

MIECZYŚLAW KOMINEK (Warszawa)

From Kotoński to Duchnowski. Polish electroacoustic music

ABSTRACT: Founded in November 1957, the Experimental Studio of Polish Radio (SEPR) was the fifth electronic music studio in Europe and the seventh in the world. It was an extraordinary phenomenon in the reality of the People's Poland of those times, equally exceptional as the Warsaw Autumn International Festival of Contemporary Music, established around the same time – in 1956. Both these 'institutions' would be of fundamental significance for contemporary Polish music, and they would collaborate closely with one another. But the history of Polish electroacoustic music would to a large extent be the history of the Experimental Studio.

The first autonomous work for tape in Poland was Włodzimierz Kotoński's *Etuda konkretna (na jedno uderzenie w talerz)* [Concrete study (for a single strike of a cymbal)], completed in November 1958. It was performed at the Warsaw Autumn in 1960, and from then on electroacoustic music was a fixture at the festival, even a marker of the festival's 'modernity', up to 2002 – the year when the last special 'concert of electroacoustic music' appeared on the programme. In 2004, the SEPR ceased its activities, but thanks to computers, every composer can now have a studio at home. There are also thriving electroacoustic studios at music academies, with the Wrocław studio to the fore, founded in 1998 by Stanisław Krupowicz, the leading light of which became Cezary Duchnowski. Also established in Wrocław, in 2005, was the biennial International Festival of Electroacoustic Music 'Musica Electronica Nova'.

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The beginnings of electroacoustic music can be sought in works scored for, or including, electric instruments. In such instruments as the theremin (made in 1920), ondes Martenot (1928), trautonium (1930) and Hammond organ (1935), the sound is produced by means of electrical systems and emitted through a speaker in the form of acoustic waves. Yet although we have here both 'electric' and 'acoustic', the makers of the new instruments called this music 'electric music'. The term 'electroacoustic music' used today was certainly closer to the concepts of such composers as John Cage, Darius Milhaud and Paul Hindemith. In the years 1928–1931, Milhaud and Hindemith experimented with the gramophone, playing re-

cords at different speeds and overlapping sounds from different recordings. In his *Imaginary Landscape No. 1*, from 1939, Cage employs sounds from a generator recorded onto disc and played back at different speeds, alongside a prepared piano and cymbal. This was the first 'electronic' work. The same name was adopted to define the new kind of music created from 1951 in the studio of the NWDR (Nordwestdeutscher Rundfunk) radio station in Cologne. The German term 'elektronische Musik' was initially translated into Polish as 'muzyka elektronowa', but 'muzyka elektroniczna' was soon in general use.

Yet it all began earlier, with experiments at the University of Bonn, where Werner Meyer-Eppler, a physicist specialising in information theory and issues relating to artificial speech, created 'sound models' by arranging simple tones produced from generators. The musical environment soon became interested in the new acoustic material, and in 1950 Meyer-Eppler was invited to the famous International New Music Summer School in Darmstadt. There, together with the composer Robert Beyer, he gave a course entitled 'Klangwelt der elektronische Musik' and demonstrated those electronic 'sound models'. They made a particularly great impression on Herbert Eimert, a composer, musicologist and radio journalist with Cologne radio, bringing about the founding, in October 1951, of the NWDR Electronic Music Studio. Eimert was its head, with Werner Meyer-Eppler and the well-known physicist and acoustician Fritz Winckel as advisors. The first works created in Cologne were four sound studies composed jointly by Eimert and Beyer in 1951–1953. In 1953, these works were presented at the Neues Musikfest in Cologne, but they failed to make any great impression. The next concert given by the Cologne studio, however, on 19 October 1954, caused a stir throughout the German press. This concert featured works by Eimert and his new collaborators; they included the budding composer Karlheinz Stockhausen, who presented two electronic compositions: *Studie I* and *Studie II*. The raw sound material for all the works produced at the Cologne studio consisted solely of simple tones produced by generators, which were then compiled into random notes through successive recordings onto magnetic tape. In this way, the composer freed himself from hitherto pre-set musical notes and could compose the sound itself, gaining full control over all its parameters. For the serialists, this was a dream come true, and so the Cologne studio was soon playing host to many well-known composers, including Franco Evangelisti, Mauricio Kagel, Ernst Křenek and Gyřrgy Ligeti. One of the leading composers remained Stockhausen, who in his next work, *Gesang der Jřnglinge*, combined electronic sounds with the processed sound of a boy's singing. *Gesang* would become another classic work of electronic music.

Active in Paris at around the same time was Pierre Schaeffer, a sound engineer and producer with French Radio (Radiodiffusion Franaise – RDF,

transformed in 1949 into Radiodiffusion-Télévision Française – RTF). Schaeffer took an active part in the work of the radio ‘Club d’Essai’, whose participants used recording techniques to produce radio-specific works, such as radio drama. In 1948, he tried composing etudes from pre-recorded sound effects such as moving trains and the hubbub of a city. Schaeffer then transformed these recordings using only a wax-disc gramophone, since Radio France did not yet have a magnetic tape recorder. The range of procedures comprised changing speed, playing a recording backwards, cutting across a groove to obtain a loop effect and ‘blending’ sounds from several gramophones, which enabled a kind of montage to be produced. Schaeffer termed the works created in this way ‘musique concrète’. On 5 October 1948, Radio France broadcast a programme entitled ‘Concert de bruits’ [Concert of noises], in which five of Schaeffer’s studies were played. In some of these, the composer also made use of traditional instruments. In 1950, Schaeffer joined with Pierre Henry to produce the 46-minute *Symphonie pour un homme seul* [Symphony for a solitary man], which was played in the first public concert of concrete music on 18 March 1950 at the École Normale de Musique. The *Symphonie* was the first serious concrete work and went down in music history. (In 1966, a stereophonic version was released on disc.) In 1951, the ‘Club d’Essai’ was transformed into the Groupe de Recherche de Musique Concrète, which in 1958 was renamed the Groupe de Recherches Musicales (GRM). In its early years, such composers as Pierre Boulez, Olivier Messiaen, Karlheinz Stockhausen and Edgar Varèse worked with the GRM.

The third centre in which the new music was composed was the United States. Here, the spur to experimentation was given by the appearance of magnetic tape recorders, which is manifest even in the name of the phenomenon, which the Americans termed ‘tape music’ or ‘music for tape’. In 1951, John Cage organised an informal composer’s group, the Project of Music for Magnetic Tape, and concentrated on exploiting the compositional possibilities presented by tape montage. In the work *Imaginary Landscape No. 5*, he employs montage to interfere with the waxing and waning of sounds and combines electronic with instrumental material. Independently of Cage’s group, experiments with tape recorders and magnetic tape were taken up at the University of Columbia by another composer, Vladimir Ussachevsky. After the first display of Ussachevsky’s works, in May 1952, he was joined by Otto Luening, and together they prepared works for their first concert of music for tape, which took place on 28 October 1952 at the prestigious Museum of Modern Art in New York. This was sponsored by two important specialist organisations: the American Composers Alliance and the Broadcast Music Incorporation. The concert’s patron was the famous conductor Leopold Stokowski, known for his enthusiasm for all innovations, who delivered the opening speech. Music for tape caused a furore.

The new music was 'hatched' in those three locations. In each of them, its beginnings looked a little different, but all three currents soon converged. They shared not only their tools, namely tape recorder and magnetic tape, but also their artistic aims, to obtain a new sound, expanding the compositional métier, and new possibilities for controlling all sound material: electronic, concrete and instrumental. In 1957, when the adventures in new music began in Poland, this had all combined into electroacoustic music, which was known at that time as 'muzyka elektronowa' or 'muzyka elektroniczna', but from the present-day perspective we can use the uniform term 'electroacoustic music', as in the meantime tape recorders had been replaced by synthesisers and 'live electronic music', and later by computers.

A Polish electroacoustic music studio was set up in November 1957, with production beginning in the middle of the following year. The only other important centres to have been founded till then were the Studio di Fonologia Musicale of Italian Radio in Milan, in 1955 (where Luciano Berio and Bruno Maderna worked), and the Philips studio in Eindhoven, also opened in the mid fifties. It was in Eindhoven that Henk Badings worked and Edgar Varèse produced his *Poème électronique*, commissioned by Le Corbusier for the World Exhibition in Brussels in 1958. This music had a spatial character, was emitted by more than 400 speakers distributed around the vaults of the exhibition pavilion and, thanks to a special apparatus, moved around the interior. In 1960, the Philips studio was closed down, and the equipment was transferred to the University of Utrecht. Founded there was the Instituut voor Sonologie, which soon became an important centre for research and computer music (the first computer was installed there in 1971). One should also mention the electronic music studio of the Japanese radio broadcaster NHK (Nippon Hōsō Kyōkai), in Tokyo, established in 1955. Toru Takemitsu was among the composers to work there, as was Karlheinz Stockhausen, in the sixties.

So the Experimental Studio of Polish Radio (SEPR) was the fifth studio for electronic music in Europe and the seventh in the world. It was an extraordinary phenomenon in the reality of the People's Poland of those times, equally exceptional as the Warsaw Autumn International Festival of Contemporary Music, established around the same time (1956). Both those 'institutions' would be of fundamental significance for Polish music, and they would also collaborate with one another. The history of Polish electroacoustic music would be to a considerable extent the history of the SEPR. The Studio's opening was preceded by individual productions of music for tape by several composers in the spring and summer of 1957. Andrzej Markowski composed his music to Goldoni's play *Servant of Two Masters* for the Teatr Ludowy in Nowa Huta, and Włodzimierz Kotoński wrote his music to Jerzy Pelc's documentary film *Barwy radości i smutku* [The colours of sadness and joy]. Around the turn of 1958, further musical illustrations were pro-

duced on tape: Andrzej Markowski's for Tadeusz Makarczyński's film *Życie jest piękne* [Life is beautiful] and for the animated film *Był sobie raz* [Once upon a time], by Jan Lenica and Walerian Borowczyk, and also Włodzimierz Kotoński's music to the film *Dom* [Home], also by Lenica and Borowczyk. All these works were produced in the standard recording facilities of the Documentary Film Studio (WFD) in Warsaw, with no special apparatus. The raw material consisted of instrumental and vocal recordings, with sounds from the generators of the Electroacoustic Unit of Warsaw Polytechnic used only on the soundtrack to the film *Dom*. Samples from concrete music were also taken in the recording studio of the State College of Music in Warsaw, where several sound studies were produced by the acousticians Andrzej Rakowski and Janusz Piechurski.

This interest in new sound material and studio composition must have been an important stimulus to the founding of the SEPR, which was the work of the musicologist Józef Patkowski, an enthusiast of the avant-garde and new music, long-serving president of the Polish Composers' Union and chair of the programme committee of the Warsaw Autumn. Following visits to existing studios of electroacoustic music in Europe, with strong support from the directors of Polish Radio, Patkowski began to bring his experiments to life. From November 1957 to the middle of the following year, the basic studio equipment was assembled: a generator of simple tones, a generator of rectangular impulses, an oscillograph, lower- and upper-band filters, two DDR Sander-Jansen magnetic tape recorders that were used at that time by Polish Radio and a simple console with four input devices. The studio was to be used for work with both electronic and concrete material, although by then this distinction had lost its initial significance. That may explain how the new facility came to be called the Experimental Studio. At that time, the term 'experimental' covered a wide range of avant-garde music, both instrumental and electronic or concrete. It is worth quoting the opinion on the experimental music expressed by Bogusław Schaeffer, one of the leading composers of the SEPR:

Despite the name (Experimental Studio), this is not a place for experimentation, but simply for creating. The name itself is inappropriate: when writing an orchestral work, none of us has any idea how it will sound; notes are an abstraction. Naturally, some puffed-up individual might claim to hear everything (everything? – I doubt it – on good grounds) and at once at additional remark: if he hears everything, then it is not an original work, since it is difficult to hear a work before it is really heard; when working in the studio, I keep a constant check, by listening, not just on the result, but also on the path that leads to it. For me, the studio is a workshop. There, I hear clearly what is happening with the material I'm arranging – how it 'behaves' in different situations of production (and so, in some sense, of

performance, right?). For this reason, I regard work in the studio as living work, by no means experimental (an experiment assumes an unknown, whereas here everything is clear, as one composes and produces at the same time – something not possible in other fields of music).¹

On 1 July 1958, Krzysztof Szlifirski was taken on at the Experimental Studio as chief engineer. Szlifirski would become an exceptionally important figure in the development and profile of that institution. Another member of the permanent staff was Eugeniusz Rudnik, an electronics technician, who would produce the pieces by composers working at the Studio. This was a specific feature of the Polish centre; no other centres had such permanent producers assigned to ‘assist’ composers. Later, Rudnik would also compose electroacoustic works himself, for which he won many prizes. The first project of the SEPR, located in the main radio building on Malczewski Street in Warsaw, was the soundtrack to the animated film *Albo rybka...* [Either the fish...], by Hanna Bielińska and Włodzimierz Haupe. This soundtrack is taken up entirely with ‘experimental’ music by Włodzimierz Kotoński. The film was completed in November 1958, but its soundtrack gave rise to the first autonomous work for tape in Poland: *Etiuda konkretna (na jedno uderzenie w talerz)* [Concrete study (for a single strike of a cymbal)]. This composition, lasting 2 minutes and 41 seconds, was indeed based on a single strike with a soft beater on a medium-sized cymbal, chosen from many pre-recorded strikes. The selected sound was subjected to complex modifications, which gave rise to the rich material that was used to create a work with each element precisely planned. Kotoński’s *Etiuda* was an example of the ‘fusing’ of different strands of electroacoustic music: the raw material was of a ‘concrete’ character, but the work carried out on it employed electronic devices. In Warsaw, this was the rule from the outset: there was no rigid division between concrete and electronic music. Composers could navigate their way around both kinds of music and mix them at will. Performed at the Warsaw Autumn in 1960, Kotoński’s *Etiuda* subsequently appeared at many events both in Poland and abroad and also found its way into textbooks, where Włodzimierz Kotoński is treated as a Classic of music for tape and one of the leading Polish composers of new music.

Also of historical significance was Zbigniew Wiszniewski’s composition *Db-Hz-Sek*, produced at the SEPR in 1962. This was the first entirely ‘electronic’ work by a Polish composer. The raw material consisted exclusively of sounds obtained from generators, which were then structured in respect to the basic musical elements: dynamics (loudness), pitch (frequency) and rhythm (time). Electroacoustic techniques allowed for a precision that was

¹ Bogusław Schäffer, ‘Kilka uwag na temat pracy kompozytora w studiu’ [A few remarks on the composer’s work in the studio], *Biuletyn Muzyczny* 1976/5–6.

impossible to achieve in instrumental music. With such a 'constructivist' conception, the element of timbre does not play any great role. Zbigniew Wiszniewski's work was played at the Warsaw Autumn in 1962.

Besides Włodzimierz Kotoński and Zbigniew Wiszniewski, among the first composers to devote a substantial amount of their creative energies to electroacoustic music were Andrzej Dobrowolski and Bogusław Schaeffer. Dobrowolski created a whole series of works entitled *Muzyka na...* [Music for...] at the SEPR. These are compositions either for tape alone or for instruments with an electroacoustic part played back from tape. In contrast to the above-described works by Kotoński and Wiszniewski, in which the acoustic material was homogeneous (the sound of a cymbal or sounds from generators), in *Muzyka na taśmę nr 1* [Music for tape No. 1], from 1962, Dobrowolski employed heterogeneous material: tones from generators, piano chords, vocal sounds and the effect of the resonance of piano strings stimulated by vowels shouted into the piano case. Despite this, the use of electronic processing gives the work a uniformly 'electronic' sound. This composition was also put together according to a strictly serial conception. *Muzyka na taśmę nr 1* twice featured on the programme of the Warsaw Autumn, in 1962 and 1963. Also worthy of attention are two later works by Dobrowolski: *Muzyka na taśmę magnetofonową i obój solo* [Music for tape and solo oboe], from 1965, *Muzyka na smyczki, 2 grupy instrumentów dętych i 2 głośniki* [Music for strings, 2 groups of wind instruments and 2 speakers] (1966) and *Muzyka na taśmę magnetofonową i fortepian solo* [Music for tape and solo piano] (1971), which embody the idea of combining traditional instruments with electronic media – an idea that characterised the American 'school'. It is also worth mentioning Andrzej Dobrowolski's early electronic work, in which the reference to tradition is part of the creative concept. In *Passacaglia na 40 z 5* [Passacaglia for 40 from 5], produced in 1960 at the SEPR, the composer filled a seventeenth-century formal scheme with electroacoustic material. The enigmatic part of the title refers to the technology employed by the composer: the raw material comprised 5 percussion notes, which the composer subjected to electronic processing, thus obtaining 40 different sound objects. From these, the Passacaglia was composed. All Andrzej Dobrowolski's works for tape or with the use of tape were performed at the Warsaw Autumn, usually several times over.

A most fertile composer of electroacoustic music proved to be Bogusław Schaeffer, associated with the SEPR from 1966, when he composed a Symphony for tape – a work with a Classical four-movement pattern. Yet the effect of the composer's work in the studio was not a tape with a ready realisation of the compositional concept, but a kind of score, in which detailed instructions for the work's performer were notated in the form of a diagram and graphs. This 'score' was produced, without Bogusław Schaeffer's participa-

tion, by Bohdan Mazurek, a graduate of the Music Production Department at the State College of Music in Warsaw, employed as a producer at the SEPR from 1962. The raw material for the Symphony was to consist of electronic sounds, with the composer stipulating the use of the sounds of violin and piano only in the last movement. The composing of a work for tape in the form of a score without the composer's participation was an unprecedented event in the history of electroacoustic music, and the score, published in 1968 by PWM, was so popular that it was given a second edition five years later.

When considering the beginnings of electroacoustic music in Poland, one cannot overlook Krzysztof Penderecki's *Psalmus 1961*. This was his only autonomous electronic composition, besides which he also prepared at the SEPR many illustrations for short films. In *Psalmus 1961*, the raw material was ostensibly homogeneous, restricted to vocal sounds. However, an important role in the composer's concept was played by timbre and the search for new timbral qualities, and so on the level of the creation of the actual acoustic material Penderecki turned to a variety of effects: besides sung sounds, also prepared were recordings of spoken vowels (long sounds), explosive consonants (very short, impulse sounds) and rustling and whistling consonants. In contrast to Schaeffer's precisely planned Symphony, Penderecki's *Psalmus* was created spontaneously, by trial and error, with the use of operations typical of the studio at that time: montage, transposition, filtering and artificial echo.

Psalmus 1961 was performed/played back from tape at the Warsaw Autumn in 1962. And that was the case with many works produced at the SEPR. They were successfully presented at the festival, at times alongside outstanding works by foreign composers, in special concerts. The first of these concerts took place during the second Warsaw Autumn, in 1958, but this had no Polish works. As we read in the programme, 'elektronowa' music was presented then by none other than Karlheinz Stockhausen. The following year brought a 'concert of concrete music', with a lecture by Pierre Schaeffer. The first Polish electroacoustic works appeared at the Warsaw Autumn in 1960 – they included the first electronic work produced by a Polish composer, Włodzimierz Kotoński's *Etiuda na jedno uderzenie w talerz*. From then on, a special concert of electroacoustic music, usually led by Józef Patkowski, was a fixture on the Warsaw Autumn programme, until electronic techniques became ordinary and commonplace. Electroacoustic music or music with electroacoustic elements would henceforth appear in the programmes of a variety of concerts. But for the time being it was all experimentation, and the SEPR organised workshops for composers who wished to experiment in this new domain. These were held in June 1959, under the title 'Seminar on the use of radio technique in the creation of musical compositions'. Besides Józef Patkowski and Krzysztof Szlifirski, the lecturers were specialists in radio techniques, acousticians and composers who had already tried their hand at elec-

troacoustic techniques: Andrzej Dobrowolski, Włodzimierz Kotoński, Andrzej Markowski, Zbigniew Wiszniewski and Franco Evangelisti, invited in from Italy, who had experience of working at the Cologne studio. A great deal of interest was shown in the workshops, and the participants included Bogusław Schaeffer and Krzysztof Penderecki. Franco Evangelisti was the first foreign composer at the SEPR, but he left behind not a single work. Not until 1966 did François-Bernard Mâche produce the work *Nuit blanche* in Warsaw, and at the same time two compositions by grant students from the USA were created. One important event was the residence at the SEPR of the outstanding Norwegian composer Arne Nordhaime, who in 1969 and 1970 produced two works there. Later, many other composers from all over the world would travel to Warsaw.

Around 1970, the SEPR began to introduce tension control technology, which ushered in a new era in the history of Polish electroacoustic music. Up to that point, work in the classic studio was based on the manual montage of sound effects pre-recorded onto tape and the blending of the layers prepared in this way. It was laborious and time-consuming. Tension control, leading directly to synthesisers and live electronic music, made it possible to create complex sound structures initially in a much shorter time than with the classic technique and later, through the use of synthesisers, in real time, thereby bringing the realisation of electroacoustic music closer to the traditional performance of instrumental music. This new current invigorated music from speakers, which from the beginning had been postulated by many composers of tape music. Indeed, attempts to 'humanise' electroacoustic music had been made almost from the outset, in the form of the simultaneous composing of music from tape and 'live' playing. In 'live electronic', the performer returned to the stage as the traditional intermediary between the composer and the listener, and since the new technique had its special requirements, the performer was often the composer himself. Of course, the performer's return to the stage brought with it all the hallmarks of 'live' performance, which for many composers were shortcomings eliminated in classic studio technology. The composer no longer had such precise control over every element, as was offered by the classic studio, and had to take account of both the performer's inventiveness and also the limitations of the electroacoustic equipment placed on the concert platform. Incidentally, these limitations were radically reduced with the lightning development of electronics and then of digital technology and computers, although this in turn placed before the composer the difficulty of choosing suitable means from among the wealth of possibilities which the galloping technology placed at his disposal.

We may consider the precursor of 'live electronic' to have been... John Cage. In 1939, he placed on the concert platform a gramophone, on which he played a disc with recordings of sounds from a generator, altering the rpm as

it turned. That is how *Imaginary Landscape No. 1* was performed. In *Imaginary Landscape No. 4*, from 1951, and *Radio Music*, from 1956, he instructed the performer to skip over radio frequencies and play from a radio the programmes that happened to be on. Cage was not interested in tape as the self-contained result of a precisely planned and laboriously realised concept, but rather in the spontaneous search for new effects from electroacoustic devices. That was also the idea behind tension control and live electronic, which attracted a new generation of Polish composers during the 1970s.

In 1970, the first Moog synthesiser appeared at the SEPR, and in 1973 a Synthi AKS. It was during this period that Krzysztof Knittel began his work at the Studio. Born in 1948, Knittel was one of the most interesting composers of electroacoustic music. He made his debut at the Warsaw Autumn in 1975, with the work *punkty/linie* [points/lines] for clarinet, tape and slides, from 1973. During the concert, he engineered the sound of the performance himself. The following year, he composed *Robak Zdobywca* [The conqueror worm], based on electronic sounds and electronically processed notes from a violin and trombone. At the Warsaw Autumn in 1978, another electroacoustic work by Knittel was given its world premiere: *resztki* [leftovers] for tape. Here, the material comprised a recording of the sound of the Niagara Falls, processed on a Moog synthesiser. It is worth noting that *resztki* was composed in two studios: at the University of Buffalo and at Polish Radio in Warsaw. At the same festival in 1978, Krzysztof Knittel performed on the synthesiser in Włodzimierz Kotoński's *Muzyka wiosenna* [Spring music]. In this work, scored for flute, oboe, violin and synthesiser, Kotoński also used tape, which he prepared – also at Buffalo University – by means of computerised sound synthesis programmed in MUSIC V. This was one of the first instances of a Polish composer using a computer. Two years later, Knittel used a computer in two works which he described as 'computer music': *Norcet 1* and *Norcet 2*. Henceforth, he would employ live electronics increasingly often, becoming one of the chief representatives of that current in Poland.

In 1973, Knittel joined forces with Elżbieta Sikora and Wojciech Michniewski to form the KEW composition group, which at the 1974 Warsaw Autumn presented *Drugi poemat tajemny* [Second mysterious poem] for electroacoustic apparatus and slides, perhaps the first Polish multimedia work. On her own, Elżbieta Sikora had earlier produced the work *Widok z okna* [View from a window] at the SEPR, in 1971, and she also had experience of working at the GRM studio in Paris. Polish composers worked increasingly often in foreign electroacoustic studios, but the SEPR's monopoly in Poland was broken by the spread of the synthesiser and later of the computer. Informal groups of composers were formed, such as the Independent Studio of Electroacoustic Music (NSME), whose founders included Andrzej Biezan, Krzysztof Knittel, Stanisław Krupowicz and Paweł Szymański. Krupowicz,

after studies in 1983–84 at the Center for Computer Research in Music and Acoustics of the University of Stanford in California, under the guidance of John Chowning, would be one of the pioneers of computer music in Poland. Paweł Szymański produced two works at the SEPR: *La Folia* (1979) and *...pod jaworem* [...under a sycamore] (1980). He subsequently worked with the Electronic Music Studio at Cracow Music Academy (1983) and on a DAAD grant with the Electronic Studio at the Technische Universität in Berlin (1987–88).

All the composers named here were graduates of the State College of Music in Warsaw, now named the Fryderyk Chopin University of Music, where, from 1967, students of composition had an obligatory two-year course in electroacoustic music, led by Włodzimierz Kotoński, and where an electroacoustic studio was in active use. This studio was used mainly for didactic purposes, but when it acquired computers, in 1990, works were composed there by Paweł Mykietyn, Jarosław Siwiński and Marzena Komsta. In 1973, an Electroacoustic Music Studio was set up at the State College of Music in Cracow, now the Academy of Music. In 1989, it was furnished with new equipment, and besides the students, such composers as Bogusław Schaeffer, Marek Chołoniewski, Magdalena Długosz and Hanna Kulenty worked there, as well as guests from abroad. In 1992, the Music Academy in Katowice also established a studio, which was led by Eugeniusz Knapik. In 1998, a Computer Composition Studio was created at the Academy in Wrocław, where the lecturers were Stanisław Krupowicz and Cezary Duchnowski. Łódź Music Academy also had its own studio, directed by Krzysztof Knittel.

After acquiring its first synthesisers, in the 1970s, over subsequent years the SEPR lost its significance. In 1986, new digital equipment was installed, including Yamaha, Apple and IBM computers, but access to computers was becoming increasingly widespread, and soon every composer could have his own computer studio at home. A year earlier, Józef Patkowski, the founder of the SEPR, lost his post as its director – the only instance of political oppression on the part of the communist authorities in the area of electroacoustic music. In contrast to other countries of the Soviet Bloc, in Poland this music was allowed to develop freely. During the period of martial law, Patkowski, as the president of the Polish Composers' Union, suspended by the junta but standing up for freedom and civil liberties, incurred the disfavour of the authorities, and in 1985 he was removed from Polish Radio. His successor, agreed by the compositional milieu, was Ryszard Szeremeta (b. 1952), a composer deeply involved in electroacoustic composing. Together with Szeremeta, a new generation of composers appeared at the SEPR: Magdalena Długosz (b. 1954), Anna Zawadzka (1955), Edward Sielicki (1956), Hanna Kulenty (1961), Jacek Grudzień (1961), Krzysztof Czaja (1962) and Jarosław Kapuściński (1964). In 1998, the reins passed to the engineer Krzysztof Szlifirski, associ-

ated with the Studio from the very beginning as the architect of its technical conception, but he was really only the manager of a 'bankrupt's assets'. In 2004, the SEPR ceased to exist as a separate unit of Polish Radio, with its archive and other effects coming under the care of Polish Radio 2, and personally of Marek Zwyrzykowski, who for years had promoted electroacoustic music on radio. It is worth mentioning here the radio programmes entitled 'Horyzonty muzyki' [Music horizons], presented from 1959 by Józef Patkowski and Anna Skrzyńska, which popularised electroacoustic music. In 1970, PWM published the scripts of these programmes, and they remain an important item in the Polish new music literature.

The situation of electroacoustic music has been well reflected by the Warsaw Autumn. As already mentioned, from 1958 special concerts devoted entirely or partially to this music were held at the festival. In character, these concerts resembled mysteries. They were usually accompanied by a lecture that explained the issues specific to this area of music, and then the lights were turned off or dimmed, and for an hour and a half electroacoustic works were emitted by speakers from the empty stage. Over the years, 'live' performers appeared on the concert platform alongside the speakers, which began to wander around the whole hall to achieve spatial effects. Ultimately, the electroacoustics themselves began to wander, and compositions with electroacoustic elements were increasingly performed in 'normal' concerts. In 1979, of the twenty-one festival concerts, as many as eleven included works with electronics, although there was also a 'concert of electronic and computer music'. The same was true in another year – 1988. The concert of electronic music, not actually announced as such, was a modest undertaking compared to three others which featured the huge electroacoustic machinery of the Experimentalstudio der Heinrich-Strobel-Stiftung des Südwestfunks from Freiburg, which – among other things – accompanied the pianist Szabolcs Esztényi and the Sinfonieorchester de Südwestfunks Baden-Baden in a performance of Kazimierz Serocki's *Pianophonie*. Electroacoustic music quite simply ceased to be something out of the ordinary; its techniques were increasingly used in the creation of 'ordinary' compositions to expand the means of expression rather than as the basis of a work. That is what is happening in the world, and that is what is happening in Poland, too.

The last event entitled 'concert of electroacoustic music' took place at the Warsaw Autumn in 2002, with the programme confined to Polish composers of different generations: Włodzimierz Kotoński, Anna Maciejasz-Kamińska, Józef Rychlik, Mateusz Bień and Magdalena Długosz. In 2004, there was a 'concert of electroacoustic music' at the festival, but this was quite unusual in that it featured 'young Polish composers': Zaid Jabri (b. 1975), Ryszard Osada (1972), Bartłomiej Krcha (1971), Maciej Zieliński (1971), Tomasz Praszczalek (1981), Wojciech Kałamarz (1974) and Cezary Duchnowski (1971). Only the

work by Ryszard Osada was prepared – and only in part – at the SEPR in Warsaw. No ‘concert of electroacoustic music’ was announced at the Warsaw Autumn of 2006, either, but there was no lack of electroacoustic music. At Centrum Artystyczne M25, a new venue for the festival, the brilliant cellist Andrzej Bauer played works for cello and tape, computers and live electronics from the years 2004–2006, by Sławomir Kupczak, Magdalena Długosz, Cezary Duchnowski and Paweł Mykietyń. There were also classic works: *Imaginary Landscape No. 4* for 12 radios by John Cage, from 1951, *Thema (Ommaggio a Joyce)* for tape (1958) by Luciano Berio and the above-mentioned *Muzyka na smyczki, 2 grupy instrumentów dętych i 2 głośniki* (1967) by Andrzej Dobrowolski. And how fresh those old works sounded! Classic electroacoustic music also returned the following year, in the shape of Karlheinz Stockhausen’s *Oktophone*, from 1990/91, which took up a whole concert and was perhaps the only exclusively electroacoustic work in that edition of the festival. In 2009, electroacoustics were the primary theme of the Warsaw Autumn, but none of the concerts was called a ‘concert of electroacoustic / electronic / computer music’. Electroacoustic music was quite simply everywhere. An ‘electroacoustic’ climax of sorts was the international project ‘Electronics in the Face of the Challenges of the Twenty-first Century’, produced by the Polish Centre for Music Information (POLMIC), parallel to the 53rd Warsaw Autumn. This consisted of a conference with the participation of specialists from the world’s leading centres for electroacoustic music, discussion panels, concerts and an interactive installation. From the Polish side, the leading figures in this project were Krzysztof Knittel and Marek Chołoniewski, from the Music Academy in Cracow, both associated with the Polish electroacoustic scene for years.

That scene remains exceptionally vibrant, although the SEPR is no more. This is evidenced by the two important undertakings that have arisen in the Polish electroacoustic milieu in recent years. In May 2005, at the initiative of Stanisław Krupowicz, the First International Festival of Electroacoustic Music ‘Musica Electronica Nova’ was held in Wrocław. Krupowicz was also its artistic director. Wrocław thus confirmed its leading position in the Polish electroacoustic world. Among those involved in the festival are Stanisław Krupowicz and Cezary Duchnowski, who have trained a whole group of young composers of electroacoustic music to have taken concert platforms by storm. Also active in Wrocław is the sensational Agata Zubeł, a composer and singer specialising in contemporary music, who is particularly fond of performing electroacoustic works, usually in the company of Cezary Duchnowski. The second edition of the festival was held in May 2007, and Musica Electronica Nova is to remain a biennial event.

Also launched in 2005 was the Polish Association of Electroacoustic Music (PSME), in Cracow, the principal aim of which is ‘to promote Polish elec-

troacoustic art (electroacoustic music, video art, sound installations, interactive and audiovisual art) around the world, as part of an international network of festivals, a series of concerts and other projects of electroacoustic art coordinated by the Confédération Internationale de la Musique Electroacoustique in Bourges', as the Association's statute declares. The PSME was the brainchild of Józef Patkowski, Ryszard Szeremeta, Elżbieta Sikora and Krzysztof Szlifirski, as well as Marek Chołoniewski, who became its president, with the first board consisting of Elżbieta Sikora, Lidia Zielińska and Marcin Wierzbicki.

Translated by John Comber