



● *Historical Review*

**THE CONCEPTION, BIRTH AND CHILDHOOD OF WFUMB AND
 ITS SPECIALIST AND CONTINENTAL FEDERATIONS:
 THE FIRST QUARTER CENTURY[†]**

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Since the discovery of the biological effects of ultrasonic energy preceded its use as a diagnostic tool, it was not unnatural that the first meetings devoted to medical ultrasound were devoted to its therapeutic effects. Its biological effects first became apparent when, during the First World War, Langevin noted that in his attempts to develop a technique to detect ultrasonic echoes from submarines, small fish were killed around the generator. Wood and Loomis (1927) reported upon the biological effects of ultrasound and Freundlich (1932) suggested its use as a diathermic agent which was put into practice seven years later by Pohlman et al. (1939). From that time onward, and especially after the Second World War, papers describing the therapeutic effects of ultrasound were given at Physical Medicine meetings.

In 1951 a group of twenty-four specialists in physical medicine who were attending the American Congress of Physical Medicine in Denver formed a group "to prove or disprove the validity of ultrasonic energy as a clinical tool" (Aldes 1963). Cecil Birtcher who owned a corporation that manufactured therapeutic ultrasonic equipment, provided each of these physiatrists with an ultrasonic therapy machine for this purpose and promised not to market his ultrasonic equipment until this group of investigators "confirmed European work" (Aldes 1963). This group has met annually ever since and, at its second meeting formed itself into the American Institute of Ultrasound in Medicine (AIUM). The Birtcher Medical Foundation provided funding for the publication of the proceedings of these meetings. At first these meetings were devoted almost exclusively to the therapeutic use of ultrasound and the Institute was slow to recognise the importance of ultrasound as a diagnostic tool even though Wild and Reid gave a paper titled "Echographic

Tissue Diagnosis" in 1955. Even at the seventh meeting of the Institute in New York in August 1962 every one of the ten papers read at the meeting was concerned with ultrasonic therapy.

The first *scientific* meeting devoted to medical ultrasound appears to have been the symposium organised by William J. Fry (Fig. 1) of the University of Illinois at Allerton Park in 1952. No proceedings of this historic meeting were published but its success was such that it was followed by two further symposia at Allerton Park in June 1955 and June 1962 the proceedings of both of which were published (Kelly 1957; 1965). It was the success of these three symposia that convinced Fry of the necessity of an organisation which could hold regular meetings in the field of medical and biological ultrasound. He believed that such a purpose could be most easily achieved with an existing organisation rather than by founding a new society. It seemed to him that the American Institute of Ultrasound in Medicine might be such a suitable society providing that it could be reorganised into an independent scientific society devoid of commercial affiliations. For this purpose he accepted a position on the Executive Board of the American Institute in 1957.

Not everyone believed that Fry's intention of changing the Institute into a scientific organisation devoid of commercial affiliations would be possible but, during the period he was on the Board of the Institute and subsequently President, he convinced many people that it could be done. As a result of his efforts the 1964 meeting in Boston made a considerable effort to reduce the number of papers describing empirically the beneficial effects of ultrasonic therapy in favour of more scientific descriptions of the bioeffects of ultrasound and at the same time to increase the number of papers describing the diagnostic potentialities of ultrasound. Dr. Fry fell ill after this but, following his recovery, the AIUM resumed its in-

[†]The full text of the invited lecture prepared for, but not given at the Second Congress of the Asian Federation of Societies for Ultrasound in Medicine and Biology in Bali, Indonesia during July 1989.



Fig. 1. William J. Fry.

creasingly scientific orientation and terminated its financial dependence upon the Birtcher Foundation. It also took the second important step in its development into an independent scientific society by deciding to open its various types of membership firstly to engineers and physicists as well as physicians and physiologists and later also to technologists. The conversion was, however, a slow process and even in 1970–1972, during the author's Presidency of the Institute, he had to direct a major effort towards convincing American scientists that the Institute had become a legitimate scientific organisation to which they could properly belong.

Presumably Dr. Joseph Holmes was one of those who doubted the ability of Fry to convert the American Institute into an independent scientific society because, he and the three colleagues who organised the conference on Diagnostic Ultrasound in Pittsburgh in 1965 (Figs. 2 and 3), announced at the conference the formation of the American Society for Diagnostic Ultrasound. Its purpose was to organise future conferences with Dr. Holmes as the first President (Grossman et al. 1966). A schism amongst American ultrasonologists was avoided when, after William Fry's unfortunate death in 1968 during his Presidency of the American Institute, Holmes was elected as the next President and the American Society was disbanded.

While it will be appreciated that the American Institute of Ultrasound in Medicine was probably the first organisation to hold regular meetings devoted to medical ultrasonic topics, their meetings, until the mid-sixties, were commercially sponsored and largely devoted to the therapeutic claims for ultrasonic therapy. They were attended mostly by physiatrists. Later the Institute became the dominant American forum for ultrasound in biomedicine. In 1973 the first issue of the *Journal of Clinical Ultrasound* appeared with Holmes as its Editor and many members of the Institute on its Editorial Board.

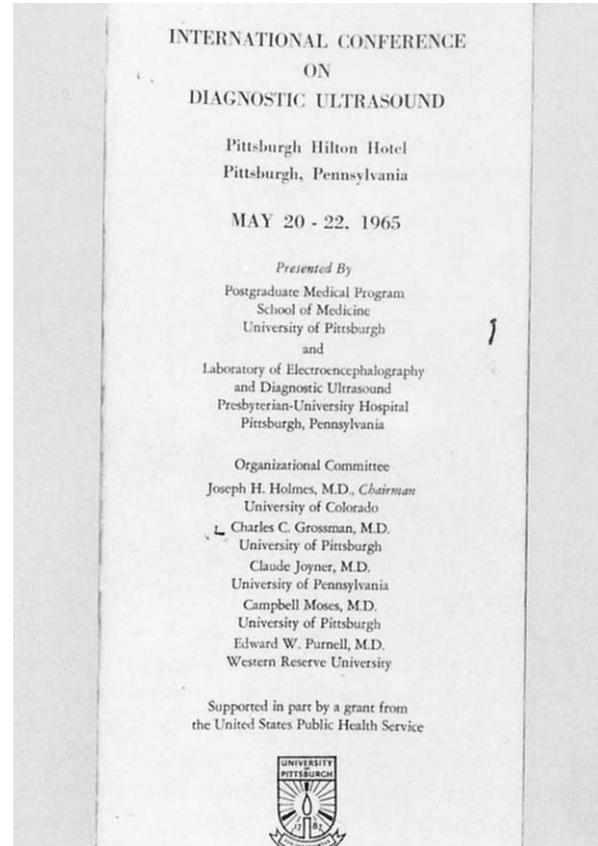


Fig. 2. The programme cover of the International Conference on Diagnostic Ultrasound held in Pittsburgh in 1965.

Soon afterwards it became the official journal of the Institute.

During this same period a number of meetings de-



Fig. 3. The Pittsburgh Conference in 1965. From left to right, front row: Sumio Uematsu, Douglass Howry, David Makow, Marinus de Vlioger, Inge Edler, George Kossoff; back row: Denis White, Arvo Oksala, Joseph Holmes, Edward Purnell, Ben Carlin, Charles Grossman.

voted to medical and biological ultrasound had also been held in Japan. During the 1950s a number of Japanese pioneers had presented papers at the biennial meetings of the Acoustical Society of Japan. Unlike the papers presented by the Americans at the meetings of the American Congress of Physical Medicine, these papers were largely devoted to the use of ultrasound in diagnosis as well as its bioeffects. From 1956 onwards many papers also described the ultrasonic Doppler effect which was first discovered by Satomura of Osaka University. In 1961 a Symposium on the Present State of the Application of Ultrasound in Medicine was held in Kyoto as a satellite meeting of the Association of Japanese Electro-Engineering Research. Twenty-seven of the persons attending agreed to form a small society to discuss Ultrasonics in Medicine at regular intervals. Drs. Toshio Wagai of Juntendo University (Fig. 4) and Masunao Oka of Osaka University were elected to explore this possibility. As a consequence the first meeting of the Japan Society of Ultrasonics in Medicine was held at Juntendo University in Tokyo on May 10, 1961. This meeting was attended by 209 registrants and 29 papers were presented. The second and third meetings were held in May 1962 and 1963 following which it was decided that future meetings would be biennial as they have been ever since. At the fourth meeting in November 1963 the Constitution of the Society was agreed. The Japan Society of Ultrasonics in Medicine therefore was, from the first a scientific society devoid of commercial affiliations. It is the Japanese therefore, that have the honour of being the first to hold regularly recurring scientific meetings



Fig. 4. Toshio Wagai 1988.



Fig. 5. Douglas Gordon 1971.

devoted to ultrasonic diagnostic techniques. At the same time the Japanese published regularly the proceedings of these early meetings in English in a journal called *Japanese Medical Ultrasonics* which also appeared twice yearly. By 1968 in volume 6 of this journal, the occasional original article was also published in addition to the proceedings of the previous semi-annual meeting. By the time of the 23rd semiannual meeting of the Japan Society of Ultrasonics in Medicine in 1973, these Proceedings had become so large that they had to be published separately from the original manuscripts and have continued to appear twice a year ever since. The Proceedings of the 50th and 51st meetings of the Japan Society of Ultrasonics in Medicine held in 1987 were 1025 and 996 pages long. At the same time as the Proceedings began to be published separately the Japanese also began to publish original papers in the *Japanese Journal of Medical Ultrasonics*. At first this journal was quarterly but, since 1983, it has been published bi-monthly. The first issue of this journal appeared in 1974, shortly after the first issue of the World Federation journal, *Ultrasound in Medicine and Biology*, and the first issue of the American Institute's *Journal of Clinical Ultrasound*.

In Europe, Douglas Gordon (Fig. 5) had an exhibit entitled "Echo-encephalography by Ultrasonic Waves" at the First International Congress of Neurological Sciences in Brussels in July 1957 a year after Leksell published his discovery. Professor Ormerod was Chairman and Gordon Vice-Chairman at one of the sessions of the First International Congress on Bio-Medical Engi-

neering held in the uncompleted UNESCO building in Paris in 1958. During this session a number of papers on medical ultrasound were read as was the case at the Second International Conferences in 1959 which was also held in Paris. When the Third International Congress on Medical and Biological Engineering was held at Olympia in London in 1960, Roger Warwick of Guy's Hospital, held a satellite symposium on the Biological Uses of Ultrasound at the Ciba Foundation on July 22 (Fig. 6) and this appears to have been the first meeting wholly devoted to medical ultrasound held in Europe. Following this meeting Douglas Gordon organised an Ultrasonic Diagnostic Discussion Group which held its first meeting at The Royal Society of Medicine in November 1961. He reported on this meeting in a Bulletin of which 15 subsequent issues were printed at irregular

intervals during the following six years (Fig. 7). In December 1962 he organised a symposium on Ultrasound as a Diagnostic and Surgical Tool at The Royal College of Surgeons in London (Gordon 1964; and Fig. 8). This meeting was held during the last "pea soup" fog that was ever to afflict London and one wonders if this was symbolic and, if so, what it symbolised. In May 1964 Gordon organised a second symposium at the Royal Society of Medicine in London. Following this Iliffes, the Publishers, asked Basil Brown of Salford College of Advanced Technology to edit a book on Ultrasonic Techniques in Biology and Medicine. During the preparation of this book Brown organised a Symposium on Ultrasonic Techniques in Biology and Medicine at Salford in May 1966. Shortly afterwards he accepted an appointment at Istanbul so Douglas Gordon, who had contributed three of the thirteen chapters, took over as joint editor (Brown and Gordon 1967). The British were not the only nation to organise such meetings and in April 1963 Professor Dr. ter Braak of the Netherlands organised a discussion group in Rotterdam, while, in 1967, the neurosurgeons held an International Symposium on Echoencephalography in Erlangen, Germany (Kazner et al. 1968). The great interest, at that time, in echoencephalography was further demonstrated in 1970 when Carlo Alvisi founded the Italian Society of Echoencephalography, some three years before he founded the Italian Society for Ultrasound in Medicine.

In March 1969 Dr. H.-R. Muller of Basel (Fig. 9) organised an International Symposium on Ultrasonic Tomography. Another important meeting was held in the United States in May 1968 when Ray Brinker of the University of Washington at St. Louis, organised the first Symposium ever devoted entirely to the medical applications of ultrasonic Doppler techniques. In 1976 the French founded the Doppler Club de France which has held annual meetings ever since to be followed in 1981 by the New England series of Doppler Conferences held every second year usually in New Hampshire but at Bath in Olde England in 1989.

In 1970 Prof. L. Filipczynski of Poland together with Prof. R. Millner of East Germany and Hrazdira of Czechoslovakia organised the Ultrasound in Biology and Medicine (UBIOMED) society which held its first meeting in 1970 at Warsaw-Jablonna. It was attended by about 80 scientists from Austria, Czechoslovakia, England, East and West Germany, The Netherlands, Poland, Sweden, Switzerland and the USSR who presented 41 papers. The second meeting was held in Eisenach in East Germany (1975), then Nowe Mesto in Czechoslovakia (1977), Vysegrad, Hungary (1979), followed by Puschino in the USSR (1981), Warsaw-Jablonna in Poland again (1983), Eisenach in East Germany (1986) and Brno, Czechoslovakia (1989).

22nd July, 1960

No. 14. "BIOLOGICAL USES OF ULTRASOUND"

Chairman: PROF. R. WARWICK

DR. D. GORDON

Participants

E. Ackerman ...	... Pennsylvania State University.
M. Arslan ...	... University of Padua.
H. T. Ballantine ...	... Massachusetts General Hospital, Boston.
G. Baum ...	... Bronx Veterans Hospital, Bronx, New York.
E. Bradfield ...	... National Physical Laboratory, Teddington.
C. F. Brockelsby ...	... Mullard Research Laboratories, Redhill.
T. G. Brown ...	... Western Infirmary, Glasgow.
M. A. Bullen ...	... Bristol General Hospital, Bristol.
I. Donald ...	... Western Infirmary, Glasgow.
H. J. Dyer ...	... Brown University, Providence, Rhode Island.
M. Flinn ...	... Institute of Laryngology & Otology, London.
H. F. Freundlich ...	... Bristol General Hospital, Bristol.
W. J. Fry ...	... University of Illinois, Urbana.
D. Gordon ...	... West End Hospital for Neurology, London.
I. Greenwood ...	... Bronx Veterans Hospital, Bronx, New York.
Marjorie J. Hill ...	... Guy's Hospital Medical School, London.
D. H. Howry ...	... University of Colorado, Boulder, Colorado.
D. Hughes ...	... Dept. of Biochemistry, University of Oxford.
J. Angell James ...	... Bristol General Hospital, Bristol.
A. Jefferson ...	... Royal Infirmary, Sheffield.
L. Kay ...	... Dept. of Electrical Engineering, University of Birmingham.
E. E. Krickhaus ...	... University of Illinois, Chicago.
I. McColl ...	... Guy's Hospital Medical School, London.
E. A. Neppiras ...	... Mullard Research Laboratories, Redhill.
J. A. Newell ...	... Institute of Cancer Research, London.
F. C. Ormerod ...	... Institute of Laryngology & Otology, London.
R. Warwick ...	... Guy's Hospital Medical School, London.

7th & 8th November, 1960

No. 15. "MIGRAINE"

Chairman: SIR RUSSELL BRAIN, BT.

Programme Speakers:	Titles of Papers:
PROF. H. G. WOLFF ...	Tissue changes about the head during migraine headache attacks and their pertinence to symptoms.
DR. I. F. CHAPMAN ...	Properties of a vasodilator polypeptide (neurokinin), a neuro-humoral mediator implicated in the migraine headache attack.

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Fig. 6. The list of participants at the Ciba Symposium on The Biological uses of Ultrasound held on July 22, 1960. The Ciba Foundation usually limits the number of participants in their Symposia to 25.

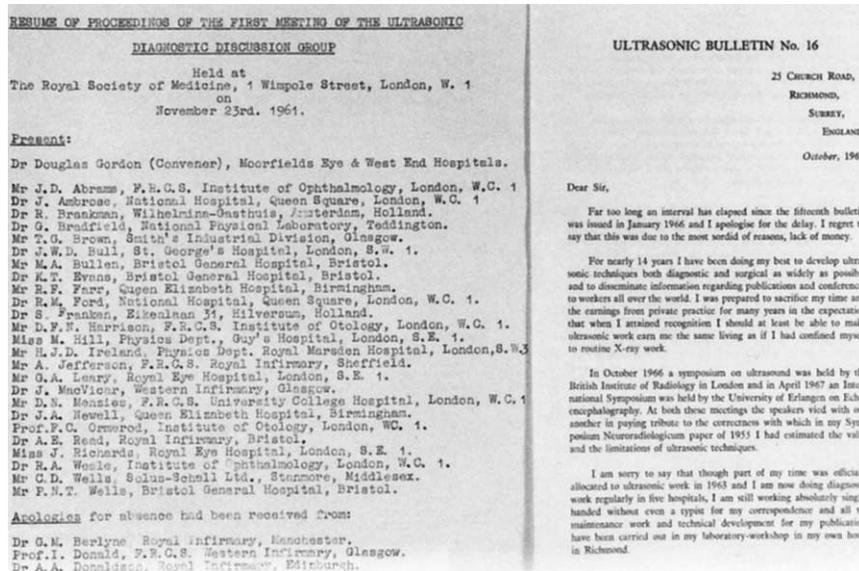


Fig. 7. The first and last of the Ultrasonic Bulletins issued by Douglas Gordon between 1961 and 1967.

In 1976 the Deutsche Gesellschaft für Ultraschall in der Medizin, the Österreichische Gesellschaft für Ultraschall in der Medizin and the Schweizerische Gesellschaft für Ultraschall in Medizin und Biologie organized, for the German speaking countries in Europe, but excluding East Germany, the first Drei-Länder-Treffen in Heidelberg, followed in 1977 by a meeting in Vienna and, in 1979, in Davos. Thereafter the meetings rotated between the three founding countries and were held yearly in Boblingen, Graz, Bern, Erlangen, Innsbruck, Zurich, Bonn, Salzburg, Lugano and, in 1989, in Hamburg.

Apart from these meetings devoted to biomedical

ultrasound there were other organisations in Europe, the United States and Japan where papers on biomedical ultrasound could be presented, published or discussed. These included the International Congresses on Medical and Biological Engineering and on Medical Electronics as well as national organisations and meetings such as the British Institute of Radiology with its journal, the Acoustical Society of America and its journal, the Annual Conferences on Engineering in Medicine and Biology with their Proceedings since 1958, the IEEE Sonics and Ultrasonics Symposia with their proceedings pub-

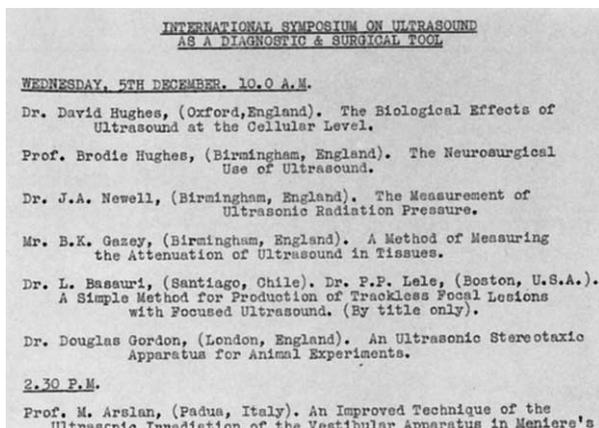


Fig. 8. The programme cover of Douglas Gordon's First International Symposium on Ultrasound as a Diagnostic and Surgical Tool in London 1962.

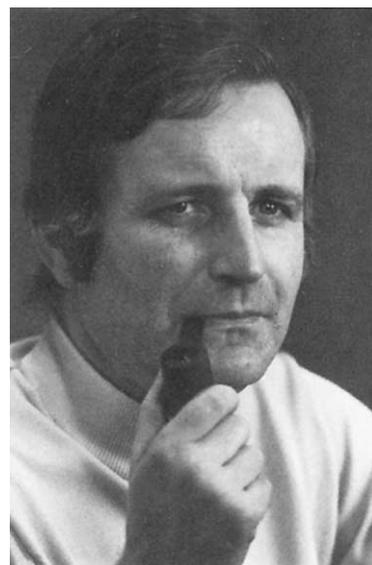


Fig. 9. Hansruedi Muller circa 1971.

lished since 1972, and the meetings and publications of the Acoustical Society of Japan. In the USSR the Academy of Sciences has a Scientific Council on Acoustics which is headed by Prof. L. M. Lyamshev and has more than 20 sections. The section on Ultrasound in Medicine and Biology was organised in 1972 by Profs. L. R. Gavrilov, A. P. Sarvazyan and V. B. Akonian. Gavrilov is the chairman of this section which has about 60 active members from all over the Union and almost every year organises All-Union conferences, symposia and workshops on various problems in biomedical acoustics. The Federation of Acoustical Societies of Europe (FASE) held its first Congress in Paris in 1975. It holds both Congresses or Symposia at intervals of one or two years. The Paris Congress was followed by two Symposia in Budapest (1976) and London (1977). Its meetings, like those of the acoustical societies also were largely devoted to non-medical subjects and only the Second Congress organised by Professor L. Filipczynski in Warsaw in September 1978, was largely devoted to medical and biological ultrasonic papers.

None of these varied meetings in North America, Japan or Europe however led to the formation of the World Federation. This honour appears to belong to a group of European ophthalmologists and to have resulted from two main events. Firstly in the early 1960s, the use of ultrasound for ophthalmological diagnosis was one of the two most active areas for its clinical application. The other area was neurology and neurosurgery whose practitioners were to play an important part in the early organisation of the World and European Federations as will be described. Secondly, the erection of the Berlin Wall had a profound effect in separating European scientists. Douglas Gordon had been dismayed at this scientific segregation and it was as a result of his efforts that Dr. Werner Buschmann (Fig. 10) was allowed to attend the meeting he organised in May 1964, the only representative from Eastern Europe since Dr. N. D. Selesneva, a Russian gynaecologist, was unable to attend. Dr. Buschmann was not allowed to attend the Salford meeting later in 1966 and Dr. W. A. Mastrjukow, Chief of the All Union Scientific Research Institute for Medical Instruments and Instrumentation in Moscow together with a junior colleague and Professor Leszek Filipczynski of the Institute of Fundamental Technological Research in Warsaw were the only representatives from the East. In order to meet this scientific need and to circumvent these political restrictions a number of engineers and clinicians, mostly ophthalmologists from Eastern Europe but including Oksala from Finland, working in the field of diagnostic ultrasound had met at various medical meetings between 1960 and 1963 to describe and discuss their findings. By 1963 it was felt that there was a need for an organisation which would hold meetings devoted largely



Fig. 10. Dr. Werner Buschmann.

to the use of ultrasound for ophthalmic diagnosis. It was as a result of the efforts of this group that the World Federation eventually was formed.

The first meeting of this proposed society was held in East Berlin under the presidency of Professor Dr. Karl Velhagen and was organised by Dr. Werner Buschmann (Fig. 10). Like Douglas Gordon, Buschmann also deplored the segregation of Eastern and Western European scientists and his difficulties in attending meetings and collaborating with colleagues in the West made him determined to try and make this society, its membership and its meetings international and divorced from politics. He therefore used a pseudo-Latin title for the first meeting which was called the Symposium Internationale de Diagnostica Ultrasonica in Ophthalmologia. The symposium was held from June 3–5, 1964 in the Augenklinik of Humboldt University (Fig. 11). It was truly international with a number of foreigners represented on the Praesidium (Fig. 12) as well as presenting papers (Buschmann and Hildebrandt 1965). Everyone who attended voted the symposium a resounding success. Apart from the interest of the scientific communications, the happy and harmonious atmosphere between the Eastern and Western participants who had previously found it hard to meet, was enhanced by the hospitality of the hosts. They arranged a performance of *Fledermaus* at the State Opera which was followed the next day by a boat trip down the River Spree on a glorious summer afternoon (Fig. 13) while the registrants drank white wine and discussed many matters!

It was natural that this symposium should be repeated three years later at the University of Purkyne in Brno under the presidency of Prof. Jan Vanysek and organised by Dr. Juliana Preisova. Eighty-seven regis-



Fig. 11. The programme cover for the first SIDUO Symposium.

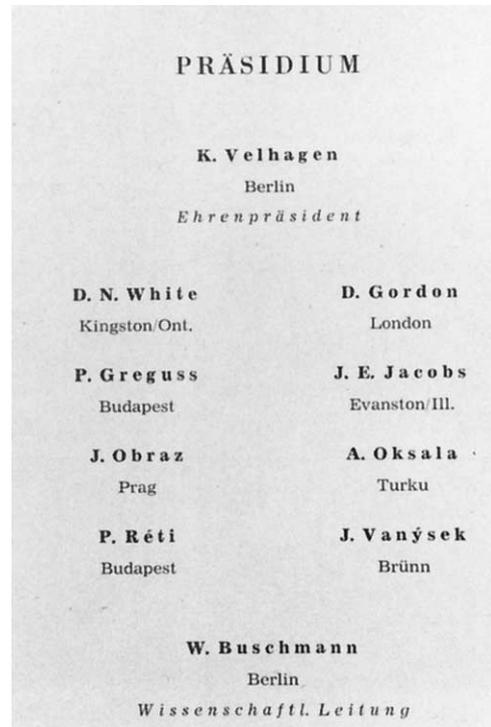


Fig. 12. The Präsidium for the first SIDUO Symposium.

trants attended this meeting which retained its international representation (Fig. 14). The good fellowship that has marked all these symposia was continued at Brno where relaxed conversation and discussion took place, not in the afternoon on a river, but in the evening in a famous restaurant situated in a wine cellar outside Brno! It was at this meeting that Dr. Buschmann's conception was brought into being and the Societas Internationalis pro Diagnostica Ultrasonica in Ophthalmologia (SIDUO) was formed with Prof. Dr. Jan Vanysek as its first President and Arvo Oksala as Vice-president and Hermann Gernet as Secretary. Prof. Vanysek was a very eminent ophthalmologist who made the mistake of strongly backing the reforms then being brought to Czechoslovakia by Alexander Dubcek after his elevation to First Secretary of the Czech Communist Party in January 1968. When the USSR invaded Czechoslovakia in August of that year and replaced Dubcek, Vanysek was forced to resign from his academic appointments. SIDUO however, refused to replace him as president and he was able to attend their next meeting even though it was held in Vienna in 1969. At Brno it was also decided that future SIDUO meetings would be held at two-yearly instead of three-yearly intervals and that the Vienna meeting would be under the presidency of Professor Dr. Boeck and organised by Dr. Karl Ossoinig (Fig. 15).

In the interval between the East Berlin and Brno

meetings, the success of these meetings in Eastern Europe and the rapid advances being made in ophthalmic ultrasound, had stimulated Professor Dr. Arvo Oksala in collaboration with Professor Dr. Hermann Gernet, to hold a Western conference in Munster from August 5-7, 1966 in connection with the XXth quadrennial International Congress of Ophthalmology held from August 14-19 in Munich that year (Oksala and Gernet 1967). For the same reasons the American ophthalmologists



Fig. 13. The cruise on the Spree during SIDUO I. From left to right Karl Ossoinig (back turned), Werner Buschmann and Arvo Oksala.

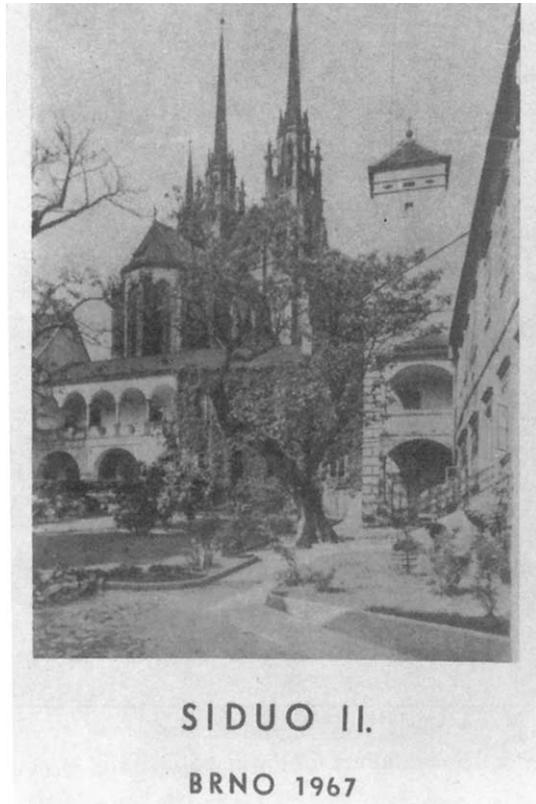


Fig. 14. The programme cover for the second SIDUO Symposium. The picture is of the Abbot Gregor Mendel's garden in Brno next to the cathedral. Although Mendel's genetic theory of inheritance that he had published 101 years previously, was correct it was not accepted in his lifetime. In the near flower bed in 1967 was a display of three generations of pansies illustrating the effects on their colour of breeding a dominant with a recessive coloured strain.

attending the Brno meeting had pressed strongly for the third SIDUO meeting to be held in Philadelphia. When it was decided that this meeting would be held instead in Vienna, Dr. Arthur Keeney organised a meeting in Philadelphia in 1968 which he called the Fourth International Congress of Ultrasonography in Ophthalmology. In the preface to the Proceedings of this Conference (Gitter et al. 1969) Keeney mistakenly stated that the three preceding Congresses had taken place in Vienna in 1965, Munich in 1966 and Brno in 1967 presumably resulting from the fact that he himself had not been present at any of them. In the same year as this American Congress another International Symposium on Diagnostic Ultrasound in Ophthalmology was organised in Europe by Professor Dr. Gallenga and held in Turin from June 1–2 of that year (Gallenga 1968). SIDUO held many of its subsequent conferences in the West so that the need for separate Eastern and Western ophthalmological conferences no longer existed.

When Karl Ossoinig (Fig. 15) started to organise the third SIDUO meeting in Vienna he was faced with a difficulty which was to play a vital part in the formation of the World Federation. He found that the Austrian Government was unwilling to give any financial assistance to small meetings such as the first two SIDUO meetings had been. Moreover living in Vienna he was anxious to hold the conference amidst some of the historical and beautiful buildings of that city. However the authorities would not allow the Hofburg Palace to be used for any conferences of less than 300 registrants. He therefore decided to enlarge the scope of the Vienna SIDUO meeting and make it into a truly World Congress encompassing all aspects of diagnostic ultrasound. Since Denis White had been an advocate of enlarging the scope of future meetings to encompass all the fields of diagnostic ultrasound when the matter was discussed by the Praesidium in Brno, Ossoinig called upon him to head the International Committee which was composed of Anna Bertenyi, Ian Donald, Inge Edler, Hermann Gernet, Helmuth Hertz, Joseph Holmes, George Kossoff, Arvo Oksala, Jacques Poujol, Jan Vanysek and Marinus de Vlieger.

Thus the First World Congress on Ultrasonic Diagnostics in Medicine and SIDUO III was held in Vienna from June 2–7, 1969 (Fig. 16) under the presidency of Prof. Dr. Boeck amidst the splendours of the Habsburg Austro-Hungarian Empire in the Hofburg Palace (Fig. 17). It was widely attended by registrants from all over the world and 190 scientific papers were presented (Bock and Ossoinig 1971). It was voted a huge success, in no small part due to the magnificent hospitality of the Vi-



Fig. 15. Karl Ossoinig.



Fig. 16. The programme cover for the First World Congress on Ultrasonic Diagnostics in Medicine. The picture shows the Hofburg Palace.

ennese hosts. The pattern established in East Berlin was followed with a “Heuriger” evening when the participants drank the new wine in the Viennese woods. Subsequently there was a visit to the State Opera and an evening buffet at the Auersperg Palace.

The success of this First World Congress was such that it was decided to repeat it in four years time. In addition to the obvious advantages of regional organizations arranging periodic conferences for persons working in the general field of medical ultrasound such as the UBIOMED series, as well as organizations like SIDUO for ultrasonographers working in the same specialised area there were also obvious advantages to forming an international society of persons working in the field of biomedical ultrasonics. At that time, the only organisations in continuous existence were the American Institute founded in 1951, the Japan society founded in 1961 and SIDUO founded in 1964. While it might be possible for

these three organisations to federate, and the Americans were very lukewarm to the idea, they were hardly going to be representative of a world organisation. However the initiation of a series of regular World Congresses did not really satisfy the purposes of some members of the International Committee of the Vienna Congress. They had envisaged the need for a permanent organisation with the responsibility not only of arranging future World Congresses, but also of some central body to establish standards and safeguard the interests of ultrasonographers everywhere. The dissemination of information would be one of the most important functions of such a Federation which object would be achieved by owning and publishing a journal. It was felt that these needs were essential the better to represent the scientific interests of workers in the field of medical ultrasound all over the world.

At the same time, there was an increasing need for the formation of national, as well as international, societies. The increasing intervention of governments into the practice of medicine made it important that each different country should have an organisation to set appropriate standards of practice for those using ultrasonic diagnostic techniques in that country as well as to ensure the safety of the patients being examined. Usually such national societies of ultrasonic specialists started as scientific societies which met to exchange information about their practises. However they soon had to assume a regulatory and advocacy role as well. Anticipating the advantages of being part of such a World Federation, the British Medical Ultrasonics Group which was sponsored by the British Institute of Radiology, was formed in December 1969. This group, which had no constitution, officers or dues and did not wish to become lost in the European Federation when it was later formed, was to give rise to difficulties in calculating the dues they



Fig. 17. The Festsaal of the Hofburg Palace during the First World Congress.

should pay to the World Federation. The Australians also formed their own national society on more customary lines, in 1970.

It was obviously going to be difficult to ensure adequate representation in the World Federation for the various European national societies with their different nationalities, languages and political groups. Such small national societies were likely to have their own individual interests overwhelmed by the large continental federation of the American Institute, should they decide to join the World Federation, and by the even larger Japanese national society. Anticipating the need to form a comparable continental federation, Hans-Ruedi Muller (Fig. 9) formed the Swiss Society for Diagnostic Ultrasound during the Vienna Congress. The East Germans formed their own national society on November 20, 1971 and the Hungarian Biophysical Society on January 10, 1972.

When a group of European workers met to discuss the possible formation of a European Federation, Marinus de Vlieger was elected as their chairman (Fig. 18). He then met with representatives from the American Institute, the Japan Society and SIDUO to discuss the next World Congress, the possible formation of a World Federation and the founding of a journal. At this meeting de Vlieger was elected the president of the next World Congress which was to be held in Rotterdam. de Vlieger and White, who had been energetically promoting the idea of a World Federation and a journal, were elected as an Organising Committee and were charged with the responsibility of drawing up a tentative Constitution for the World Federation and finding a publisher for the journal as well as organising the Rotterdam Congress.

These two individuals faced a number of difficulties. de Vlieger was not very happy with the responsibility of hosting the next Congress in Rotterdam because he was aware that, although the Vienna Congress had been a great success scientifically and socially, it had resulted in a large financial deficit which Karl Ossoinig had difficulty in meeting. He was therefore relieved when Erasmus University promised him financial backing, in return for which K. T. Liem a representative of the treasurer of the University was added to the Organising Committee. The university also required that the Rotterdam Congress should be organised by a professional firm. On the advice of this firm and White it was decided that only papers of high scientific standard would be accepted for presentation at the Congress. As a result those workers whose papers were rejected did not attend the Congress and the final attendance was only 700 instead of the 1000 expected. The resulting deficit was \$5000 which was luckily covered by the grant from Erasmus.

The responsibility of drawing up a tentative Consti-



Fig. 18. Marinus de Vlieger.

tion fell to White. It appeared that the type of organisation that was needed was similar to that of the Alliance for Engineering in Medicine and Biology with which White had had dealings in his capacity as President of the American Institute for Ultrasound in Medicine. As a result, the Constitution proposed for the World Federation was based upon that of the Alliance. It seemed to provide a viable starting point from which alterations could be made at a later date in the light of need and experience. In the event, it was accepted and adopted at Rotterdam without change (Ultrasound Med Biol 1:103–108; 1973).

de Vlieger and White visited a number of publishers during White's annual visits to the Netherlands. In view of the non-existence of any funds belonging to the proposed World Federation, it was essential that the publication of the journal should incur no financial risk. *Medical and Biological Engineering* was the official journal of the International Federation for Medical and Biological Engineering and Dennis Hill was its editor. Hill gave White several invaluable suggestions regarding the type of contract that it was desirable to negotiate with the publisher of a scientific journal which was to remain the property of an international scientific organisation but which, having no funds, wished to avoid any financial risk or loss. Only Pergamon Press was willing to concede ownership of the journal and its list of subscribers to the Federation as well as agreeing to meet any financial losses themselves while sharing any profits with the Federation (Fig. 19). Thus Pergamon was accepted as the publisher of the Federation's official journal at Rotterdam and White was appointed the editor.

The situation had been complicated by the fact that, because of the long time between the Vienna and Rotterdam Congresses and the absence of any definite evidence that the World Federation and its Journal would come into being, the Germans proposed to start their own journal. White persuaded them not to do this and prejudice the success of the World Federation journal which he hoped would be approved at Rotterdam. The Germans agreed and did not start their own journal, *Ultraschall in der Medizin*, until 1982. However White was placed in an awkward situation when, a few months before the Rotterdam Congress, the *Journal of Clinical Ultrasound* was brought out by the Americans. Joseph Holmes, a former President of the American Institute for Ultrasound in Medicine, was the Editor and the Editorial Board was composed almost entirely of members of the Institute of which it later became the official journal. White had had no prior knowledge of the Americans' intentions despite the fact that he had succeeded Holmes as President of the Institute.

At the same time as all these preparations for the Rotterdam Congress and the putative World Federation and its journal were proceeding, de Vlieger, with the assistance of Muller who had formed the first European national society, were responsible for stimulating the formation of national medical ultrasonic societies in 13 European countries and bringing together their representatives at the Fourth Annual Meeting of the Swiss Soci-

ety for Diagnostic Ultrasound (Fig. 20; White 1972) in Basel on February 11, 1972 where they founded the European Federation of Societies for Ultrasound in Medicine and Biology and signed its Constitution (Fig. 21). The names of the signatories were: Dr. A. Berteny (Budapest), Dr. F. Bonilla-Musoles (Valencia), Dipl. Ing. H. Grossman (Dresden), Prof. Inge Edler (Lund), Angus Hall (Glasgow), Prof. V. Hudolin (Zagreb), Dr. E. Kazner (Munich), Dr. A. Kratochwil (Vienna), Dr. S. Levi (Brussels), Prof. T. Planiol (Tours), Ing. J. C. Somer (Utrecht), Dr. P. Ylostalo (Oulu) and Dr. M. de Vlieger (Rotterdam). Dr. de Vlieger (Fig. 18) was elected President of the new Federation, Dr. Werner Buschmann (Fig. 10) Vice-president and Dr. H-R. Muller (Fig. 9) Secretary. There were two treasurers, Dr. Anna Bertenyi for East European countries with blocked currencies, and Dr. Salvator Levi for West European countries with their free currencies. The constitution of the European Federation was officially adopted at its second meeting held in Munich in May 1975 by which time Denmark, Greece, Italy, Norway and Poland had also joined the federation while the British had changed their group into a regular society. The scientific societies in the USSR lack hard currencies and this has restricted their representation in meetings outside the Soviet Union. It also has prevented them, up to the present from participating in multinational organisations such as WFUMB and FASE, with the exception of the East European UBIOMED meetings which they hosted in 1981. However they plan to affiliate in the future with the World Federation and possibly also the European Federation.

The European Federation has held triennial (EUROSON) Congresses since the inaugural meeting in 1972 (Fig. 22). The second was held in Munich (1975), the third in Bologna (1978), then Dubrovnik (1981), followed by Strasbourg (1984), Helsinki (1987) and Jerusalem (1990).

The formation of the European Federation simplified the formation of the World Federation in the following year. It would have been difficult for the World Federation, with a relatively small Administrative Council and number of officers, adequately to represent the varying interests of the many different national societies in America, Japan, Australia and both the Eastern and Western blocs in Europe. It was felt that if the size of the Administrative Council was enlarged to represent all these various national interests as well as the specialist societies, it would become most unwieldy. The advantages of having individual national interests represented in a regional or continental federation which could then take them to the parent body, proved so great that the World Federation has encouraged the formation of other continental federations.

Prior to this, SIDUO, with its tradition of biennial

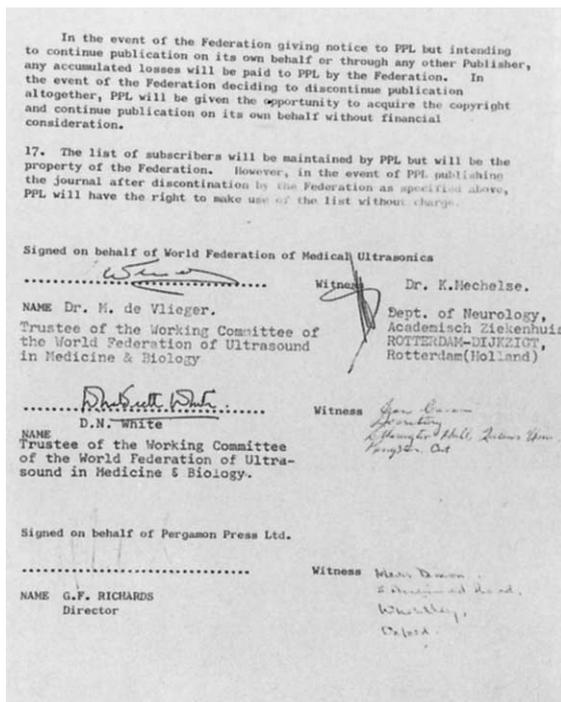


Fig. 19. One page of the agreement drawn up by Pergamon Press and signed after approval by the Rotterdam Congress.

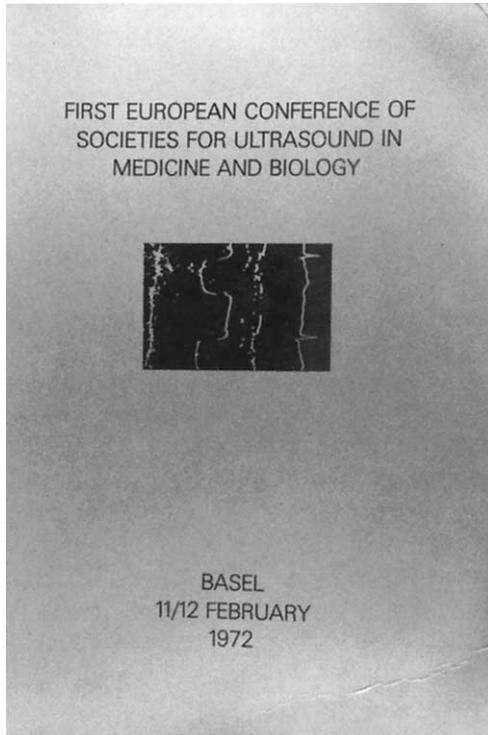


Fig. 20. The programme cover of the First European Conference of Societies for Ultrasound in Medicine and Biology.

meetings, arranged its fourth meeting in Paris in May 1971 (Massin and Poujol 1973). Since SIDUO, the organisers of the Vienna Congress, had been rather overwhelmed by the non-ophthalmological participants at that Congress, their fifth meeting was arranged to precede rather than coincide with the Rotterdam Congress and was held in the nearby town of Ghent from May 30-June 2, 1973. Abstracts in three languages of the 51 papers presented were provided by the University Eye Clinic (SIDUO V, Abstracts 1973).

Thus, the World Federation for Ultrasound in Medicine and Biology and its official journal, *Ultrasound in Medicine and Biology*, were both born somewhat tentatively during the Rotterdam Congress (Fig. 23; de Vlieger et al. 1974) in June 1973. By no means was everyone enthusiastic at these new creations. The Russians were most interested in the effects that ultrasound had upon tissues and its use as a therapeutic agent; they had little interest in ultrasound as a diagnostic tool, the East Europeans had enthusiasm but, with their blocked currencies, did not see how they could pay their dues to the Federation; the British felt there were "too many meetings" and "too many journals." The Americans, who were becoming irritated by the behaviour of their United Nations guests in New York, were suspicious of another international organisation for which they would be ex-

pected to pay the lion's share of the expenses. In any case they were well served by the annual meetings of the American Institute which were being attended by increasing numbers of registrants and exhibitors. Moreover they had their own journal and could see no need for another.

At the Rotterdam Congress it was also felt that, since the field was changing so rapidly, the four years between the Vienna and Rotterdam Congresses was too long, and so it was decided to hold the next Congress and the sixth SIDUO Symposium three years after Rotterdam in the United States in Boston (1976) in conjunction with the annual meeting of the American Institute for Ultrasound in Medicine. The venue was subsequently changed, firstly to New Orleans and again, shortly before the meeting, to San Francisco. Thereafter the World Federation met triennially. The San Francisco Congress (White and Brown 1977) was advertised as the First Meeting of the World Federation for Ultrasound in Medicine and Biology rather than the Third World Congress and this gave rise to feelings on the part of the Europeans that their pioneer work in initiating these Congresses, which were the forerunners of the World Federation, was being ignored. These feelings resulted, at the time of the Congress, in the name Third World Congress being added to the name tags (Fig. 22). Thus the next Congress in Miyazaki in July 1979 (Wagai and Omoto 1980) was advertised as both the Second Meeting of the World Federation and the Fourth World Congress. This gave rise to numerical confusion when referring to any specific Congress, so the Brighton Congress in July 1982 (Lerski and Morley 1983) adopted the nomenclature of WFUMB '82 which has been used since.

As mentioned above, the formation of the European Federation was so vital for the formation of the World Federation that the formation of other continental and regional federations has always been strongly encouraged by the World Federation. South America was the first continent to follow the lead of the Europeans. There the first two countries to form national societies for medical ultrasound were Argentina in 1976 and Brazil in 1977. Together with Paraguay, Peru and Uruguay these two national societies formed the Latin American Federation for Ultrasound in Medicine and Biology in September 1983 with Dr. Alberto Belinsky as President. Chile and Mexico joined the Federation in 1985 and Cuba and Venezuela in 1987. In that same year the Federation brought out the first issue of its journal—*Revista Latinoamericana de Ultrasonografia en Medicina y Biología*.

While the Japanese had had their own national society since 1961 and the Australians had founded their national society in March 1970 and held their first scientific meeting in August 1971, there was no interest in

not be divided among its members. The funds shall be transferred to another international body, or bodies, of like interests, agreed upon by the delegates' assembly.

Basle,
February 11, 1972

The third draft of the constitution has been accepted by the following official delegates of their respective national societies with the following reservation: unless a written declaration by the board of directors of their respective societies will be sent to the President of the Federation by December 31, 1972, the societies then will be considered as members of the Federation. An annual collection of contributions will first be made on June 1, 1973.

Dr. A. Bertényi, Budapest, Section for Ultrasound of the Hungarian Biophysical Society. A Magyar Biofizikai Tarsasag Orvosi-Biológiai Ultrahang Sectioja.

Dr. F. Bonilla, Valencia, Spanish Society for Diagnostic Ultrasound in Medicine. Sociedad Española para el diagnóstico con ultrasonidos en medicina.

Prof. H. Grossmann, Dresden, Society for Diagnostic Ultrasound of the German Democratic Republic. Gesellschaft für Ultraschalldiagnostik in der DDR.

Prof. I. Edler, Lund, Swedish Society for Ultrasound in Medicine. Sällskapet för Svensk förening för medicinsk ultraljuddiagnostik.

Dr. A. Hall, Glasgow, British Medical Ultrasonics Group.

Dr. V. Budolin, Zagreb, Yugoslav Association for Echography and Rheoencephalography. Udruženja za ehocencefalografiju i ehografiju u SFR Jugoslavije.

Dr. E. Kemper, Munich, German Society for Diagnostic Ultrasound. Deutsche Arbeitsgemeinschaft für Ultraschalldiagnostik. (DAUD)

Dr. A. Erdos, Vienna, Austrian Society for Ultrasound in Medicine. Osterreichische Gesellschaft für Ultraschall in der Medizin.

Dr. S. Lévi, Brussels, Belgian Society for Ultrasound in Medicine. Société belge de Diagnostic ultrasonique.

Dr. H.R. Müller, Basle, Swiss Society for Diagnostic Ultrasound (SAGU). Schweiz. Arbeitsgemeinschaft f. Ultraschalldiagnostik

Prof. Th. Planiol, Tours, French Society for Ultrasound in Medicine and Biology. Société Française d'Ultrasons en Médecine et Biologie.

Ing. J.C. Somer, Utrecht, The Netherlands Society for Ultrasound in Medicine and Biology. Nederlandse Vereniging voor Ultrageluid in de Geneeskunde en de Biologie.

Dr. A. Klöstalo, Oulu, Finnish Society for Ultrasound in Medicine and Biology.

AMENDMENTS

Article 1

Name: The name of the organization shall be the European Federation of Societies for Ultrasound in Medicine and Biology (hereafter called the Federation). All legal questions and affairs of the Federation between the membership and the Federation itself shall be in accord with Swiss law. The venue shall be Basle, Switzerland.
/headquarters and

Article 4.1

Regular membership. Regular membership can be held by interdisciplinary national organizations, or subgroups of other bodies meeting the interdisciplinary requirements, within Europe whose aim it is to promote the application of ultrasound in medicine and/or biology

Fig. 21. The signatures of the 13 national delegates forming the European Federation of Societies for Ultrasound in Medicine and Biology (EFSUM).



Fig. 22. Name tags for some of the conferences mentioned in the text. From top to bottom, left column: the first two SIDUO conferences of 1964 and 1967, and the Vienna and Rotterdam World Congresses of 1969 and 1973. Middle column: WFUMB '76 San Francisco, WFUMB '79 Miyazaki, WFUMB '82 Brighton, WFUMB '85 Sydney. Right column: The First European Federation Congress 1972 Basel, 2nd European Congress 1975 Munich, 3rd European Congress 1978 Bologna, 4th European Congress 1981 Dubrovnik, 5th European Congress 1984 Strasbourg and 6th European Congress 1987 Helsinki.

an Asian Federation until Dr. Toshio Wagai (Fig. 4) began to promote the idea during the Brighton Congress in 1982. Formation of the Federation was delayed because of difficulties due to the membership of the Chinese societies representing the Peoples Republic of China and the Republic of China. The impasse was resolved when the former society became part of the Chinese Medical Association and the latter society was reformed as the Chinese Taipei Society. The first meeting of the putative Asian Federation of Societies for Ultrasound in Medicine and Biology under the presidency of Dr. Toshio Wagai was held in Tokyo in June 1987. The societies represented at this initial meeting were from the Chinese Medical Association of the Peoples Republic of China, the Ultrasound Society of India, Indonesia, Japan, Malaysia, and The Taipei Society for Ultrasound in Medicine. The second meeting of the proposed Asian Federation which South Korea had also joined, was held in Bali, Indonesia in July 1989 under the

presidency of Dr. Willyarto Wibisono. Since the Constitution of the World Federation forbade the representation of any single country by more than one national society, the affiliation of the Asian Federation with the World Federation was delayed by the prior affiliation of the Indian Society of Medical Ultrasound directly with the World Federation while the Ultrasound Society of India had later affiliated with the Asian Federation.

It is interesting that while the European ophthalmologists had played a leading role in establishing these international meetings and organisations in the 1960s, this role was largely taken over by the European neurologists and neurosurgeons in the 1970s. Professor Velhagen and Dr. Buschmann both of East Germany, Prof. Vanysek and Dr. Preisova of Czechoslovakia and Prof. Boeck and Dr. Ossoinig of Austria were all ophthalmologists. Dr. de Vliieger of the Netherlands who organised the Second World Congress and White of Canada who was the head of the International Committee were both

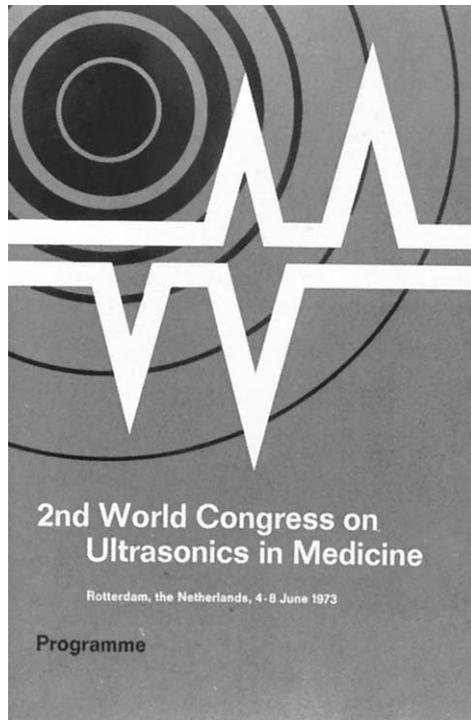


Fig. 23. The programme cover of the Second World Congress on Ultrasonics in Medicine during which the World Federation for Ultrasound in Medicine and Biology was formed.

neurologists as was Dr. Muller of Switzerland who organised the first meeting of the European Federation. The next two meetings of the European Federation were organised by Ekkehard Kazner of Germany and Carlo Alvisi of Italy who were both neurosurgeons. The predominant activity of these two groups of specialists probably resulted from the importance, at that time, of ultrasonic diagnostic techniques in ophthalmology, neurology and neurosurgery. The enthusiasm of the ophthalmologists resulted from the dual benefits of ultrasonic energy which enabled them to visualise deep ocular structures through optically opaque structures and provided an accurate axial measurement of imaged interfaces. The neurologists knew that ultrasound could image the internal anatomy of the isolated brain and hoped to be able to do this *in vivo* since simple x-ray transmission images of the brain were obscured by the images of the overlying skull. The predominant interest of these two specialties is demonstrated by the fact that up to the end of the 1960s 610 papers had been published in the world literature using reflection techniques in ophthalmology and 727 in neurology. This total of 1337 publications exceeded the 1014 publications in all other ultrasonic diagnostic fields such as echocardiography and the use of reflection techniques in obstetrics as well as in the abdomen and other organs (White et al. 1982). Since as much work was

being carried out in the United States and Japan during that period as in Europe, the preponderance of Europeans in these early organisers resulted from other causes. While the pessimistic predictions of the U.S. Atomic Energy Commission (1955) about the feasibility of using ultrasound for diagnostic purposes, may have played a role in discouraging American work in the late 1950s so that the discoveries of echocardiography, echoencephalography and obstetrical scanning were all made in Europe, it seems more probable that the need for regular meetings and the exchange of information was felt less in Japan and the United States. Both countries had national societies which held regular meetings devoted to ultrasonic diagnosis from the early 1960s and the late 1960s, respectively. Few ultrasonic national societies existed in Europe until the imminent creation of the World Federation stimulated their formation in order that they should combine into the European Federation in 1972. Moreover, since both the Japanese and the American societies had their own journals devoted to medical ultrasound, they were not so interested in starting another new journal for the World Federation.

From these varied origins, the World Federation has gone on to play a dominant role in the field of diagnostic ultrasound as has been described by one former President in 1984 (Kossoff 1984). Whether one considers that the World Federation in 1989 is 25, 20 or 16 years old, it must be admitted that it has become a robust child and it is to be hoped that its once suspicious and unenthusiastic godparents, are reasonably proud of their offspring.

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