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KRZYSZTOF PENDERECKI AND HIS CONTRIBUTION TO MODERN MUSICAL NOTATION

I

Modern instrumental music is in a process of continuous development. Generally speaking, this development goes in two directions: formal construction and enrichment of the tone quality. The development of the tone quality in particular, the enrichment and enlargement of its range does not only require new consonances of conventional instruments, but also the use of conventional instruments in an unconventional manner as well as the introduction of new sounds produced by means other than instrumental. Oversimplifying the general scheme, one may say that the aim of the composer's work is the performance, and the basis for the performance is the score. The score is for the musician-performer the exclusive source of information for the realization of the musical work. On the precision or exactness of the notation, depends the exactness with which the composer's idea will be understood and, consequently, performed by the instrumentalist. And here an important question arises—whether in the context of modern music's achievements in the field of construction, harmonics and tone quality, the traditional system of notation is still operative. Undoubtedly, this notational system has been most efficient in the time of Mozart, or even Debussy. In relaion to the music of that period, it was the most adequate form (then known) of transmitting the composer's idea to the performer. However, music from that time progressed, while the notational system, which, after all, is a *par excellence* convention, remained unchanged.

Obviously some experiments were undertaken with the purpose of modernizing the notation, perhaps not so much for the notational system *per se* as because of some actual needs and function. Unfortunately, these propositions considered only certain fragments and even these in a limited extent, and did not reform the whole system. Obvious

was a need for a notational system based in certain respects on the classical (or conventional) score, as for example notating the pitch of the instrument (sounds produced by means other than instrumental might be notated in a particular convention). This new system, however, should introduce a new manner in localization and succession of tones. The sound material remained the same: *A'* on a tempered instrument in Mozart's or Schoenberg's composition possesses the same pitch and vibration per second, but the same *A'* changed its place in relation to other tones, if the newly introduced consonances and constructional solutions might be called in this way. In this situation, an overall reform of the notational system in a way adequate to the needs and requirements of contemporary music became one of the most important problems. For, new music has been coming into existence, but the possibilities of writing it down as well as transmitting it were limited to the form of the old conventional notation. Consequently, they were not exact and did not meet the demands of music where it was most strikingly modern and progressive. One may properly suppose that the person most predisposed to introduce these changes was the composer. He was the "inventor" of the new musical ideas. He alone possessed in his mind the image of the new music. Simultaneously it might be feared that the experiments, or rather the adaptation of the system to the needs of the music, often not yet written down, proposed by a musicologist could be too scholastic, limiting and therefore not fully functional.

One of the most outstanding members of the new generation of contemporary Polish composers, Krzysztof Penderecki, has undertaken this undoubtedly difficult task to reform the notational system, and the changes proposed by him possess all chances to be universally recognized and accepted. Simultaneously, one may suppose that other composers will also have their share in this new system by adjusting the details to their individual needs. However, it seems certain that the general principles will remain the same as in Penderecki's system.

II

Penderecki's notational system is based on the rules of diagram and graphic concepts. It is shown primarly in tempo notation. The bar division is replaced entirely by the time division. Each page of the score is divided according to a diagram into time sectors determining in seconds the start, duration and the end of a given fragment. The mutual relations between instruments or groups of instruments are not determined by counting rests (which in contemporary music, because of usually very complicated tactual values is impeded), but through a

graphically longitudinal section of the score. Instrumentalists counting the rests were more frequently relying on their hearing than their arithmetical abilities and this resulted in many errors and additional rehearsals and unsatisfactory performances whose preciseness has been rather questionable. The diagrammatical system eliminates superfluous, to some extent useless, notational symbols, and allows the instrumentalists and the conductor a greater concentration, through avoiding conglomerations of symbols which did not possess any positive meaning.* Entirely abolished is the part of the score relating to instruments which have *tacet*—there exists only a score for actively playing instruments. Further, time values determining the duration of tone in relative (from the point of view of time) tactual divisions are eliminated and instead division into seconds is introduced. Thus graphically, the duration is determined horizontally, the moments of start and finish vertically. This general assumption has also an influence on rythmics. If, for instance, the composer's idea is to apply a percussion effect where the rythmical value of each of the following sounds is increasing according to the arithmetical or geometrical progression then in the limits of the traditional notation the composer is facing the gigantic task of dividing the value of individual notes and bars. Because in Penderecki's system the time value is determined in a horizontal way, the time distance (e.g. in the previously cited example of the percussion effect, the frequency of beats) between individual notes will be determined by the graphical distance between individual signs. The arithmetical or geometrical progression can determine the distance with absolute precision and its graphical value makes it quite distinctive and clear.

Contemporary music very often uses tone clusters. The principle of a conventional score is that each instrumentalist has his seperate tone marked on a separate staff. This is also used as a rule in regard to individual instruments playing in each particular group, for example, string quintet. When the whole orchestra plays one cluster, the matter is relatively simple. However, the whole thing gets very complicated when clusters are played simultaneously by several instrumental groups and the beginning and ending are different. Above all, the clarity of construction grows more complicated and the connection among the instrumentalists gets lost. Penderecki's solution goes in the direction of simplifying the notation, accommodating it to the demands of the cluster's harmony and construction. It is a *par excellence* graphical solution. Clusters are by their nature a kind of chromatic scale concentrated in a relatively small distance between the outer sounds. The tonal scale of a static cluster is limited by a small sound distance between the outer

* In this statement the author does not question a rest as a means of expression of a musical idea.

notes. Penderecki fills this graphical distance with a line which is determined by two factors: 1) the width of the line (the horizontal value) is the graphical distance between the outer notes placed on the staff; 2) the length (the vertical value) is the determining factor for the duration (moments of beginning and end) of the cluster in accordance with the time diagram placed on the bottom of each page. The same question is thus solved in consequence in general principles of tempo and rythmics of Penderecki's system. Notating the cluster not in the form of individual notes for individual instrumentalists, but in the above described line placed on the staff, determined by the aforementioned factors, makes possible free manipulations of the cluster such as extending, narrowing or *glissando.* By exact notation given in parts, i.e. by giving exact pitch of the outer sounds, the sound limits are determined. Also, the function in construction is determined by the course of the line. If the sound boundaries are extending, the line representing the cluster grows wider and since again the exact notation is given in parts, the limits of the expansion are thus established. If the graphical expansion of the line is gradually diminishing, the cluster thus represented gradually narrows its tonal range. In this way, the cluster may narrow to one tone played by all instrumentalists, it may also spread wider from one tone to a cluster with a tonal range, for example, of an octave. The question of *glissando* is therefore only the question of leading the line up or down and simultaneously the tonal distances between instrumental parts are constant. Also, if the components of the cluster are added gradually in individual parts, Penderecki marks each entrance separately, and subsequently, after the last entrance, notates the cluster with a continuous line.

Vibrato is one of the important tone elements by which one can achieve the desired tone quality. The *vibrato* amplitude may differ. In percussive instruments and idiophones, it is determined usually by the technical quality of the instrument. In aerophones and chordophones, *vibrato* is determined usually by the instrumentalist. The possibility of the individual determination of the quality of *vibrato* is not an unimportant question since it has a great influence on the tone quality. The amplitude of the sinusoid* representing the performed tone is the exponent of *vibrato.* Therefore, Penderecki notes *vibrato* in the form of a sinusoid. It creates possibilities of notating all gradations of *vibrato:* from *molto vibrato* (the sinusoid intervals will be very small), to a very slow *vibrato* with a quarter tone frequency difference in the case of strings, produced by sliding the finger (the sinusoid inter-

* A sinusoid is in this particular case a conventional or an oversimplified graphical idea since from the physical viewpoint a sinusoid is a graph of a pure tone without overtones. In instrumental music a pure tone is an entirely theorethical concept.

vals are maximal). A change from a sinusoid to a straight line will mean *senza vibrato.* This solution is particularly useful if several independent groups of instruments are playing simultaneously using different kinds of *vibrato.*

III

Krzysztof Penderecki was born on November 23, 1933 in Dębica in southern Poland. He began his studies of composition in 1953 under Franciszek Skołyszewski and continued them in the Higher State School of Music at Cracow in the class of Professor Artur Malawski, and after the latter's death, under Professor Stanisław Wiechowicz. He obtained his diploma with honors in 1958.

The following compositions date from the period of his studies: *String Quartet,* two songs for baritone and piano to the words of Leopold Staff, *Miniatures for Clarinet and Piano,* and *Epitaph* written after Malawski's death, for string orchestra and kettle drums, which earned him his Master's degree in composition.

In 1959 Penderecki participated in a young composers' competition of the Polish Composers' Association and was awarded first prize for *Strophes*[1] for soprano, monotone recitation and ten instruments, as well as two second prizes for *Emanations*[2] for two string orchestras, and *Psalms of David*[3] for mixed choir and percussion. *Strophes* is a work originating from certain evolutionary lines initiated by Anton Webern. Through a subtle selection of tone qualities, it indicates the composer's inclination primarily in handling sound. However, *Strophes* is the only work in which some analogies between Penderecki and other composers could be detected.

In 1960 he composed *Anaclasis*[4] and with this work he started his own independent evolutionary line. This first work in the "new style" is written for two instrumental groups: strings and percussion instruments. It is basically different from *Strophes.* The delicate constructions

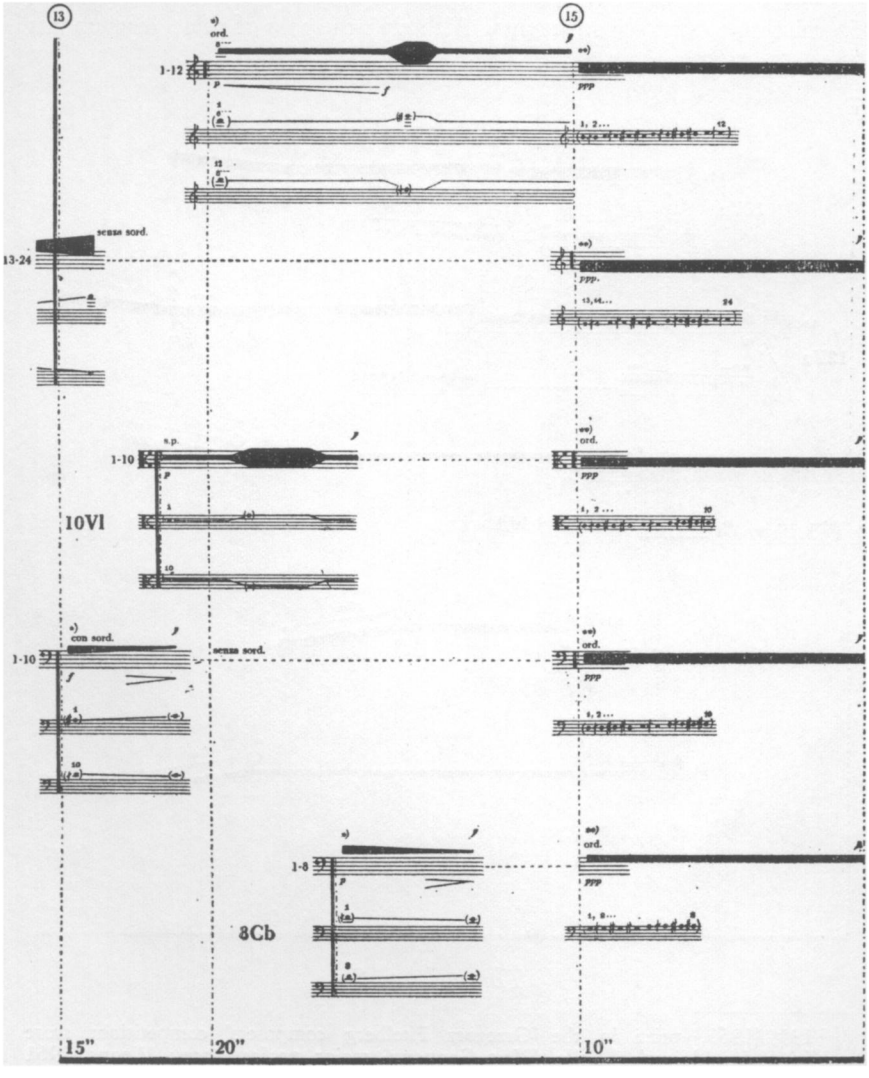
[1] 1959, first prize in young composers' competition of the Polish Composers' Association, score published by Państwowe Wydawnictwo Muzyczne (State Music Publishers), major performances: Palermo 1960, Paris 1960, Los Angeles Nov. 19, 1962, conducted by Leonard Stein.

[2] 1958, second prize in young composers' competition of the Polish Composers' Association, score published by Univerlag Celle, West Germany; major performances: Darmstadt 1961 (Festival of Contemporary Music), Liverpool 1962, London 1962 (BBC), Liège 1962.

[3] 1959, second prize in young composers' competition of the Polish Composers' Association.

[4] 1960, commissioned by Südwestfunk Baden-Baden for Donaueschingener Musiktage für Neue Musik; score published by Univerlag Celle, major performances: Strassburg 1960, Donaueschingen 1961, Paris 1961, Palermo 1961 (Festival of Contemporary Music), Helsinki 1962, Utrecht 1962.

are replaced by strong and contrasting contours which absorb the listener's attention. However, there is still room in them for tiny nuances which are placed in the background. In *Anaclasis,* the main role is assigned to a widely developed group of percussion instruments composed of timpani sticks, tam-tam, tom-tom, gong, triangle, cimbals, bells, bongos, vibraphone, snare drums, conga, xylorimba, claves, piano, celesta, and harp. The central part of the work performed mainly by this



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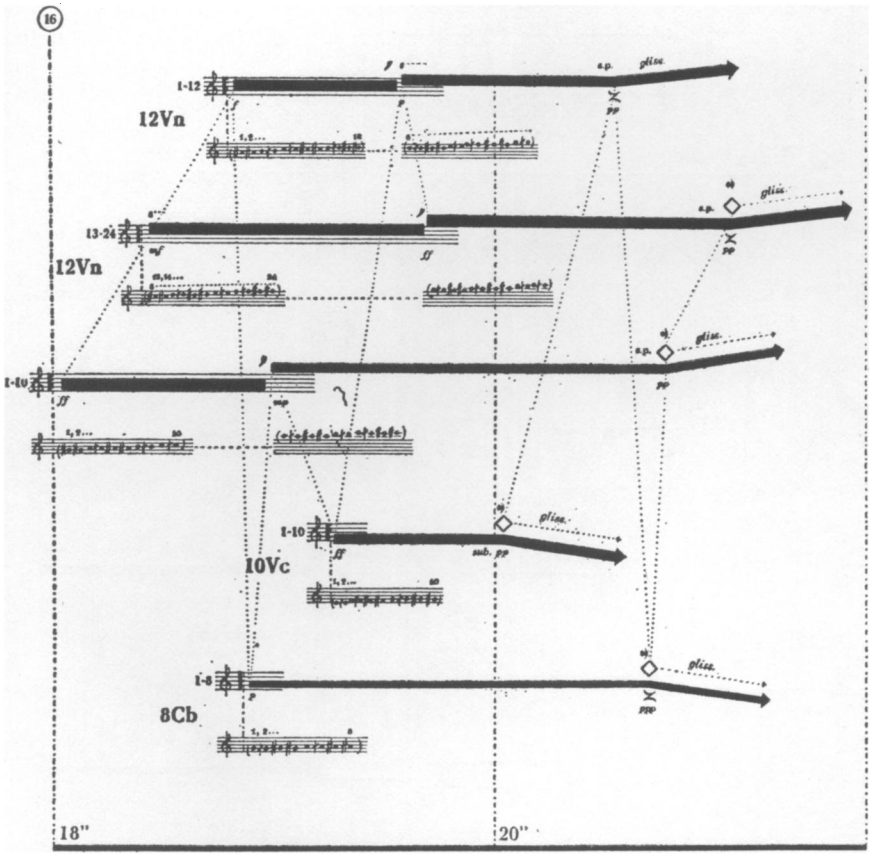
group is *par excellence* a concert for percussive instruments. This entire apparatus assumes the role of an independent orchestra which realizes musical tasks of primary importance. This predilection for percussion instruments is continued by the composer in his next work, *Dimensions of Time and Silence*,[5] written for mixed choir, percussion and strings. However, in contrast to the fascinating *tutti* of *Anaclasis*, in *Dimensions* the respective percussion instruments are introduced and utilized individually, later combining into an esthetically formed entity.

The composer's most interesting innovations are manifested, however, in relation to string instruments. Although the role of these instruments



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[5] 1959/1961, prize in the Grzegorz Fitelberg composers' competition; score published by Univerlag Celle, West Germany, major performances: Vienna 1961 (International Festival of Contemporary Music), Warsaw 1961 (International Festival of Contemporary Music "Warsaw Autumn").

in *Anaclasis* is secondary, the composer introduces a number of interesting and novel ideas in exploiting them. These ideas are developed and perfected in *Threnody*[6] dedicated to the victims of Hiroshima, written for fifty-two string instruments. This work is one of the most interesting and certainly the most revolutionary in contemporary music as far as the utilization of the whole string quintet apparatus is concerned. In these instruments, Penderecki is pimarily concerned with their coloristic possibilities which he achieves by means of articulation whose existence has so far not been suspected. As a consequence of his basic assumption, i.e. the composition of elements of tone quality, the composer relinquishes the conventional degrees of the scale. The new intervallic relationships arising in this way become a factor in the construction of the new elements of tone quality. The change of pitch is not a formal change *per se* and thus it does not constitute a value for Penderecki. The conventional or unconventional pitch is just another element of tone quality necessary for the course of the composition. Many of the new methods of articulation and ways of employing the string instruments are used in later works for string instruments, such as *Quartet*[7] in which "normal" tones are used in the context of new means of articulation, *Polymorphies,*[8] and *Canon.*[9] In the latter the composer uses two loudspeakers through which, in the course of the further parts of the work, there occurs a reproduction from tape of parts previously performed and recorded in accordance with the formal rules of the classical canon.

Equally interesting and unprecedented is Penderecki's attitude toward the choir. The choir is not a contrasting formation with regard to the instruments *(Dimensions),* but it participates on an equal basis with them in the sound evolutions of the compositions. The human voice is mixed with the instrument clusters, the quickly repeated consonances place it in the group of the percussion instruments. A further step towards an interesting use of the choir is the *Psalm,*[10] a *musique conrète* in this case composed by means of electronic apparatus. The basic material of this composition is exclusively the human voice, two tones,

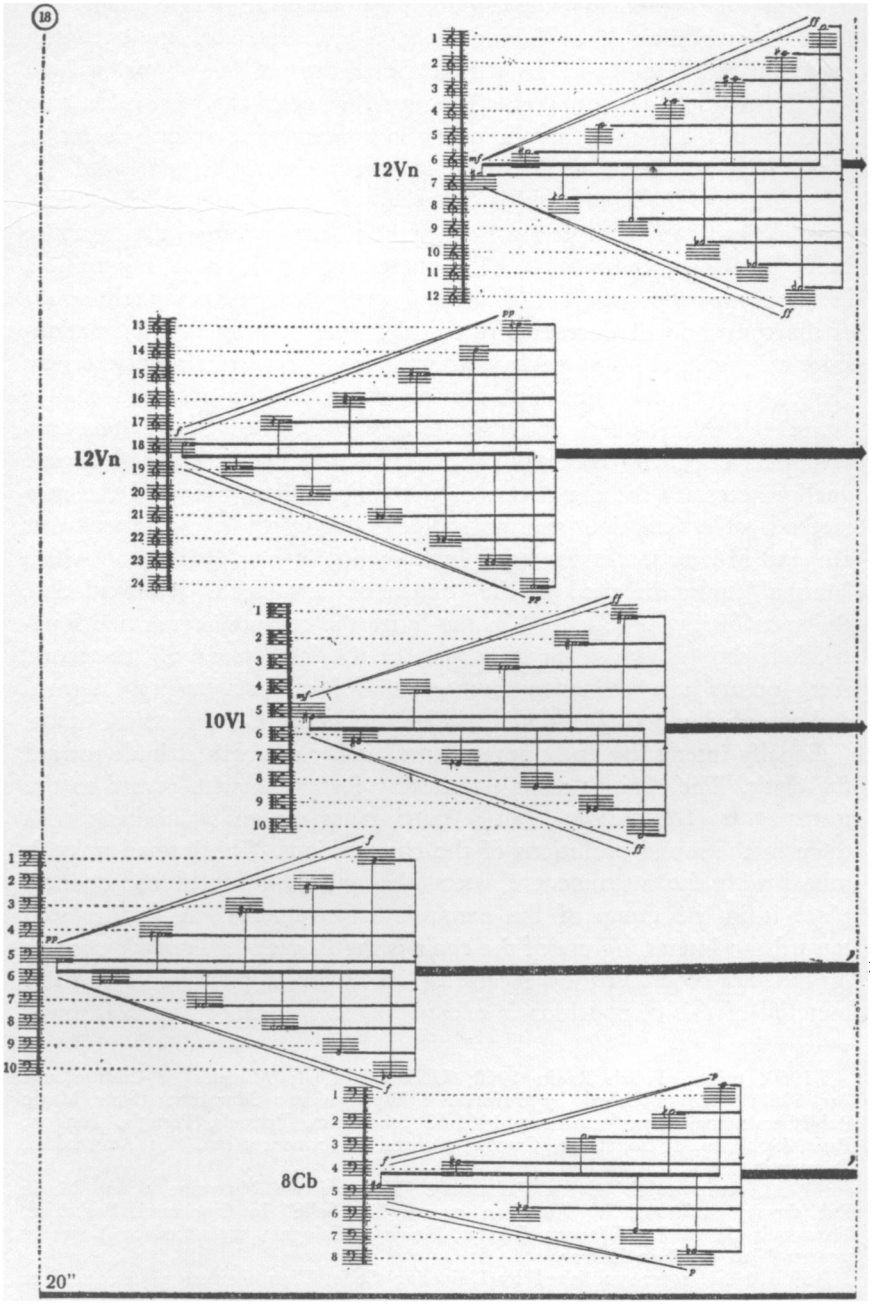
[6] 1960, prizes: Polish Radio 1960; UNESCO 1961; Minister of Culture and Art 1962; score published by Państwowe Wydawnictwo Muzyczne (State Music Publishers); major performances: 1961-62 Stockholm, Brussels, Perugia, London, Paris, Ljubljana, Tokio, Rome, Cracow; planned performances in 1963: Amsterdam, Darmstadt.

[7] 1960, score published by Państwowe Wydawnictwo Muzyczne (State Music Publishers); performed by American quartet "La Salle" in Cincinnati, Berkshire, Darmstadt, Stockholm, Warsaw, Cracow, Helsinki, Cologne; performed by Yugoslav quartet "Pro Arte" in Zagreb.

[8] 1961/1962, score published by Univerlag Celle, West Germany; performance: Hamburg 1962.

[9] 1962, first prize in competition of the Polish Composers' Association in Cracow 1962, score published by Univerlag Celle, West Germany.

[10] 1961, realized in the Experimental Studio of Polish Radio in Warsaw.



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one sung by a male, the other by female voice, as well as a few separately recorded consonants such as the TBDKR. As in his previous works the composer's idea is the composition of various forms of sound such as clusters of various quality and pitch, percussion effects and rythmicized courses of changing tone qualities.

Fluorescences,[11] written for large orchestra, represents a further step forward. Besides instrumental sounds Penderecki uses here also extra-instrumental sources of sound.

At the beginning of 1963 Penderecki's new work, *Stabat Mater* for three choirs *a capella,* was performed in Warsaw and was enthusiastically received by the critics. In May 1963 Penderecki's most recent work, a violin concerto commissioned by the Zagreb Musical Festival, was presented in Jugoslavia. He is currently working on *Passion According to Saint Luke,* scheduled for 1965.

In his development and work Penderecki frees himself not only from such elements as melodics, harmonics and rythmics. His point of departure is a new concept of sound, in which the boundaries between tone and rustle are obliterated, whose consistency and strength are differentiated and which occupies a different place in time and vertical space. Such an attitude is by no means an impoverishment, nor does the composer intend to compile a new register of sounds and possibilities of their achievement. In Penderecki's music both the material and construction possess their esthetic justification. The composer uses only such sound material which possesses a definite character in a definite context. The artistic value of this work does not consist only in new means of expression although they are most easily discernible. It is determined by the skill with which they are grouped and assembled in a new music which possesses the same richness of expression as the traditional music.

[11] 1962, commissioned by Südwestfunk Baden-Baden for Donaueschingener Musiktage für Neue Musik; major performance: Donaueschingen 1962.