Brussels in 1957 where the Mexican Society became affiliated to the WFNS. In 1964, Manuel Velasco-Suarez founded the National Institute of Neurology and Neurosurgery in Mexico City, the first important institution of neurosurgery in Mexico. The IXth CLAN was held in

Manuel Velasco-Suarez
Recipient, Medal of Honour
1985

Fernando Rueda-Franco

Mexico City and the xxiiird CLAN in Acapulco. In 1993, the Tenth International Congress of Neurological Surgery was celebrated in Acapulco, chaired by Mauro Loyo-Varela. The President of the Mexican Society is Dagoberto Tamez Montes.

Panama
After his residency with Walter Dandy at the John Hopkins Hospital in Baltimore, Antonio Gonzalez Revilla introduced the specialty in Panama in 1947 and trained several neurosurgeons. In 1965, Felix A. Pitty held a residency position in Santiago with Asenjo, and organized a modern department of neurosurgery. He chaired the xvth CLAN held in Panama. In 1982, Guzman Aranda initiated paediatric neurosurgery. He was the President of the Society and of the xxxist CLAN in 2004. The Panamanian Society of Neurosurgery was founded in 1968 and is member of the FLANC and the WFNS.

Paraguay
Silvio Codas trained in Montevideo under Román Arana and initiated neurosurgery in Paraguay in 1958. Mariano Bordas was the first President of their national society which became a member of the FLANC and of the WFNS. The current President is Luis Valenzuela. Dr. Carlos Codas is the Treasurer of the FLANC.

Peru
This is a country with a history of pre-Columbian neurosurgery dating from about ten thousand years ago coinciding with the Neolithic period in Europe. Many skulls with trephines or craniotomies have been found by the archaeologists, often with signs of survival, some with two to five interventions performed at different times. Some operations were performed for bone fragment removal, abscess or blood drainage secondary to war trauma. Craniotomies were performed using the ceremonial knife 'Tumi'.

   It is highly probable that psychiatric conditions or superstitious creeds may have played a great part in the indications for surgery. Fernando Cavieses, a neurosurgical expert on medical archaeology, wrote the pre-Columbian chapter of the History of FLANC. He completed his residency with Grant in Philadelphia. Mauricio Davila trained with Tönnis in


Skull with craniotomy found in Peru

Ceremonial knife "Tumi"

Germany initiating modern neurosurgery in Peru in 1944. In 1960, Humberto Hinojosa visited Cooper in New York and trained with Marguth in Munich. He was the first President of the FLANC in 1981, the President of the XXIInd CLAN in Lima in 1986 and participated in the Constitution and Bylaws Committee. He is the current Parliamentarian of FLANC. Other pioneers were Esteban D. Rocca, President of the XIIth CLAN in 1967. Manuel Pizarro studied with Matson in the USA and founded the first neuropaediatric service, followed by Manuel Salazar. Juan Franco trained with Asenjo and at John Hopkins Hospital and was responsible for introducing microneurosurgery. He later became Minister of Health. Uldarico Rocca was the President of the XXXth CLAN held in Lima. He trained with Esteban D. Rocca and completed a fellowship at John Hopkins Hospital with Earl A. Walker.
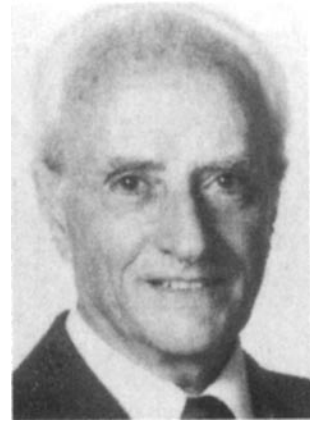
Esteban D. Rocca
Recipient, Medal of Honour
2001

El Salvador

While visiting El Salvador in 1948, the French neurosurgeon, Juan Tavernier, encouraged Julio C. Bottari to visit the Salpétrière Hospital in Paris and the Presbyterian Medical Centre in New York. On his return to El Salvador he introduced neurosurgery. He was followed by the outstanding Antonio Ramirez Amaya, who also trained in the USA, and who practised until the age of eighty accruing an enormous case file, numerous conference attendances and publications. The Neurosurgical Society of El Salvador, created in 1991, has been a member of the FLANC since 1996 and the WFNS from 1997; the President is David Henriquez Adriazola.

Uruguay

Uruguay has a long tradition of neurosurgery initiated by Alejandro Schroeder in 1930. Having trained with Foerster in Germany, he organized the Permanent Committee of the South American Congress in 1944 and founded the Uruguayan Society of Neurosurgery in 1949.

Alejandro Schröeder
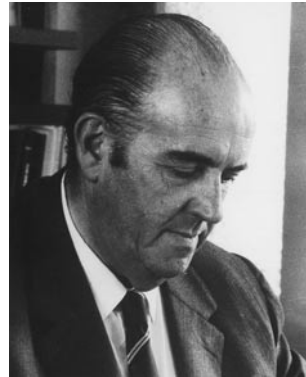
Roman Arana

He was the President of the First International Meeting of Neurosurgery in 1945 in South America with one hundred twenty-one attendants at the critical moment when the Second World War was ending. He trained numerous neurosurgeons and was succeeded by his outstanding pupil, Roman Arana Iñiguez, who replaced Schroeder at the Permanent Committee. They published the Annals of the Neurological Institute of Neurosurgery for a period of twenty years. Roman Arana chaired the VIth and the XIVth CLAN in Uruguay and his group published important papers on cerebral haemorrhage and arteriosclerosis. The Uruguayan school trained numerous neurosurgeons and neuroradiologists from Latin America, the latter under Nestor Azambuja, pupil of Swedish neuroradiology. The Society of Neurosurgery was founded in 1992. Due to political and economic problems, the specialty suffered for a number of years before being revived by Eduardo Wilson, present head of the Neurological Institute.

USA and Canada Chapter

In the 1970s, a group of Latin American neurosurgeons working in the USA and Canada began to participate at CLANs. During the 1979 New Orleans CNS meeting, Raul Carrea from Argentina suggested they should form an association and later Reinaldo Poblete from Chile and Esteban D. Rocca from Peru sponsored their affiliation to the FLANC. In 1987, the Chapter was founded by Sergio Gonzalez Arias, President; Roberto Heros, Vice-President; Manuel Dujovny, General Secretary and Fernando Diaz, Treasurer. The Chapter organized the 1990 CLAN in Miami, a meeting originally planned for Cuba but which could not be held there. The officers of the USA-Canada Chapter were able to organize an outstanding meeting despite the limited planning time available. This Chapter has collaborated with the CLANs and the national congresses with regard to conferences and courses. They have helped in the acquisition of instruments for the Latin American centres and have sponsored numerous fellowships and courses in North America. Manuel Dujovny was General Secretary of the FLANC from 1991 to 1994 and Fernando Diaz from 1998 to 2002. Lucia Zamorano (trained in Chile) and Dujovny developed the 'z-D' stereotactic frame which is widely used in Latin America.

Venezuela

Neurosurgery in Venezuela was initiated in the 1950s with the help of Alberto Martinez Coll, Leon Mir and Rafael Castillo followed by Abraham and Saul Krivoy. The Society of Venezuelan Neurosurgery was founded in 1963 by Rafael Castillo, and currently has ninety-nine members. The XVIth CLAN in 1975 and the XXIst CLAN in 1984 were held in Caracas. The President of the Society is Antonio J. Rodriguez Rafael Castillo. He is an outstanding Venezuelan neurosurgeon who organized the Caribbean Association of Neurological Surgeons with members from Puerto Rico, Venezuela, Jamaica, Trinidad, Haiti, Guatemala, Costa Rica, Guadalupe, Panama, Aruba, Dominican Republic, Curacao and Barbados. The Association, which belongs to the North American Continental Association, has been affiliated to the WFNS since 1973. Randolph Cheeks is the current President.

Closing Remarks

The variation in geographical and economic conditions of Latin American countries have influenced the development of neurosurgery in each country. Areas of depressed economic standards have faced insurmountable difficulties with our complex and expensive specialty. The lack of diagnostic tools and local expertise predictably resulted in poor initial outcomes. Since its creation, FLANC has played

Rafael Castillo

a key role in the development of neurosurgery in the continent, fostering a spirit of collaboration among different countries and providing continuous education to its members. This has led to a sustained advancement of the standards of neurosurgical practice in Latin America.

4.5 Africa and the World Federation of Neurosurgical Societies

Sayed El Gindi

Medicine has its origin largely in magic and priestly practices. The old civilizations had a fixed belief in the force of magic on the healing methods. Prehistoric man gradually came to distinguish between maladies that could be seen, such as bony fractures and tuberculosis, and others that could not be well visualized and whose cause was not apparent and yet caused colic, seizures, and pain. He believed that such mysteries were the work of demons, and that these existed in enclosed spaces of man's body like the skull. The practice of trepanation was widely used by healers in African tribes as they thought that evil spirits were causing many diseases and that this was the way to get them out.

*Egyptian Medicine in the Days of Pharaohs*
The doctors of Egypt were famous throughout the ancient world. Each doctor treated only one disease: some were oculists, others dealt with headaches. The first medical book written by specialists on different diseases was called 'The Holy Book of Eber'. It included the basic medical sciences and arts. As long as the medical at-

Edwin Smith Papyrus, case six, reporting on a patient suffering a gaping head wound with a compound comminuted skull fracture and rupture of the dura (c. 1700 BC)
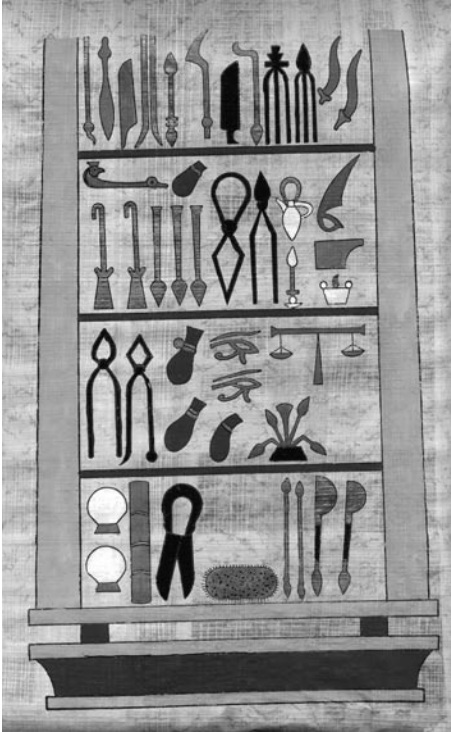
Copy of detail of a mural from one of the tombs of the Egyptian Kings showing a set of surgical instruments, including knives and several kinds of forceps
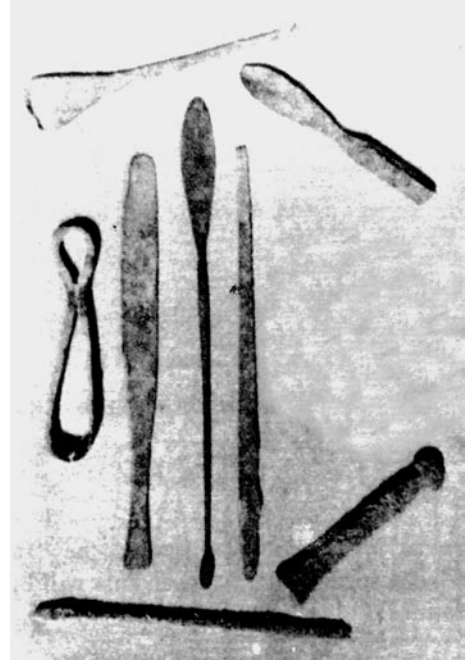
Actual surgical instruments

Imhotep, grand vizier, writer, architect and physician to King Zoser (c. 2700 BC). He built the Step Pyramid of Sakkarah. His fame as a doctor was such that the Greeks, two thousand years later, deified him as their god, Asclepios

Detail of Egyptian mural showing a skull operation in squatting position

tendant stuck to the rules of his trade, failure was tolerated and accepted without punishment.

Operations like trepanation were performed under local anaesthesia by grinding marble stone, mixing it with vinegar and putting it at the site of incision. Trepanation was performed on young epileptics to relieve the demon causing the symptoms. The survival of the patients is evidenced by the shape of the defects of the skulls from the tombs dating back 6000 years.

The Edwin Smith Papyrus, over fifteen feet in length and dating from around 1700 BC, was found at Thebes in 1862. Its content remained unknown until translated into English by Breasted in 1930. It records post-mortem examinations of bodies to determine the cause of death and describes the brain, the relation between brain pathology and loss of movement, and between fracture of the skull base and bleeding from the nose and ear. In the surgery of skull and neck, the scalpel and cautery were used. In the process of mummification, the brain was extracted through the nostrils, an approach which is now used in trans-sphenoidal removal of pituitary tumours. This papyrus, attributed to Imhotep, is the oldest medical treatise in the world. It is kept in the Metropolitan Museum in New York.

Eber's Papyrus, kept in the British Museum, differentiated migraine, which was called 'half of the head', from generalized headache and described different medicines for each.

Arab Physicians

In the Middle Ages, several Arab physicians, including Avicenna (Ibn Sena) and Rhazes (El Razzazy), described many types of nerve disease and their treatment. The pioneer of neurosurgery Abul Kasis (Aboulkassim El Zahrawy) devoted one

of his thirty volumes of medical treatises to neurosurgery. He described many neurological diseases such as skull and spinal fractures, hydrocephalus and tumours of the skull, and their management including surgical intervention and the instruments used.

Medical Missionaries

The history of the medical missionaries is rich and varied, running in parallel with the exploration of Africa. Historically, missionaries went into the field of medicine with little or no training. They were called upon to help those in need of medical care and people who sought medical advice, and to take care of their physical problems which were mainly headaches and accident injuries.

Neurosurgery during Colonization

The colonial forces initiated a health service, in particular for their staff, which extended to the natives. Before the Second World War, neurosurgery was entirely in the hands of general surgeons and general practitioners and was directed at the treatment of traumatic head and spinal injuries.

The early days of modern neurosurgery in Africa

Neurosurgery as an independent discipline in Africa commenced in Cape Town and can be dated to the return of Hermann de Villiers Hammann from Germany in 1946. A South African by birth, he completed his preclinical studies in Cape Town in 1932 but obtained his medical degree and neurosurgical training from the University of Munich. After the Second World War, he worked with Norman Dott in Edinburgh for a short time, before returning to South Africa. Despite the fact that neurosurgery had not been practised as a separate discipline at the Groote Schuur Hospital in Cape Town, there was initial opposition to the appointment of Hammann because of this war-time training. He was finally appointed as a registrar in 1948 and was promoted to a full honorary consultant position in 1949. He literally and figuratively needed to create a place for himself and his patients. During his years of practice, Hammann delivered lectures to medical students at both the University of Cape Town and the University of Stellenbosch, and he regularly travelled to America and Europe to acquaint himself with the newest developments in neurosurgery.

Hieroglyphic writing and its translation

In 1950, Dr. J. Erasmus, a neurosurgeon who was trained by the Johannesburg-based neurosurgeon, Dr. Roland Krynauw, was appointed Chairman of General Surgery at Groote Schuur Hospital. Later, Dr. Alex Gonski arrived from Norman Dott's department in Edinburgh and was appointed as a full-time consultant at the same hospital in Cape Town. The dedication and commitment of these workers from the very beginning was apparent to everyone in their vicinity. They sometimes had to work under extremely difficult conditions, strengthened by the knowledge that a new path was being forged. In 1966, Dr. Jacquez C. de Villiers was appointed to a full-time consultant post at Groote Schuur Hospital after completing his neurosurgical training with Dr. W. McKissock in London. In the hospital, the need for a full-time academic and clinical head for the rapidly expending neurosurgical department was fully recognized. De Villiers was, therefore, appointed as the

first full-time neurosurgical chief of staff in 1970 and subsequently became the first Professor of Neurosurgery in 1976. In South Transvaal, a neurosurgical department was established in the Baragwanath Hospital in 1956. By that time there were about twenty neurosurgeons in South Africa.

The first neurosurgeon in Egypt was Dr. Ahmed Abu Zikry who, after finishing his training at the Mayo Clinic in Rochester, USA, returned to Cairo in 1949. He practised neurosurgery within the Department of General Surgery of the University Hospital, but later switched to general surgery which was more profitable at the time. Through the years 1951-1952, Dr. Arne Torkildson from Norway was appointed as visiting professor of neurosurgery at the Faculty of Medicine of the King Fouad University (now Cairo University). Dr. Osman Sorour, a tutor of surgery, returned to Egypt in February 1952 after two years' training in Britain, and worked with Torkildson. From 1954 to 1956, Harvey Jackson from Queen Square Hospital in London was appointed as visiting professor for one month every year. In 1955, a neurosurgical department was established with thirty-five beds. Dr. I. El Shafei was appointed as registrar and became Chairman in 1957. By 1967, a full team of neurologists, neurosurgeons, neuroanaesthesists, neuroradiologists and neuropathologists was formed.

At the King Farouk University in Alexandria, Dr. Samuel Boctor, trained in Britain, started practising neurosurgery within the Department of General Surgery in 1956. He established a separate neurosurgical department with Dr. Abel Hamid El Shwarby as registrar, who became leader of psychosurgery in Egypt and later head of the department. Dr. G. Azab followed as second registrar. He was one of the pioneers of spinal surgery and became Chairman after El Shwarby. This department served the northern part of Egypt and Libya.

Dr. A. El Banhawy, who had trained in neurosurgery at various institutions abroad, initially joined the Military Medical Forces and became Chairman of the Military Neurosurgical Department in 1964. Later, he became Professor of Neurosurgery at Ain Shams University and Chairman of the Department of Neurosurgery in the Maadi Military Hospital, in 1968 followed by Sayed El Gindi.

In 1961, Prof. H. Olivecrona from Stockholm came to Egypt to set up a European-standard neurosurgical training programme at the Air Forces Hospital complete with a staff of neurologists, neuroanaesthesists, neurophysiologists, neuroradiologists, neuropathologists and specialized nursing and intensive care staff. Very modern equipment became available.

In 1955, the Egyptian Society of Neurology, Psychiatry and Neurosurgery was established by Profs. Barrada and Guinena. The neurosurgeons were enrolled in this Society even after the Egyptian Society of Neurological Surgeons was founded in 1967.

The above is just an example of the early development of modern neurosurgery in Africa. In other African countries this discipline commenced in later years, often initiated by neurosurgeons from Europe. For an elaborate survey, the reader is referred to Adelola Adeloye's book: 'Neurosurgery in Africa', which is a rich source of information on neurosurgery in this continent.

Neurosurgical Manpower

Compared with the rest of the world, Africa was always very short of neurosurgeons. Prior to 1960, practising neurosurgery was restricted to the North and South of Africa, all neurosurgeons being based in Egypt and South Africa. In 1980, Douglas Miller noted in his survey: 'A European look at neurosurgery in America' that the USA had about two thousand seven hundred and fifty neurosurgeons with

**Number of neurosurgeons in African countries
according to A. El Khamlichi in 1998**

Egypt	165
Algeria	130
Morocco	80
Tunisia	25
South Africa	86
Libya	5
Sudan	6
Cameron	6
Zimbabwe	6
Senegal	8
Kenya	8
Nigeria	13

a neurosurgeon-patient ratio of 1: 75,000. Canada had a ratio of 1:140,000 and UK 1: 400,000. Only one hundred and twenty-six neurosurgeons out of nine thousand and eighty listed in the World Directory of Neurological Surgeons practised in Africa with a population of three hundred and sixty million, i.e. a ratio of 1: 3,000,000. This was not surprising as there were only a few local neurosurgical training centres in Africa: six in Egypt, five in South Africa, three in Nigeria and one in Zimbabwe. In 1990, Sayed El Gindi recorded in his survey four hundred and twenty-one neurosurgeons in twenty-nine African countries, equivalent to one neurosurgeon per two million people. Of these, three hundred and twenty-one neurosurgeons practised in five countries: Egypt, Morocco, Algeria, Tunisia and South Africa. The remaining one hundred were spread over twenty-four countries. Nineteen countries had no neurosurgeon. Dr. Abdeslam El Khamlichi presented another survey in 1998. At that time, four hundred and eighty-six neurosurgeons practised in the above-mentioned five countries in the North and South of Africa with a ratio of 1: 358,000. Fifteen countries with a population of over forty-six million had no neurosurgeon. A recent survey by El Gindi showed the same trend with a slight increase in the number of neurosurgeons in the northern and southern states.

Pan African Association of Neurological Sciences
In 1972, a Pan African symposium on 'Tumours of the Nervous System in the Africans' was held in Nairobi, Kenya. The symposium was organized by Drs. L. Odeker, neurosurgeon, and O. Dada, neurologist, both Nigerians, and hosted by Dr. R. Ruberti, neurosurgeon in Nairobi. At the conclusion of this meeting the Pan African Association of Neurological Sciences (PAANS) was founded. The aim was to advance neurological sciences and to promote friendship and exchange of information among neuroscientists in Africa in particular and in the world in general. The

Renato Ruberti

Association is guided by its Constitution and Bylaws which were originally adopted in Nairobi in 1972 and amended in Durban in 1996. The first President was Dr. Osman Sorour from Egypt and the first Secretary-Treasurer Dr. R. Ruberti. It was resolved that a scientific congress and an executive meeting would be held every two years at different locations in Africa. As far as possible, the venues would alternate between French- and English-speaking areas of the continent. The themes of the scientific programme would address one neurological and one neurosurgical subject, with adequate allowance for free communications. Initially, English and French were the official languages. Since the 1994 meeting in Addis Ababa, English is the only official language, as is the practice at WFNS and WFN meetings.

Michel Dumas

The First Congress was held in Cairo in April 1973, with O. Sorour as President, R. Ruberti as Honorary Secretary and A. El Banhawy as Assistant-Secretary. The topics were: cerebrovascular accidents, pyogenic infections of the nervous system and extrapyramidal diseases. There was also a session for scientific films. The congress was attended by forty-five neurosurgeons from Egypt, twenty from the rest of the Africa, ten from Europe and one from USA. The President of the World Federation, Dr. K. Sano, was also present. The Second Congress took place in Dakar, Senegal, in March 1975 and was chaired by M. Dumas. The topics here were: head injuries, epilepsy and parasitic infections. The Third Meeting was in Lagos, Nigeria in April 1977 under the presidency of Olufemi Dada. The scientific sessions included congenital malformations of the nervous system and peripheral nerve diseases. The Fourth Meeting was in Algeria in April 1979. M. Abada was the President. The main topics were: pathology of the basal ganglia and spinal vascular malformations. The Fifth Biennial Congress was held in Nairobi, Kenya, in 1981. R. Ruberti was the President, G. Sande the Secretary. The Sixth Congress had its venue in Tunisia in 1983, where A. Adeloye was elected Secretary of PAANS. The next congresses took place in Abidjan, Ivory Coast, in 1986; in Accra, Ghana, 1988 presided over by J. F. Mustaffa; in Harara, Zimbabwe in 1990 with L. Levy as President; and in Morocco in 1992, organized by Dr. Nagat Boukhressi, the first lady to be President of PAANS. During this congress, PAANS set up a committee on its contribution to the Decade of the Brain. The Eleventh Congress was held in Addis Ababa, Ethiopia in 1994 and was chaired by R. Haimanat. At this occasion, two committees were created: the Education and Research Committee, chaired by M. Dumas, and the Constitution and Bylaws Committee with A. Adeloye as Chairman. The Twelfth Congress in Durban in 1996 was a historic one because it was the first congress held in South Africa, thus fulfilling the aspiration of PAANS to become a truly continental organization. The movement of the biennial venues then came full circle. The Thirteenth Congress in Dakar in 1998 was the second visit to Senegal. The Fourteenth Congress was in Blantyre, Malawi in May 2000. A. Adeloye was the President, K. Kalangu the Secretary. The topics were: medical and surgical aspects of epilepsy, head and spinal injuries, degenerative diseases of the nervous system, stroke and headache. The Fifteenth Congress was held in Cairo for the second time in March 2002 under the high patronage of President Hosny Mubarak. The President was S. El Gindi, the Secretary A. El Hakim. The topics were: oncology, vascular disorders, congenital
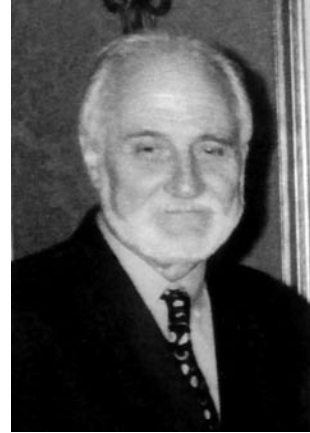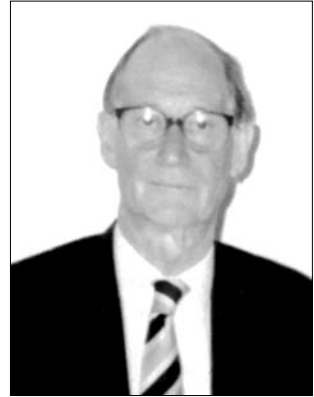
malformations, skull base surgery, endoscopic surgery, radiosurgery. For the first time a separate session for young neurosurgeons was organized.

In January 1982, The African Journal of Neurological Sciences was launched by R. Ruberti as the official journal of PAANS. In the first few year it was published quarterly, later it appeared twice a year. In 2000, G. De Chambenoit succeeded R. Ruberti as Editor.

From a small and modest beginning, PAANS has grown from a continental body to an intercontinental and international organization. In 1972, it had members in fourteen countries; now the Association includes almost all African countries.

PAANS *and the World Federation of Neurosurgical Societies*

Although an inclusive organization, PAANS consists of two main sections, a neurological and a neuro-surgical section, through which it maintains a har-monious beneficial relationship with WFNS, WFN and WHO. The Neurosurgical Section of PAANS became a member of the World Federation of Neurosurgical Societies in 1973 and has since then been one of the five Continental Associations of the Federation. Of the individual African countries, the Society of Neurological Surgeons of South Africa was the first to join WFNS in 1963. The Egyptian Society of Neu-rological Surgeons became a full member in 1969, the Moroccan Society in 1989, the Algerian Society in 1995 and the Tunisian Society in 1997. The Neu-rosurgical Section of the Nigerian Society of Neuro-logical Sciences has been an affiliate member since 1987, the Neurosurgical Society of East and Central Africa and the Neurosurgical Section of the Asso-ciation of Neurological Sciences of Ethiopia since 2003. The Magrabian Federation of Neurosurgery,

Laurence Levy
Recipient, Medal of Honour
2005

founded in 1994 and including the neurosurgical societies of Morocco, Algeria, Tunisia and neurosurgeons of Libya and Mauritania, is not yet a member of WFNS. In 1981, Nigeria applied to host the Eighth International Congress of Neurological Surgery but their application was unsuccessful.

African officers to the World Federation of Neurosurgical Societies
Beginning with Osman Sorour of Egypt, who was Second Vice-President of WFNS from 1973 to 1977, many members of PAANS have served WFNS with distinction and credit in various offices.

Honorary Presidents

Osman Sorour
He returned to Egypt in February 1952 after a neurosurgical training in Britain. At first, he worked with A. Torkildson in Cairo and then established his department at Cairo University in 1955. He was President of the Egyptian Society of Neurologi-cal Surgeons and the first President of PAANS in 1972. He was appointed Honorary President of WFNS in 1977.

Jacquez Charl de Villiers
He followed his neurosurgical training under W. McKissock in London and was appointed to a full-time consultancy at Groote Schuur Hospital in Cape Town. In 1976, he became the first incumbent of the newly created Helen and Morris Mauerberg Chair of Neurosurgery at the University of Cape Town. During the period when South Africa was politically isolated, the international medical communication was maintained through his good relations. He was elected Honorary President of WFNS in 1997.

Sayed El Gindi
He trained in neurosurgery in the UK and joined the Department of Neurosurgery created by H. Olivecrona in the Air Forces Hospital in Cairo. In 1968, he became Chairman of the neurosurgical department in the Maadi Military Hospital following A. El Banhawy. He established a neurosurgical department at Al Mansoura University. In 1997, he became Honorary President of WFNS.

World Federation of Neurosurgical Societies
Honorary Presidents from Africa

A. Adeloye	Malawi	2001
S. El Gindi	Egypt	1997
O.H. Sorour	Egypt	1981
J.C. de Villiers	South Africa	1997

Course of WFNS Education Committee in Malawi, 2000. From left to right: K. Kalanga, S. El Gindi, J. Brotchi, M. Choux and A. Adeloye

Adelola Adeloye
He trained in the USA and the UK and became Professor of Neurosurgery in Ibadan, Nigeria in 1972 and Chief of Neurosurgery in 1974. He was President of the Neurosurgical Section of PAANS and President of the Nigerian Society of Neurological Sciences. From 1999 to 2001 he was the Foundation Professor and Head of Surgery of the new College of Medicine in Malawi and consultant at Blantyre Queen Elizabeth until 2002. He was appointed Honorary President of WFNS in 2001.

Second Vice-Presidents of the WFNS
M. Abada (Algeria), O. Sorour (Egypt), A. Adeloye (Nigeria), R. Ruberti (Kenya), S. El Gindi (Egypt), A. Olumide (Nigeria), A. El Khamlichi (Morocco), A. Zidan (Egypt).

Membership WFNS Committee
Constitution and Bylaws Committee
    S. Ezzat (Egypt)
Nominating Committee
    A. Adeloye (Nigeria), R. Ruberti (Kenya), A. El Banhawy (Egypt), A. Zidan (Egypt), H. Gawish (Zambia), M. Lofty, S. Ohaegbulam (Nigeria) and J. Peter (South Africa)
Editorial and Federation News Committee
    A. Ammar (Egypt)
Paediatric Neurosurgery Committee
    J.C. Peter (South Africa)
Stereotactic and Functional Neurosurgery Committee
    Abdennebi (Algeria)
Neurotraumatology Committee
    A. El Banhawy (Egypt), K. Kalangu (Zimbabwe), Kalala (Congo), E. Tawfik (Egypt), Deputy Chairman: S. El Gindi (Egypt)
Neuro-Oncology Committee
    S. El Gindi (Egypt), A.H. El Hakim (Egypt)
Neuro- Rehabilitation Committee
    A. Ammar (Egypt), A. Eisa (Egypt), A. Adeloye (Nigeria)
Medals of Honour Committee
    S. El Gindi (Egypt)
Neurosurgical Education Committee
    A. El Khamlichi (Morocco), K. Kalangu (Zimbabwe)
Materials, Drugs and Devices Committee
    A. El Khamlichi (Morocco), J.C. Peter (South Africa)
Spine Committee
    M.G. Azab (Egypt), A. El Khamlichi (Morocco)
Ethics and Medicolegal Committee
    A. Ammar (Egypt), A. Adeloye (Nigeria)
Liaison Committee for WFNS/WHO
    A. El Khamlichi (Morocco)

Neurosurgical Education in Africa
Teaching and training in neurosurgery in Africa continue through the efforts of societies and organizations within Africa and with the help of societies outside the continent and the support of the World Federation of Neurosurgical Societies.
    1. Committee on Neurotraumatology. In 1978, an international conference on

International Conference of Neurotraumatology in Cairo, 1978. From left to right: A. El Banhawy (Chairman), A. de Vasconcellos Marques, I. Badran (Ministry of Health), Y. Taher, S. El Gindi (Secretary)

neurotraumatology was organized by the Egyptian Society of Neurology, Psychiatry and Neurosurgery in Cairo under the high patronage of President Sadat. The conference was chaired by Ahmed El Banhawy with Sayed El Gindi as Secretary and A. de Vasconcellos Marques as Honorary President. The meeting was attended by eleven members of the WFNS Committee on Neurotraumatology. Three topics (posttraumatic neurosis and psychosis, posttraumatic epilepsy and cranial nerve injuries) were presented and widely discussed.

In 1989, Drs. J. Brihaye and L. Calliauw, both from Belgium, organized the first course on neurotraumatology in Kinshasa, Central Africa.

In 1994, an educational course lasting one-and-a-half months was organized by Dr. S. El Gindi on his own, and was sponsored by the Egyptian Fund for Technical Cooperation with Africa. The course was mainly aimed at general surgeons, orthopaedic surgeons, general practitioners, medical officers, and nurses in rural and district hospitals in Kenya, Zambia, Tanzania and Zimbabwe.

A year later, a course on neurotraumatology was organized by Dr. A. Bou Saleh in Burkina Fasso for West Africa.

The ICRAN Meeting was organized by Dr. S. El Gindi in Aswan (Egypt) in March 2004.

2. WFNS Courses. The Educational Committee of PAANS organized courses in Durban 1996, Egypt 1997 and Malawi 2000. There were also successful courses in Zimbabwe and Ivory Coast.

In June 2005, Morocco will host the Thirteenth World Congress of Neurosurgery under the Presidency of Dr. A. El Khamlichi. This will be the first time in the history of WFNS that a world congress will be held in Africa.

3. European Postgraduate Courses in Neurosurgery. The European Association of Neurosurgical Societies (EANS) has gainfully cooperated with Arab and African neurosurgeons over the years. Since the first postgraduate course in Ain Shams

Medical School in Cairo in 1979, others have taken place in Cairo in 1982 and 1988, Algeria 1986 and Morocco 1990.

   4. Postgraduate Training. Before the mid-1970s, postgraduate medical training in neurosciences for those working in Africa was mainly in Britain and North America; the major North African and South African countries also had their own training programmes. In 1971, the National Postgraduate Medical College of Nigeria was initiated. The West African College of Physicians began a similar programme in 1978. In 1998, a WHO subcommittee, comprising thirteen members drawn from different areas of Africa, under the chairmanship of Dr. Abdeslam El Khamlichi, was set up to support the development of neurosurgery in Africa.

References

Adeloye, A.: Neurosurgery in Africa. Ibadan University Press, 1989

Breasted, J.H.: The Edwin Smith surgical papyrus. The University of Chicago, 1930

Brown, G.: Feature Profile of A Neurosurgeon. Egypt Med. Mag. 2002, 3: 16-22

El Gindi, S.: Neurosurgery in Egypt: Past, Present and Future from Pyramids to Radiosurgery. Neurosurgery 2002, 51: 789-796

El Khamlichi, A.: African Neurosurgery 1: Historical outline. Neurochirurgie 1996, 42: 312-320

El Khamlichi, A.: African Neurosurgery Part II: Current state and future prospects. Surg. Neurol. 1998, 49: 342-347

El Khamlichi, A.: African Neurosurgery: Current situation, priorities and needs. Neurosurgery 2001, 48: 1344-1347

Ghaliongui, P.: The Eber's papyrus. Cairo Academy of Scientific Research and Technology, 1987

Grounds, J.G.: Trephining of the Skull Amongst the Kisii. E. Afr. Med. J. 1958, 35: 369

Guirot, J.: Medicine and Mummification in Pharaonic Era. Translated by Zekri A. El -Saada Publishers Egypt, 1926

Hassan, A.: The Secret of Medicine, Setter, C. Chicago Edition, 1993, 101 pp

Hurry, J.B.: Imhotep. Oxford University Press, 1928

Levy, L.F.: Neurosurgery in Rhodesia. E. Afr. Med. J. 1959, 36: 392-401

Mahdy, M. and Tawfik, M.: History of neurosurgical practice in the Egyptian medical service. Egyptian Military Medical Journal 2002, 51: 4-7

Margota, R.: The Story of Medicine editor. Golden Press, 1967

Miller, J.D.: A European look at neurosurgery in America. Acta Neurochir. 1980, 54: 3 16

Osler, W.: The Evolution of Modern Medicine. New Haven Conn, 1923

Peter, J.C.: The department of Neurosurgery of the University of Cape Town: A brief historical overview. Neurosurgery 1999, 45: 1228-1233

Rogers, L.: Meningiomas in Pharaoh People. Br. J. of Neurosurg. 1949, 36: 423-426

White, M.J.E.: Ancient Egypt, Its Culture and History. Dover Publication Inc. New York, 1995.

4.6 Australasia and the World Federation of Neurosurgical Societies

Donald Simpson and Noel Dan

Australasia is a loose geographical term that covers Australia, New Zealand and a number of adjacent islands in the South West Pacific. The two most developed communities, Australia (population twenty million) and New Zealand (four million) have been independent since the beginning of the twentieth century. Both nations are English speaking and have indigenous minority populations with proud cultural traditions. Their medical services are well established and have included specialist neurosurgeons since the 1930s. New Guinea is the largest of the surrounding islands which can be considered to be Australasian. Papua New Guinea, the eastern portion, has been politically independent since 1975 and has historic medical links with Australia. Other islands in the South West Pacific region also cooperate medically with Australia and New Zealand.

Pre-European cranial operations in Australasia

The aboriginal peoples of Australia and the Polynesian Maori of New Zealand have no oral or written records of operations on the head and the archaeological evidence of early trephination is not conclusive. Two skulls with ante-mortem skull defects which appear to be the results of human action[1] have, however, been found in Australia, and are supposedly two or three hundred years old. We can only guess at the reasons for these full-thickness bone defects; they do, however, suggest a considerable level of surgical expertise prior to European settlement in Australia. There is stronger evidence of cranial surgery by indigenous surgeons in some of the island cultures of Melanesia.[2] In New Britain, native surgeons were found to be operating on depressed skull fractures when European ships visited there in the nineteenth century. They used sharks' teeth, obsidian knives or sharpened shells to cut the skull bone, bamboo knives for the soft tissues and wounds were sutured with needles made from the fine bones of the flying fox. The recovery rate is said to have been high.

European surgery in Australasia

European surgeons first came to Australia as crew members of exploring ships or as castaways. After the wreck of the Dutch ship, Batavia, in 1629, Fransz Jans of Hoorn, the senior barber (surgeon), was murdered by mutinous ship-mates. A later judicial enquiry heard that his wounds included blows to the head from a morning-star (spiked club) and a sword[3]. Medical equipment, presumably his, has been found at the site of the wreck site. The first large contingent of medical men arrived in Australia in 1788 in the squadron commanded by Commodore Arthur Phillip. They established a settlement which is now the city of Sydney. Australia's First Fleet carried eleven medical men including a convict rehabilitated as a surgeon's assistant.[4] They were all rated as surgeons, although one of them later qualified as a physician. They were products of the age of John Hunter and Percival Pott, a time when there was keen interest in head injuries. The colonists soon provided their

surgeons with problems in head injury management. Early in 1788, Surgeon General John White performed an autopsy on a case of subdural haematoma and also treated a serious head wound in a convict caught stealing shirts. White's treatment was so successful that three weeks later his patient, Samuel Payton, was fit enough to make an edifying speech at the scaffold before being judicially hanged.[5]

Medical progress in the nineteenth century
Medical practitioners were among the colonists of Australia and New Zealand. Although most came from Great Britain, there was a substantial minority from Germany and a few from other European countries. Melbourne (Victoria) opened the first medical school in 1862, followed by Dunedin (New Zealand) in 1875, Sydney (New South Wales) in 1883 and Adelaide (South Australia) in 1885. The medical teaching was partly performed by young professors brought out to set up the schools but also by local medical men experienced in colonial conditions. The result was a remarkably flexible approach to medical practice and a striking willingness to adopt new ideas. During this colonial period, medical practitioners in Australia and New Zealand remained part of the British medical community. Most of them had received their professional qualifications from English, Scottish or Irish medical centres and a few held German or American degrees.[6] They were thus in close touch with the pioneers of clinical neurology and antiseptic surgery, thereby making neurosurgery possible. The Australasian colonies were not as isolated as might be supposed: despite the long sea voyage (some four months by sail, six or seven weeks by steam) the ideas of Joseph Lister, Hughlings Jackson and Victor Horsley were quite rapidly assimilated into colonial medical practice.

The dawn of neurosurgery in Australasia
In the last two decades of the nineteenth century, a number of surgeons in Australia and New Zealand used the new doctrine of cerebral localization to diagnose brain tumours which they attempted to remove, sometimes with remarkable success. Many of their case reports were published and make impressive reading. Thus, in 1888, Joseph Verco of Adelaide located and removed a cerebral hydatid cyst. The patient died from post-operative meningitis despite intra-operative use of the carbolic spray. Verco had studied medicine in St. Bartholomew's Hospital, London. He was assisted in his pioneer operation by John Davies Thomas, a physician from University College London, and the author of an innovative book on hydatid disease.[7] In 1889, H.W. Maunsell of Dunedin drained a posterior fossa cyst, supposedly a hydatid, with an excellent result.[8] In 1890, Daniel Colquhoun, also of Dunedin, reported the successful removal of a hyperostosing parasagittal meningioma[9] and in 1894, George Syme of Melbourne successfully removed what must have been a convexity meningioma.[10] Syme's patient was a plain clothes constable aged thirty years, who presented with focal epileptic seizures affecting the right side of the face. He later became aphasic. Syme located the tumour in the left frontal region, on the basis of the history and the clinical signs. A semilunar temporal scalp flap was reflected, and a two-inch trephine was applied at the calculated point. The trephine opening had to be enlarged and the resulting bone defect disclosed an easily accessible tumour arising from the dura mater. 'It was shelled out by means of the fingers and a small, smooth, olive-shaped elevator, leaving a large cavity, corresponding to the lower part of the ascending frontal and posterior part of the second and third frontal convolutions. The tumour...weighed two and a half ounces.' The operation was remarkably successful: the patient eventually returned to normal police duties and was fully employed until his death from an accidental gunshot wound twenty-three years later.

The twentieth century
In the first three decades of the twentieth century, a number of general surgeons became competent in the techniques of craniotomy and laminecty, either from an interest in this challenging field or because they were urged to do so by physicians who were beginning to consider themselves neurologists. In Adelaide, Henry Newland (1873-1969) was typical of the general surgeons of the early twentieth century: a fine all-round operator, trained in the London Hospital, noted as a battle-field surgeon during the First World War and gaining greater recognition as a plastic surgeon in the hospital for facial injuries established at Sidcup, UK.[11] Carrick Robertson (1879-1963) of Auckland, originally from Glasgow, was likewise a brilliant operator; he is known to have operated on meningiomas and cerebellar astrocytomas and in 1932 he reported four cases of pituitary adenoma successfully resected by the trans-sphenoidal route.[12] In the period between the two World Wars, these men and others with similar interests prepared the way for neurosurgery but they were not fully committed to the surgery of the nervous system.

Hugh Bell Cairns
The first Australian to make a whole-hearted commitment to neurosurgery was Hugh Cairns (1896-1952).Although he worked in England, he had great influence on the growth of the specialty in Australasia. Born and educated in South Australia, Cairns went to Oxford as a Rhodes Scholar in 1919 after war service at Gallipoli and on the Western Front. In Oxford, he came under the influence of the neurophysiologist, Charles Sherrington, and also met Harvey Cushing. He resolved to become a surgeon and secured an appointment at the London Hospital where Henry Souttar included neurosurgery in his general surgical practice. In 1926, a Rockefeller Travelling Fellowship took Cairns to the Peter Bent Brigham Hospital in Boston where he worked under Cushing for the next year. Cairns' opinions of Cushing were not always complimentary[13] but he left Boston wholly committed to Cushing's concepts and discipline, though he interpreted these to his trainees with more humanity than Cushing is said to have done. Cairns established a neurosurgical training school of outstanding quality in the London Hospital (1927-1937) and later in the Radcliffe Infirmary in Oxford (1938-1952). In the 1930s, three young Australians and a New Zealander became his trainees before returning to establish neurosurgery in their home countries.

Neurosurgery in Australasia prior to 1940
Meanwhile, four men were developing neurosurgical interests in Australia. Albert Coates (1895-1977) was appointed to the surgical staff of the Melbourne Hospital in 1927 as a general surgeon. Coates had considerable experience in neuroanatomy and engaged more and more in neurosurgical procedures. He made an eight-month world tour in 1934, seeing the work of British, American and French neurosurgical leaders and on his return he was asked to establish a neurosurgical unit in his hospital in collaboration with E. Graeme Robertson, neurologist and pioneer neuroradiologist. Coates was a bold and optimistic operator[14] and a strong advocate of the scientific study of head injuries. In the Second World War, he was taken prisoner and spent the war years in prison hospitals in South East Asia engaged in epic surgical work under grim conditions. After the war he did not return to neurosurgery.

  Also active in Melbourne, at the Alfred Hospital, was Hugh Trumble (1894-1962), a most versatile surgeon who made major contributions in orthopaedic surgery as well as in neurosurgery. From about 1930, Trumble concerned himself increasingly in the surgery of the brain. His operative technique was original. He

devised his own skull plough or craniotome, an improvement on a design published by Henry Souttar; in his powerful hands, this instrument cut circular flaps with great speed.

In Sydney, the chief neurosurgical pioneer was Rex Money (1897-1984). He was appointed to the staff of the Royal Prince Alfred Hospital as a general surgeon in 1928 and in that year went on a world surgical tour. After watching an operation by Howard Naffziger in San Francisco, Money determined to take up neurosurgery. He spent four weeks with Cushing and a month with Cairns in London. With the support of Harold Dew, Sydney's first full-time Professor of Surgery who was also interested in brain surgery, Money went on to establish a neurosurgical service in his hospital. This 16-bed, self-contained unit was opened in 1938, and was the first such unit in Australasia; elsewhere, neurosurgeons shared wards and operating theatres with other surgeons. Rex Money, a decorated veteran of the First World War and a man of driving energy, had a great influence on the growth of neurosurgery in Australasia.

In Adelaide, Leonard Lindon (1896-1978), a contemporary of Hugh Cairns, had qualified as a general surgeon. He decided to take up neurosurgery and spent some months with Cushing in 1929/30 as an onlooker. He also visited many leading American and European neurosurgeons. On his return, Lindon established a neurosurgical service in the Royal Adelaide Hospital. Cushing was Lindon's exemplar and, like Cushing, he was at pains to report his operative statistics. In 1930, he conceived a comprehensive plan for a neurosurgical unit, with academic orientations, that was far ahead of its time. This plan was largely realised in Adelaide by Lindon's successor, Trevor Dinning (1919-2003).

In New Zealand, Carrick Robertson was followed by Donald McKenzie (1902-1974), who was appointed to the Auckland Hospital as a general surgeon in 1931. He also developed a special interest in neurosurgery and in 1937 spent a period with Naffziger in San Francisco. He later gained further neurosurgical experience in a British neurosurgical unit in North Africa, and in St. Hugh's Hospital in Oxford.

Coates, Trumble, Money and Lindon were all general surgeons who had taught themselves to be neurosurgeons with the help of visits to established units. Most of them continued to operate in other surgical fields, if only for financial reasons. However, they were soon joined by three pupils of Hugh Cairns who had been trained as neurosurgeons.

Frank Morgan (1906-1988) was trained by Cairns in the London Hospital (1934-1935) after a period in the National Hospital, Queen Square. He returned to Australia in 1936 to take up an appointment as Honorary Neurological Surgeon in St. Vincent's Hospital, Melbourne. He is remembered as a fine neurosurgeon with engaging eccentricities and is also remembered because he welcomed the celebrated Viennese neurologist and neuroradiologist, Arthur Schüller (1874-1957) as a refugee after the Nazi seizure of Austria. Schüller worked productively with Morgan for many years.

Gilbert Phillips (1905-1952) returned to Sydney in 1934. He had worked under Sherrington in Oxford and under E.D. Adrian in Cambridge, where he participated in experimental studies of the reflex activity of the nervous system. He turned to clinical neurology at the National Hospital, Queen Square under Gordon Holmes and then underwent fifteen months' training with Cairns in the London Hospital. On his return, he took up an appointment as neurosurgeon to Lewisham Hospital, the first designated neurosurgical appointment in Australasia. Phillips joined Money in the Royal Prince Alfred Hospital and also engaged in experimental work

in the University of Sydney. He was joined shortly before the outbreak of the Second World War by W. Lister Reid, who had been with Wilder Penfield in Montreal. Phillips and Reid inspired younger men to engage in research in the neurosciences.

The third pupil of Hugh Cairns was Douglas Miller (1900-1996), who for a long time was considered to be the doyen of Australasian neurosurgery. Miller came to neurosurgery after working as a general surgeon in St. Vincent's Hospital, Sydney, to which he was appointed as honorary surgeon in 1929. Initial success with a case of pituitary adenoma led him to spend a year in 1934 under Cairns in the London Hospital after which he returned to Sydney to establish a neurosurgical unit at St Vincent's. Miller accomplished a great deal for neurosurgery in Australia and New Zealand and was to have an important influence outside Australasia.

J. Douglas Miller

Foundation of the Neurosurgical Society of Australasia

Thus by 1939, there were eight surgeons who regarded themselves as primarily neurosurgeons, as well as several more senior surgeons for whom neurosurgery was an important interest. They worked in three Australian state capitals and in Auckland. Douglas Miller recognised the need for a society to bring together the nascent neurosurgical community. He wrote to the men whom he saw as active neurosurgeons, proposing the formation of a society and in doing this he made the significant comment that Hugh Cairns had urged that this should be done.[15] The first meeting of the proposed society took place on 19th April 1940, in Melbourne. By that time, Australia and New Zealand were at war against the Axis powers and only six Australian neurosurgeons could attend the meeting: Lindon and Mackenzie were already on war service. They agreed to form what was then called The Society of Australasian Neurological Surgeons.

Emblem of the Neurosurgical Society of Australasia. The lizards are Trachysaurus rugosus, the Australian stumpy-tailed skink and Sphendon punctatus, the New Zealand tuatara. Both have well developed third eyes in the median parietal region. These supposedly allow hindsight which is a skill envied by neurosurgeons. (By courtesy of the NSA)

The creation of this society was a recognition that neurosurgery had come of age in the two Australasian countries. The society was intended to be a scientific body whose chief purpose was to conduct annual meetings. There were to be no more than ten members and no office-holders except an annually elected Convener.

The second meeting of what later became the Neurosurgical Society of Australasia, held in Melbourne in May 1945. The meeting was attended by nine neurosurgeons, including four foundation members of the Society: Hugh Trumble and Frank Morgan from Melbourne, and Douglas Miller and Rex Money from Sydney. Guests included four neuroscientists who played important parts in the growth of Australasian neurosurgery: L Cox (neurologist and neuropathologist), the Austrian expatriate A Schüller (neurologist and neuroradiologist), G Robertson (neurologist and pioneer of fractional pnemoencephalograpy) and S Sunderland (neuroanatomist and authority on peripheral nerve injuries). (By courtesy of the NSA)

Progress after 1940

The progress of neurosurgery in Australasia was interrupted by the Second World War. The society did not meet again until May 1945. In 1946, it was necessary to define membership and to elect a president and an executive committee. The 1946 constitution confined eligibility for full membership to persons 'holding appointment as Neurosurgeon at a teaching hospital'. This recognized the fact that in Australasia, consultant neurosurgeons worked mainly in university hospitals. Later, as neurosurgical services were established in centres not engaged in medical teaching, appropriate changes were made to ensure that all qualified neurosurgeons are eligible for full membership. This has given Australasian neurosurgery a professional unity not enjoyed in some other specialties or countries; there has been no separation between academic neurosurgeons and neurosurgeons exclusively in private practice. In Australia and New Zealand, the membership of the society has been almost equivalent to the total national neurosurgical workforces: neurosurgeons in training are admitted as provisional members. In 1956, a new constitution was adopted which gave the society its present name: The Neurosurgical Society of Australasia (NSA).

Since 1945, the Society has met at least once every year and there have been many additional meetings often held in conjunction with other bodies, chiefly with the Royal Australasian College of Surgeons (RACS). The RACS, founded in 1927, holds large annual scientific congresses and these have often provided a forum for inter-disciplinary meetings in fields of importance to other surgical specialties.

Neurosurgical Centres in Australasia

In Australia and in New Zealand, no single neurosurgical centre has been dominant. The first neurosurgical units have survived and expanded but many other units have been established as each teaching hospital or medical community demanded its own neurosurgical service. By 1990, there were six neurosurgical units in Sydney offering comprehensive care and two paediatric neurosurgical units. Melbourne had five neurosurgical units and two paediatric neurosurgical services. Adelaide had one large neurosurgical unit, a closely associated paediatric neurosurgical unit and two smaller units also in teaching hospitals. A strong neurosurgical unit was built up in Perth by J.P. Ainslie (1899-1973) who began as a general surgeon but underwent neurosurgical training with Cairns in Oxford, returning to set up his unit in 1949. In Brisbane, neurosurgery developed in two independent units: in the Mater Hospital under J.G. Toakley (1921-1999) in 1955 and in the Royal Brisbane Hospital under K.G. Jamieson (1925-1976) in 1956. Over the years, neurosurgical units have also been established in Canberra, Hobart, Wollongong, Newcastle, Townsville, the Gold Coast, Rockhampton and Darwin.

Most Australian neurosurgical units have been established in public teaching hospitals and these have continued to lead in training and research. No great neurosurgical centres have been formed in private hospitals. Nevertheless, private hospitals have played important parts in the evolution of Australian neurosurgery. In the early years, neurosurgeons were often prohibited from treating private patients in public beds, and were constrained to work in private hospitals.

In New Zealand, the first neurosurgical unit was established in Dunedin in 1943, by Murray Falconer (1910-1977) who trained in Oxford under Cairns and Pennybacker. He had previously worked in the Mayo Clinic under Alfred Adson. Falconer was given a full-time academic position as lecturer in neurosurgery and became an Associate Professor in 1948 before leaving New Zealand to form the new Guys-Maudsley Neurosurgical Unit. Falconer's work was carried on by Anthony James (1913-1987) and by Richard Robinson (1915-1997) who became Australasia's first Professor of Neurosurgery in 1976.

McKenzie returned to Auckland in 1945 and persuaded the Auckland Hospital to set up a sixteen-bed neurosurgical unit; he was joined in 1951 by David Robertson and in 1955 by Philip Wrightson. The Auckland unit has flourished and grown much larger. Another unit was established in Wellington by Tony James in 1965. James had trained under Trumble in Melbourne and Falconer in Dunedin. A neurosurgical unit was also established in Christchurch in 1981.

With the development of new neurosurgical centres and the increasing involvement of neurosurgeons in trauma management, the neurosurgical workforces have increased. In 2004, there were one hundred and thirty fully trained neurosurgeons within Australasia, of whom one hundred and eighteen practiced in Australia and twelve in New Zealand. Papua New Guinea had for many years had a general surgeon with considerable neurosurgical skills. J.K.A. Clezy, the first Professor of Surgery in the University of Papua New Guinea, had worked for some time under Trevor Dinning, Adelaide's brilliant neurosurgical teacher. His successor in this chair, D.A.K. Watters, continued in the same manner and together with J.V. Rosenfeld of Melbourne wrote a textbook[16] setting out a philosophy of neurosurgical care in developing countries. It is likely that an indigenous neurosurgeon, trained in Australia, will soon practise in Papua New Guinea. Fiji and other South West Pacific islands have had visiting neurosurgeons from Australia and New Zealand as well as retrieval services to the major neurosurgical centres. Elizabeth Lewis was the first woman to practise neurosurgery in Australasia. Marianne Vonau was the first woman to hold

the office of President of the NSA. In 2004, seven women held full membership and there were nine female trainees.

Neurosurgical education in Australasia
During the period 1940-1964, most Australian and New Zealand neurosurgeons were trained in Great Britain. With increasing national self-reliance, Australasian neurosurgeons wished to have their own training programmes and after 1965 the majority of neurosurgeons received their neurosurgical education in Australasian units. They received their accreditation from an Australasian professional body, the RACS, in collaboration with the NSA.

The first step was taken by the RACS. In 1954, it became possible to obtain the College surgical diploma by taking a written and oral examination in neurosurgery without an examination in general surgery. The NSA responded in 1955 by asserting that it had the capacity to determine what constituted an adequate training in neurosurgery and in the next decade this claim was realized. Led by a Melbourne neurosurgeon, John Curtis (1914-1989), the NSA developed a system of training and certification that blended the British system of apprenticeship with the system of accreditation by a neurosurgical board as developed after 1940 in the USA. Curtis had trained in Great Britain under Cairns but he saw that the American system of neurosurgical certification could be made relevant to Australasian needs. Under his leadership, the NSA evolved the concept of linking training programmes supervised by the Society with examinations conducted by the RACS. This partnership has created the present system: planned Australasian training programmes supervised by a neurosurgical board and monitored by an examination conducted by neurosurgical members on the College's Court of Examiners.[17]

A four-year programme in accredited neurosurgical units was established, later increased to five years with guidelines on the content and quality of training. Australasian neurosurgery owes much to the first two chairmen of this committee, Curtis himself and his successor, T.A.R. Dinning, and also to the Board chairmen since 1980 when integrated programmes involving more than one neurosurgical unit were established. Site visits began in 1981, carried out by inspecting teams comprising two members of the Surgical Board. Surgical log books had already been established, allowing the RACS Court of Examiners to assess the experience of individual trainees: cooperation between the Board, the examiners and the Heads of Units resulted in the control of the quality of training becoming a fact, not only an ideal.

The separation of powers, divided between the NSA, the Board and the Court of Examiners, might have led to problems, but good sense has made the tripartite system work well under the overall authority of the RACS Council as a court of last appeal. The RACS Council became even more relevant when, in 1986, it was agreed that a senior neurosurgeon should be coopted to the Council to represent the specialty. The first was Leigh Atkinson who was later elected to the Council in his own right, being the fourth neurosurgeon to overcome the electoral handicap of membership of a small specialty.

Concurrent with these endeavours to establish an institutional basis for neurosurgical training, the NSA established regular seminars for neurosurgical trainees designed to give trainees comprehensive, up-to-date surveys of a specified field. Trainees have also been encouraged to present papers at the NSA annual scientific meetings. Since 1977, the best of these papers has been honoured by the award of the Peter Leech Memorial Prize, commemorating a promising trainee who died of a cerebral glioma. By defining the aims and content of neurosurgical training, and by insisting on training of an international quality, the RACS and the NSA have together

made the FRACS diploma in neurosurgery the normal criterion for acceptance as a neurosurgeon in both Australia and New Zealand. A possible danger here is parochialism. To prevent this, Australasian neurosurgical trainees are encouraged to study abroad as well as at home: in the period 1965-1990, at least two-thirds of them went to leading neurosurgical units in the UK or North America, usually after completing their formal training.

Research in Australasia
Research was not a priority for the early Australian neurosurgeons who were fully occupied by heavy clinical workloads. Their research was generally limited to case-related studies. No academic departments were formed until late in the century. New Zealand was the first to introduce a chair at Dunedin under Murray Falconer and Richard Robinson. The South Australian Neurosurgical Research Foundation assisted the introduction of a Chair of Neurosurgery in Adelaide where Nigel Jones was appointed in 1992. At about the same time, the University of Melbourne appointed Andrew Kaye to a neurosurgical chair. Subsequently, Sydney appointed Michael Morgan as Professor of Neurosurgery. A number of Clinical Professorial appointments were created to recognise the substantial contributions made by neurosurgeons who were primarily involved in clinical practice.

K.G. Jamieson initiated epidemiological research into traffic trauma and this was continued by Borys Selecki (1923-1986) of Sydney. Born in Poland, Selecki promoted innovative studies in neurotrauma with emphasis on the preventable causes of poor outcomes. He undertook extensive studies of cervical injury. In Auckland, Philip Wrightson in collaboration with the psychologist, Dorothy Gronwall, explored the sequelae of minor head injuries; their publications[18] have changed thinking on these common and often disabling injuries. Adelaide has very active neurotrauma and cerebral blood flow research programmes. Donald Simpson assisted the craniofacial surgeon, David David, in the development of a regional craniofacial unit which serviced Australia and the Asia Pacific regions. Melbourne under Andrew Kaye has been especially active in the area of oncology. In Sydney a lot of work has been carried out on skull-base-surgery research and neurovascular research especially involving arteriovenous malformations. The NSA project on neurotrauma epidemiology provided the scientific data which led to the introduction of random breath testing on New South Wales roads. This resulted in a considerable drop in road deaths and a cultural change towards safer alcohol consumption by drivers.

Andrew Kaye developed the Journal of Clinical Neuroscience which started as the official journal of the NSA and now represents the Australian Association of Neurologists, The Australian and New Zealand Society for Neuropathology, the Taiwan Neurosurgical Society and the Asian-Australasian Society of Neurological Surgeons. Its size, frequency of publication and readership have grown progressively since publication commenced in 1994.

In 1997, Andrew Kaye became Professor of Surgery after distinguished service as Professor of Neurosurgery. In Dunedin, Grant Gillett combines Neurosurgery with a personal chair as Professor of Medical Ethics.

Australasia and Asia
Australasian neurosurgery has always looked outwards. In the period following World War II, Australians were extensively involved in the provision of neurosurgical services in South East Asia and the Indian subcontinent. This was partly on the basis of personal contacts and reached a high level during the British Com-

monwealth's Colombo Plan period. Douglas Miller was heavily involved in this programme, supported by Kevin Bleasel and Geoffrey Vanderfield. Donald Simpson made a contribution to neurosurgery in Vietnam during and after the Vietnam War. As a result of the personal friendships which developed between several Australasian neurosurgeons and those in the Asian regions, the need for a regional forum was recognized. This resulted in the formation of the Asian-Australasian Society of Neurological Surgeons which held its inaugural meeting in Canberra in October 1964, attended by distinguished neurosurgeons from India, Pakistan, Japan, Hong Kong, Thailand, the Philippines and the two Australasian countries. Douglas Miller was the first President. Since 1964, it has met at four yearly intervals.

WFNS *Committees*

The Neurosurgical Society of Australasia, at that time known as the Australian Society of Neurological Surgeons, was affiliated with the WFNS in 1957. Keith Bradley served on the Constitutional Committee from 1965 to 1969 and 1981 to 1985, Noel Dan from 1985 to 1993 and Gavin Fabinyi from 1996 to 2003. Kenneth Jameson was appointed to the ad hoc Committee on Head Injury from its inception in 1965 until his death in 1976. Subsequently, Geoffrey Vanderfield served on the Neurotraumatology Committee from 1977 to 1985 as did Leigh Atkinson from 1989 to1993 and Glen Merry from 1992, becoming chairman from 1997 to 2002. Trevor Dinning served on the original Committee on Neurosurgical Education of the WFNS. Keith Bradley was Chairman of the Nominating Committee from 1973 to 1977, a position held by Ray Newcombe from 1997 to 2001 who continued on the committee until 2005. Donald Simpson was a member of the Nominating Committee from 1981 to 1985 and Leigh Atkinson from 1993-1997. Keith Bradley was a member of the Liaison Committee from 1973 to 1977.

WFNS *Office Bearers*

Keith Bradley was elected Second Vice-President of the World Federation in 1977 as was Leigh Atkinson in 1989. Noel Dan was nominated by twenty-nine Societies for the Presidency of the World Federation in 1993 but was unsuccessful in the election held at Acapulco when Armando Basso was chosen. Leigh Atkinson was elected Treasurer of the World Federation in 2001, Noel Dan as Honorary President in 2001 and Andrew Kaye was appointed Editor of Federation News in 2001.

World Congress Bids

Despite distance, Australasians have participated in every World Congress. Murray Falconer was a principal invited speaker at the Second World Congress of Neurological Surgery. Willem Luyendijk and Keiji Sano visited Australia in 1984 to request that the Neurosurgical Society of Australasia bid for the 1989 World Congress of Neurological Surgery. Consequently, a strong bid was formulated for the Congress to be held in Melbourne culminating in a presentation to the Executive Committee in Toronto in 1985 by Gavin Fabinyi and Noel Dan. The bid from New Delhi was favoured. A second bid to hold a World Congress, led by William Sears, Marianne Vonau and Noel Dan, was made by the Neurosurgical Society of Australasia in 1995 in Berlin. This was successful and the Twelfth World Congress of Neurosurgery was held in Sydney in September 2001. Noel Dan was elected President, Leigh Atkinson and Gavin Fabinyi were Vice-Presidents, Marianne Vonau was Secretary and Ray Newcombe was Treasurer. Andrew Kaye chaired the Scientific Programme Committee.

Twelfth World Congress of Neurosurgery

The World Congress was held in Sydney from 15th to 20th September 2001 with WFNS Committee meetings held on the 14th and 15th September and the sports day on 21st September. Notwithstanding meticulous planning for the event, nothing had prepared us for the events of September 11th in New York. This resulted in immediate paralysis of transport throughout the world including all flights across the Pacific from North America together with many flights from Eastern Asia. A large number of the delegates and participants could not get to the conference. Based on the absence of registrants and individuals who were committed to give presentations, it appears that at least five hundred people were unable to get to the Congress. Despite these circumstances, one thousand nine hundred and forty-seven delegates attended. The Scientific Programme included eighty-three breakfast sessions, five plenary sessions and forty-eight main topic sessions. Seven hundred and forty-four free papers were scheduled with eight hundred and eight posters of which half were brief oral presentations. About four percent of the free papers and three percent of the posters were not presented. Nevertheless, no breakfast, plenary or main session was cancelled. This reflected the tremendous contribution by Andrew Kaye and the Scientific Programme Committee who worked tirelessly to re-arrange speakers. The Organizing Committee was grateful to the many delegates who took on extra roles to fill the gaps. Notably many of the delegates commented that lightening the programme, and thus allowing greater opportunities for discussion, was an improvement.

The Social Programme commenced with a reception for the Executive Committee delegates on the evening of 14th September following the first Executive Committee Meeting. A welcoming cocktail party in the exhibition hall followed the Opening Ceremony. The Presidential Dinner was held in the Art Gallery of New South Wales on 16th September and the Australian Opera put on a dedicated performance of the 'Barber of Seville' for the Congress on 17th September. The performers added neurological references to the subtitles in honour of the Congress. There was a very large turn-out for the Congress Party on the evening of Wednesday 18th September. The party theme included the beach, the outback (including native animals), an Asian street market, side-shows and rural activities such as wood-chopping and sheep-shearing, typical of Australian agricultural fairs. There was also a coffee lounge-night club. The Congress closed on the Thursday afternoon with a presentation by Noble Laureate, Professor Bert Sakmann, who was then a resident at the University of Melbourne. The closing ceremony included a performance by Australian Aboriginal dancers; a New Zealand Maori troupe performed a traditional farewell and Moroccan musicians invited the audience to attend the next World Congress in Marrakech. Friday was allocated as a sports day and included tennis, golf and sailing. Thanks to the considerable financial support provided by the

Noel Dan, President of the Twelfth World Congress and Madjid Samii, President of the Federation in Sydney 2001

two main sponsors, Codman-DePuy and Medtronic-Sofamor Danek, the eighty-one exhibitors and the newspaper sponsor Zeiss, the Congress was able to transfer a net profit of US $ 320,000 to the Treasurer of the World Federation after meeting all expenses and repaying the WFNS seeding funds.

The World Federation of Neuroscience Nurses also met at the Sydney Convention Centre holding concurrent meetings with the World Congress of Neurosurgery. They participated in many of the neurosurgical sessions and attended a number of the social functions. Close collaboration with nursing colleagues has always been a feature of Australasian neurosurgery.

References

1. Webb, S.G.: Two possible cases of trephination from Australia. Amer. J. Phys. Anthrop. 75: 541-48, 1988
2. Brodsky, I.: The trephiners of Blanche Bay, New Britain, their instruments and methods. Brit. J. Surg. 26: 1-9, 1938
3. Drake-Brockman. H., Drok, E.D.: Voyage to disaster. The life of Francisco Pelsaert. Sydney. Angus & Robertson. 1963, 187 pp
4. Dan, N.G.: Surgeons of the First Fleet. AMA Gazette No.245, May 15, 1980: 16-17
5. White, J.: Journal of a Voyage to New South Wales. London, . J. Debrett.: 175-177, 1790
6. Simpson, D.A., Verco, P.W.: Cerebral hydatid cysts in colonial Australia. Surg. Neurol. 6: 377-380, 1976
7. Thomas, J.D.: Hydatid disease, with special reference to its prevalence in Australia. Adelaide, Spiller, 1884
8. Maunsell, H.W.: Subtentorial hydatid tumour removed by trephining. Recovery. N.Z. Med. J. 2: 151-156, 1888/9
9. Colqhoun, D.: A case of cerebral tumour in the Rolandic area. Removal of tumour. Recovery. N.Z. Med. J. 3: 231-38, 1890
10. Syme, G.A.: Case of tumour of the dura mater, pressing on the brain, successfully removed by operation. Aust. Med. J. 17: 60-67, 1895
11. Hughes J. Estcourt, Henry Simpson Newland, a biography. S.A. Fellows of the RACS, Adelaide, Griffin Press, 1972
12. Robinson, R.G.: Personal communication, 1990
13. Fraenkel, G.J.: Hugh Cairns, first Nuffield Professor of Surgery, University of Oxford. OUP, 1991
14. Miller, D.: A Surgeon's Story, Sydney, John Ferguson: 129, 1983
15. Curtis, J.B., Miller, D., Simpson, D.: The Neurosurgical Society of Australasia: the first forty years. Aust NZJ Surg. 50: 434-37, 1980
16. Rosenfeld, J.V., Watters, D.A.K.: Neurosurgery in the tropics. London, Macmillan, 2000
17. Simpson, D.A.: Neurosurgery in Australia and New Zealand 1940-1998. In: McCulloch, G. (ed): Handbook of the Neurosurgical Society of Australasia, Inc. 5th ed.: 40, 1998
18. Gronwall, D., Wrightson P.: Delayed recovery of intellectual function after minor head injury. Lancet ii: 605-609, 1947