

THE DATE OF THE CONVERSION OF THE ROTUNDA AT THESSALONIKI INTO A CHURCH

Hjalmar Torp

Introduction

The Rotunda was erected as part of the vast imperial palace at Thessaloniki, constructed by Galerius around the year AD 300. In a second period, this large, domed structure was turned into an even more grandiose church with choir, apse, and ambulatory, magnificently decorated with multicoloured marble incrustation and golden mosaics. The question of the date of this conversion of the Galerian Rotunda into a church is obviously of considerable interest and has been a question of learned dispute for over a hundred years (Ch. Texier & R. P. Pullan 1864), with views ranging from the time of Constantine the Great to the seventh century.

The Rotunda as an Apple of Discord

Broadly speaking, theories on the chronology of the early Christian Rotunda have today crystallized around two main points of view: an early dating to about AD 400, and a later dating to around the middle of the third quarter of the fifth or the opening years of the sixth century. Preferring one date to the other does not make this monument less great, its mosaics less beautiful. And yet, the dispute is not a totally academic one, especially with regard to the considerable parts that still remain of the original mosaic decoration. If they are of the earlier date, these mosaics may be considered to be the very *propylaeum* to Byzantine church art; on the other hand, if they are of the later date, they may conceivably be understood as the product of a retarded, perhaps provincial school somehow reflecting the otherwise practically undocumented initial phase of the metropolitan Christian art of the Eastern Empire.

The Mosaics

There is no time at present for a systematic description of either the structure or the preserved mosaics, both of which I am certain will be well-known to most of my audience. Let us content ourselves with admiring the technical perfection and perfect beauty of a few selected sections and details (Figs. 1-4).

Principally, the contenders have brought three orders of arguments to bear on the dating of the Christian Rotunda. These arguments are based on: the brick-stamps; the architectural sculpture; the ornaments, motifs, and style of the mosaics. However, the basis and point of departure for any

serious discussion on the chronology of the monument must necessarily be knowledge of the monument itself. If this requirement had been satisfied, much ink - and reading time - might have been saved.



Fig. 1. Rotunda, section of dome mosaic (photo, author).



*Fig. 2. Head of an angel,
section of dome mosaic
(photo author)*

The Structural History of the Monument

Even though this is not the right moment for a detailed technical analysis of the Rotunda, it is indispensable to consider a few essential points concerning the structural history of the monument.

Fig. 3. Rotunda, ornamental border, detail of mosaic decorating the fenestral vault (photo author).



Fig. 4. Rotunda, Corinthian capitals, detail of dome mosaic (photo author)



Firstly, at the death of Galerius the Rotunda was not finished, either with regard to its structure or its decoration. In particular, in this phase, Period I, the dome was left unfinished. On the basis of an accurate and repeated inspection of the masonry, it has been shown that the construction of the upper half of the cupola forms an integral part of the programme of rebuilding which, in Period II, turned the Galerian Rotunda into a church.

As I have already mentioned, this rebuilding programme comprised the erection of a large choir with an apse and a broad ambulatory in the east part of the Rotunda. Of these, only the choir and the apse are now extant; not, however, in their original shape. Likewise, as is well known, the dome has also been partially rebuilt. As a matter of fact, not considering the sundry piecemeal repairs suffered by the masonry during the centuries, and not counting the restoration carried out subsequent to the earthquake of 1978, the monument displays *four* main building stages; besides Period I and II, that is, the initial Galerian and first Christian phases of construction, there are two additional, major phases of repair and rebuilding that have to be taken into account when discussing the chronological problems of the Christian Rotunda.



Fig. 5. Rotunda, bema arch, successive springs, Periods II-IV (photo, author).

In the earliest of these phases of repair, Period III, the choir (Fig. 5, III), apse, and ambulatory were more or less completely rebuilt and - according to my interpretation of the remains - the large, octagonal baptistery, excavated by D. Lazarides and N. K. Moutsopoulos between 1973 and 1980, was erected, replacing the left west tower of the main, south gateway, constructed in Period II.

In the following phase of rebuilding, Period IV, the apse and choir were once more extensively repaired, and the triumphal arch was completely rebuilt along with the eastern section of the dome (Fig. 5, IV). Furthermore, the ambulatory, which for a second time must have been seriously damaged, was now abandoned. The fate, at this stage, of the baptistery is uncertain. The Rotunda itself, after the Period IV restorations, presented itself more or less as it did until 1978. It is worth noting that the relic-tomb beneath the altar, excavated in 1953, likewise shows evidence of two, possibly three periods. This is a clear indication that after at least one of the major destructions a new consecration was obviously felt to be necessary, perhaps even accompanied by a different dedication.

Regarding the building materials employed in the various phases, and especially the bricks, it is important to note that, while there was only a very limited use of Galerian bricks in the first Christian phase of construction (Period II), there was an extensive use of early Christian bricks - and green schist rubble stones - in the subsequent reconstruction of choir, apse, and ambulatory. This reused material, characteristic of Period III, was obviously taken from the partly collapsed church of the preceding Period II. In fact, the masonry of the repairs and reconstructions executed in Period III, which comprised large parts of the early Christian additions to the Galerian Rotunda, is often difficult to distinguish from the original Christian masonry of these same parts. This obviously is the reason why the important, intermediary building phase of Period III has not been noted by the many scholars and others who have written about the monument. On the other hand, the masonry, and especially the brickwork, of the following stage of reconstruction, Period IV, is more distinctive and therefore easier to recognize.

The Chronology of Periods II - IV

In her study of the architecture of Hagia Sophia at Thessaloniki, Kalliopi Theoharidou has remarked on the similarity between the materials found in certain parts of the Rotunda, parts that belong to our Period IV, and materials characteristic of the masonry belonging to the first construction phase of the present church of Hagia Sophia. I accept her arguments for dating that building to around the year AD 600. In fact, the destructions repaired in Period IV, such as the partial collapse of the dome, may well have been caused by the earthquake of 618, documented by the second Book of Miracles of St. Demetrios.

When it comes to determining the positions of Period II and Period III in the long interval between the years 300 (Period I) and 600 (Period IV),

the architectural sculpture and the much-discussed and rather abused brick-stamps enter the scene.

The brick-stamps

These latter are abused in that they have been improperly exploited in order to lump together to around the middle of the fifth century most of the principal early Christian monuments of the city. Besides the church of the Acheiropoietos, a structure that rightly may belong to that period, these are: St Demetrios (probably of the early sixth century), the main, early Christian portions of the city walls, the huge first Hagia Sophia (according to Theocharidou likely to date from the end of the fourth century, but conceivably even older), a postulated new, second imperial palace, and finally the converted Rotunda. The historical situation supposed to have prompted this building activity is believed to have been the transfer from Sirmium to Thessaloniki of the residence of the praetorian prefect of Illyricum. However, as any historian could have pointed out, the prefect of the new prefecture of *Eastern* Illyricum dwelled in our city for some months or years already in the days of Theodosius the Great, and resided there permanently from the time of the division of the Empire following upon the death of that emperor on January 15, 395.

A score or so of a particular category of monogrammatic brick-stamps from the post-Galerian Rotunda have been published, and Dyggve has collected a considerable number of similar marks, long kept in the museum of the Rotunda but now apparently dispersed. On the authority mainly of the pioneer topographer of Thessaloniki, O. Trafali, and of the first excavators of the Rotunda, E. Hébrard and E. Dyggve, these stamps are generally held to originate from the early Christian conversion of the Galerian building. This, I think, is quite correct. However, the three scholars failed to state whether the stamps were found on bricks *in situ*; as I have already intimated, they likewise failed to recognize the existence of our Period III. I myself have observed one such stamp *in situ* in a section of wall which I think may be ascribed to the original church, Period II, and two other similar stamps in Period III masonry.

Bricks with stamps of the type under discussion were thus employed in two distinct building stages of the Rotunda. Similarly, stamps more or less similar to these have been recovered in or at practically every early medieval structure in Thessaloniki. Bricks displaying variants of the common, monogrammatic stamp obviously were in use in Thessaloniki over a long period of time, at least up until the end of the seventh century (Hagia Sophia, second phase). Even if found *in situ*, it is inappropriate, therefore, to date a handful of monuments to around the middle of the fifth century on the basis of such stamps. In view of the unfortunately very meagre information obtainable concerning brick production in Thessaloniki, one obviously must exercise considerable restraint with regard to relying exclusively on brick-stamps for dating purposes. Consequently, taken by themselves, these stamps are of limited help in

connection with our specific dating problem. On the other hand, with a view to an early, fourth century dating of the conversion of the Galerian Rotunda, it is indispensable to raise the question of the first appearance of the monogrammatic brick-stamp in our city.

Since such stamps appear *in situ* in original sections of the city walls, we cannot avoid the vexed question of the date of these fortifications and of the identity of the elusive person Hormisdas who, on one of the towers of the east walls and a short distance from the Rotunda itself, perpetuated himself in a brick verse inscription, some nine metres long. The translation of the inscription runs roughly thus: ". . . by invincible walls Hormisdas accomplished this city . . .". In order to corroborate a mid-fifth century dating of the walls (and the Christian Rotunda), this Hormisdas has been tentatively identified with a prefect of the Orient, unrecorded, however, in any official capacity related to Eastern Illyricum, Macedonia, or Thessaloniki. Luckily, the recent restorations of the tower, consequent to the earthquake of 1978, have permitted the reading of the following additional words: *XEIPΑΣ ΕΧΩΝ ΚΑΘΑΡΑΣ*, having clean hands. I do, of course, agree with my Greek colleagues that these words recall the dreadful incident of 390, when Theodosius, himself absent in the West, ordered the slaughter of thousands of innocent Thessalonians in the hippodrome. If this is so, our Hormisdas, declaring his innocence, can hardly be any other than the general of Theodosius of this name, reported by Zosimus, *Historia Nova* IV.30,5, to have been present at Thessaloniki in connection with the military preparations during the first period of the emperor's reign. With regard to the walls, Hormisdas may have finished what the emperor had launched some ten years earlier; the verb he employs is *EKTEΛΕΩ*, to bring to a complete end, to accomplish, to achieve. In fact, in agreement with Ch. Edson in his volume of the *Inscriptiones Graecae* and with earlier scholars, I think that the inscription on a long marble block now lost, but formerly at the gate called Litea in the west walls, refers not to the second Theodosius, as some recent scholars assume, advocating a mid-fifth century date for the walls and the main early Christian monuments of the city, but to his grandfather, the first emperor of that name: "Theodosius, sovereign holder of the sceptre, built this town wall." If this is correct, then we may also have the answer to the question of why Hormisdas, fulfilling a work initiated by his emperor, should have put up his inscription in a relatively modest place.

The architectural sculpture

The sculptures in question are capitals, pilaster-capitals of at least two series, one larger and one smaller, and numerous fragments, about three score in all (Fig. 6). This architectural decoration belongs to a well documented type datable to between the middle of the fifth and the middle of the sixth centuries. According to recent studies, the material from the Rotunda should be dated rather late in this period, to the end of the fifth or the first quarter of the sixth century.

Perhaps even more than the brick-stamps, this sculpture has been thought to form a firm foundation for a late dating of the conversion of the Rotunda. But did it really, as is generally claimed, belong to the first Christian phase, to our Period II? It may, but it may just as well belong to the subsequent Period III. In fact, the Period III piers at either side of the apse are provided with dowel holes for the fastening of carved pilasters and pilaster-capitals. Moreover, on either side of the choir arch, below the present arch of Period IV, there still exist vestiges of the springs of Period II as well as of Period III; both periods show holes for the fastening of architectural members, that is, of pilaster capitals (Fig. 5, II, III).



Fig. 6. Rotunda, pilaster capital, probably from beam arch, Period III (photo, author).

I cannot prove that the architectural sculpture in question belongs to Period III rather than to Period II, but I think it is more reasonable to associate them with the more recent of the two phases, assuming that two of the larger pilaster-capitals marked the springing of the triumphal arch while, correspondingly, specimens of the smaller pilaster capitals belonged to the apse windows.

Contemporary with this group of fifth - sixth century architectural sculpture is the monumental ambo, now in the Archaeological Museum at Constantinople (its large base still remains in the vestibulum of the early Christian Rotunda). To this same period III belong, as you will recall, the baptistery that was built as a replacement for the western tower of the gateway and the first of possibly two successive reconstructions of the altar-tomb. Finally, the Period III springing of the triumphal arch indicates that a partial collapse of the eastern parts of the dome may have occurred already at this time. In other words, there is a clear indication that Period III comprised an extensive rebuilding and a complete refurbishment of the Rotunda.

Of the earthquakes reported by P. E. Comninakis and B. C. Papazachos (Geophysical Laboratory, University of Thessaloniki), in their catalogue of historical earthquakes, published in 1982, those of 480 and 518, centred in North-West Turkey and South Yugoslavia respectively, appear to be the catastrophes which can most likely be connected with the severe devastation suffered by our monument and the ensuing renovation of Period III. The earthquake of 518, of an intensity estimated at 6.9 on the Richter scale, totally destroyed the large Macedonian town of Stobi. The epicentre of the earlier earthquake, dated to September 25, 480, was near Gallipoli, its maximum intensity calculated at 6.8. Either of these earthquakes may have caused the described near-ruin of our monument.

Sometime around 500, then, our church appears to have been thoroughly renovated. In fact, the exquisite sculptured decoration, the manufacturing of a monumental marble ambo, and, not least, the erection of a baptistery, this whole extensive and costly programme may have been executed because, from this time on, the Rotunda was intended to serve as the city's cathedral church. It may have served as such until the rebuilding around 600 of the probably totally destroyed fourth century cathedral church of Hagia Sophia.

The date of Period II: the conversion of the Rotunda

In my view, then, the principal flaw in the conjectures claiming the late dating of the conversion of the Rotunda is a somewhat facile attitude towards history and, related to this, the handling of the archaeological facts. One such fact is the circumstance that, even after its conversion, the soie, or at any rate, the principal access to the temenos remained the Galerian approach to it from the south. By a colonnaded processional street, the Rotunda was linked with the triumphal arch, the vast, 40x18 m hall of the imperial vestibulum, and the palace. This approach appears to have been in use until the first destruction of the Rotunda according to my chronology around 500. On the other hand, there exists conclusive evidence in the form of Period II masonry (and vault mosaics) that the palace itself underwent extensive restoration, rebuilding, and decoration about the time of the conversion of the Rotunda. Actually, after having housed Galerius and for some time Constantine, between 379 and 438 the old palace again intermittently served as an imperial residence. In particular, it was the domicile of Theodosius from shortly after his elevation to the purple, on January 19, 379, until November, 380, when he finally decided to move the court to Constantinople, and again from September, 387, until the end of April, 388.

The city of Thessaloniki was not only the imperial residence for almost two crucial years but, in addition, during practically the whole of Theodosius' reign served as the base for military operations against the barbarians who continually made deeper and deeper incursions into the Greek mainland. It was, above all, in order to project and execute defensive preparations that the emperor Gratian at Sirmium elevated Theodosius to

the rank of *augustus*, with the jurisdiction of the *praefectura Orientis* and, for some time, also of the dioceses of Dacia and Macedonia.



Fig. 7. Bust of Eutropios found at Ephesos, Kunsthistorisches Museum, Vienna (after L'Orange: *Studien zur Geschichte des spätantiken Porträts*)

Why this concern with palace and walls? With regard to the palace, because it supports Dyggve's main conclusion based on his excavations in 1939 (a conclusion supported by recent Greek investigations): that the Rotunda, also after it had been turned into a church, remained an integral part of the palace. In other words, the Galerian Rotunda, whatever purpose it initially may have served, was rebuilt by an imperial founder in order to function as a palace church. The walls are important for chronological reasons. This is so, because there is absolute identity between the limited extant sections of early Christian Period II masonry in the church and the masonry of the original, in my view, Theodosian sections of the city-walls. At this point, I should like to add two observations. Firstly, there exists, besides the monogrammatic brick-stamps already referred to, a second type of stamp *in situ* in the early Christian parts of both the city-walls and the Rotunda. Secondly, at the site of the Rotunda, there are numerous pieces of architectural sculpture that may be ascribed to about 400 or earlier, some of which stem from excavations at the Rotunda and may therefore reasonably be associated with its conversion into a church.

The Mosaics as Works of the Theodosian Renaissance

The date of the conversion is valid also for the mosaics. One of the fruits of almost five months of co-habitation, on shaky scaffolding, with the saints and angels in the dome of the Rotunda, was the demonstration on archaeological grounds of the contemporaneity of the early Christian masonry of the crown of the dome with the setting-bed of the mosaics. Duly published, this finding has not been contested.

On this occasion, we will have to content ourselves with some few indications that the late fourth century date, so to speak imposed by the structure itself, is conceivable also from an art historical point of view. This, more than anything else, is the fundamental problem of the converted Rotunda. This is the case, because from the Greek, East Roman cultural and artistic area to which the mosaics belong, hardly the tiniest bit of fourth century Christian wall or vault mosaic has been preserved. From a methodological point of view, the situation creates an interesting but extremely difficult - and I should like to add - dangerous situation. In particular, there has been much argumentation *ex silentio* of the following type: this formal feature or that motif is not documented before such and such a date and therefore this date must provide the *terminus ante quem* for our mosaics. The danger of this approach is apparent, not least from the fact that it has served the champions of a fifth century as well as those of a sixth century dating.

In support of a sixth century date, much importance has been accorded a selection of ornamental motifs which occur in the mosaics of the barrel-vaulted passages and fenestral openings (Fig. 3). Regarding the motifs themselves, there is little difficulty in producing acceptable sixth century parallels. On the other hand, without exception, all these ornaments belong within the Roman to early Christian ornamental tradition; with regard to the formal qualities of the individual ornaments, particularly satisfactory parallels for most of them are found before or around 400. Moreover, considering these ornamental decorations as a whole, the best preserved counterparts exist in catacomb and tomb decorations from the second half of the fourth century.

Yet another argument advanced against the early date of the mosaics is the rich variety of physiognomic types represented in the mosaics by the portraits in the gallery of martyrs (Figs. 8-10). This diversity of human depiction is, however, not the least interesting of the characteristics of the art of the expiring fourth century - I remind you of the obelisk base of 390/392 in Constantinople and, from the other end of the Empire, the slightly earlier *Hermengallerie* excavated at Welschbillig, not far from Trier.

Turning from typology to the formal language of the mosaics, I confess I feel at a loss; even a quite superficial consideration of the difficult and idiosyncratic domain of style would, in this particular case, demand more than a double lecture. Therefore, I have to limit myself to challenging the comparison between the so-called Eutropios in Vienna and a group of

martyrs from the Rotunda which has been adduced in support of an advanced fifth date of the latter (Fig. 7). The question involves in part minute nuances and shifts in accent, but fundamentally the formal language is not only different, but downright antithetical. Where in the martyr's heads we encounter vaults and arcs - not only in the youthfully



Fig. 8. Rotunda, head of St. Kosmas, detail of dome mosaic (photo author).



Fig. 9. Rotunda, head of St. Porphyrios, detail of dome mosaic (photoauthor).

rounded heads of the types of Porphyrios and Basiliskos (Figs. 9, 10) but also in the emaciated ascetic heads, such as the marvellous portrait of Kosmas (Fig. 8) - in "Eutropios" planes and angles, rectilinear incisions (compare eyes and brows in Kosmas and in "Eutropios", and the lines of beard and hair) dominate. Undulating vaulted surfaces in gliding transition and domed and concave spaces in the martyr's heads contrast with an angular bony structure in that of "Eutropios". As different as the external configuration is the inward emotion conveyed; in contrast to the overabundance of ascetic energy and ecstatic *pneuma* expressed by "Eutropios",

there is in our group of martyr portraits an untroubled, relaxed self-absorption. This frame of mind is communicated by the entire figure of the martyrs and can be seen in the softly rounded contours and volumes of the torsos and the graciously moved and subtly modelled, descending waves of drapery folds which create an impression of a gliding scale of colour tones; all this is in the true spirit of the so-called Theodosian renaissance, as represented, for instance, by the large, icon-like silver missorium of Theodosius the first, dated to 387/388, or by the diptych of Stilicho at Monza, probably a few years later in date (Fig. 11).

Fig. 10. Rotunda, head of St. Basiliskos, detail of dome mosaic (photo author)



Fig. 11. Monza, San Giovanni Battista, Tesoro, diptych of Stilicho, rear panel (Hirmer Fotoarchiv)





Fig. 12. and 13. Lady musicians, detail of mosaic found at Mariamin. Hama Museum (after Balby: *Mosaïques de Syrie*).

It is possible to point to *reflections* of this Theodosian art in certain mosaic pavements. Hardly, however, in the material from Antioch, commonly cited by champions of a late fifth or sixth century date for the Rotunda. I would rather point to the large, almost 4x3 m, delicate and lovely "Mosaic of the Lady Musicians" found at Mariamin in Syria, now in the Museum of Hama (Figs. 12, 13). As in the Rotunda (Fig. 10), silver cubes are employed even in the rendering of the dresses. In my opinion, this work of art - attributed to the last quarter of the fourth century by Janice Balby - must depend, in technique, structure, and formal language, on early Byzantine, metropolitan art as represented by the mosaics of the Rotunda. Another glimpse of this same or a closely related art is offered by a fragmentarily preserved wall mosaic decoration found at Ephesos (Fig. 14). The fragments are dated to 400-410 by Werner Jobst in his monumental publication of the mosaics from Ephesos. They represent a station, I think, on the way back from Syria and the "Lady Musicians" towards where I suspect the new, great Greek art of the last quarter of the fourth century, so spectacularly epitomized by the mosaics of the Rotunda, had its origin, namely Constantinople.



Fig. 14. Ephesos, Hanghaus 2/D, detail of vault mosaic (after Jobst).

BIBLIOGRAPHY

G. Bruns: "Der Obelisk und seine Basis auf dem Hippodrom zu Konstantinopel"; *Istanbuler Forschungen* 7, 1935.

E. Dyggve: *Kurzer vorläufiger Bericht über die Ausgrabungen im Palastviertel von Thessaloniki, Frühjahr, 1939*; Diss. Pann. Ser. 2, no. 11 (Laureae Aquincensesmen. V. Kuzsinsky dicatae 11), Budapest, 1941, 63-71.

"Recherches sur le palais impérial de Thessalonique"; *Studia Orientalia Ioanni Pedersen Dicata*, Copenhagen, 1953, 59-70.

E. Hébrard: "Les travaux du service archéologique de l'armée d'Orient à l'arc de triomphe 'de Galère' et à l'église Saint-Georges à Salonique"; *BCH* 44, 1920, 5-40.

Inscriptiones graecae Vol. X, Pars II, Fasc. 1 Inscriptiones Thessalonicae et vicinia (ed. C. Edson, 1972).

W. Jobst: *Römische Mosaiken aus Ephesos I. Die Hanghäuser des Embolos, Ephesos VIII, 2*, 1977.

W. E. Kleinbauer: "The Iconography and the Date of the Mosaics of the Rotunda of Hagios Georgios, Thessaloniki"; *Viator* 3, 1972, 27-108.

J. Kollwitz: *Die Lipsanothek von Brescia*; *Studien zur spätantiken Kunstgeschichte* 7, 1933.

H. P. L'Orange: *Studien zur Geschichte des spätantiken Porträts*; Oslo, 1933.

N. C. Moutsopoulos: "Contribution à l'étude du plan de ville de Thessalonique à l'époque romaine" in *Atti del XVI congresso di storia dell'architettura, Atene, 1969 (=Centro di studi per la storia dell'architettura)*; 1977, 187-263.

"Η Παλαιοχριστιανική Φάση της Ροτόνδας του Αγίου Γεωργίου Θεσσαλονίκης" in *Actes du X congrès internationale d'archéologie chrétienne X, 2*, 1984, 355-375.

J.-M. Spieser: *Thessalonique et ses monuments du IV au VI siècle*; *Bibliothèque des Ecoles françaises d'Athènes et de Rome* 254, 1984.

Ch. Texier, R. P. Pullan: *L'architecture byzantine*; London, 1864.

Kalliopi Theoharidou: *The Architecture of Hagia Sophia, Thessaloniki*; Oxford, 1988.

H. Torp: "Quelques remarques sur les mosaïques de l'église Saint-Georges à Thessalonique" in *Acts of the IX International Congress of Byzantine Studies*, 1955 I, 489-498.

O. Trafali: *Topographie de Thessalonique*, 1913.

Thessalonique des origines au XIV siècle, 1919.

M. Vickers: "The Date of the Mosaics of the Rotunda at Thessaloniki"; *BSR* 38, 1970, 183-187.

E. Wiegand: "Der Kalenderfries von Hagios Georgios in Thessaloniki. Datierung, Ideen- und kunstgeschichtliche Stellung"; *Byzantinische Zeitschrift* 39, 1939, 116-145.

H. Wrede: "Die spätantike Hermengalerie von Welschbillig"; *Römisch-germanische Forschungen* 32, 1972.