*László G. Józsa**

# BYZANTINE SACRAL ARTWORKS FROM MEDICAL VIEWPOINT

## Introduction

Icons of Christ, the Virgin and the saints and scenes of the story of the divine economy are accorded honour and veneration. In one hand, their iconographic theory is dictated by the rules of Church tradition. „The making of icons is the invention of painters, but the institution and handing of approved rules is the work of the catholic church .... and not of painter, for only art is the painters" declared the Church Fathers at the Seventh Ecumenical Council in 878. In the other hand, man has always felt the need to express the events of his life, all his experiences and emotions in the form of pictures. Health and sickness, healing and death, recovery and invalidity, birth and aging, are all part of life. Not suprisingly, they have always inspired man to portray then. Every generations of the Byzantine artists has had its major or minor masters, who have given shape to these themes in their works of art (Vassilaki 2005). Throughout the centuries a vast series of artworks has thus been created that are related to medicine.

The sacral works of western civilisation is well understood in this viewpoint (Ais et al. 2002, Appenzellet et al. 2001, Dequeker 1994, 1996, Diekmayer 1960, Giampolo and Fulcheri 1988, Józsa 2007A, Kuijjer 1985, Kunze 1986, Mach 1987, Merke 1984, Sharma 1997, etc.), while the very important and also rich Byzantine art, especially sacral art have been disregarded. I have found only one publication in which the Greek illustrations of human diseases on Mounth Athos was discussed (Charlier 2003).

However only small part of diseases (about 10 per cent) are visible on surface of depicted subjects (the alterations of musculoskeletal system, overweight, facial palsy, goitre, etc.), while the artists intention was to describe not pathological condition but rather an individual personality and/or sanctcity. The aim of this study to see wheter a collection of Byzantine icons is a useful source for studying the epidemiology of particular visible diseases.

## Material and methods

I have been collected and observed 500 Byzantine pictures (212 icons, 209 frescoes, 59 miniatures and 20 mosaics). The main of artworks (480 paintings) originate from

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the posticonoclastic period, i.e. 10—15th century. More than half (257) of the artworks I examine personally on the spor (Athen, Mount Athos, Crete, Istanbul, Sicily, etc.) in monasteries, churches and museen and collected from all artworks photographic documentation. The photos has been gathered since 1978. On the pictures 1370 persons (712 males, 212 females, 73 kids and 373 angels) was visible. First was evaluated the physical habitat and skin color, thereafter I extracted signs of overweight, gravidity, anomalies of eyes (strabism, ptosis etc.), appearance of neck and face (goitre, cretinod aspect) and appearance of whole body (disproportionate physique, osseous deformation, thickened joints of the hand etc.).

I registered symptoms of disease after performing a standardised visual inspection and after examination of photos under stereomicroscope (Carl Zeiss Jena) by 2—5 fold magnification.

## Results

Among 500 artworks on 122 pictures could detected 36 different physiological (gravidity, childbirth) or pathological (goitre, joint diseases, palsy, etc.) conditions (Table I.).

### Physiological conditions:

The gravidity of Virgin on five frescoes ( four with tittle: Journey to Betlehem, and one: Visitation Mary to her older cousin Elisabeth [Fig. 1] ) was visible. The depicting of child birth on eleven miniatures could seen. Both miniatures originated from 11th century, and were painted in Constantinaple. All miniatures illustrated the Gospel, and portrayed the labour of Rebecca. The miniatures exhibited the childbirth in standing posiure (Fig.2) in contrary to other ancient Greek and Roman artworks in which the childbirth was portrayed on lie or sitting position (Józsa 2007B).

### Pathological conditions:

1/ *Goitre:* In landlocked mountainous areas, iodone deficiency prevailed for many millenia, probably since the last glacial period. The Balkan and the whole territory of Byzantine Empire was particularly known for severe endemic goitre as a result of iodine deficiency (Marketos et al. 1990). The depicted goitre was the most usual alteration on the Byzantine artworks. Both on saints, angels, children, Virgin and Christ could verified a marked goitre. On 42 persons (females 6, males 14, kids 4 and angels 18) was visible moderate or greater goitre. Among them 30 diffuse, 8 nodular (Fig.3) and 4 cases of connatal goitre was identifyed (Fig.4). In a wallpainting (Stravronikita Monastery, Mounth Athos) among 12 persons 4 shows the sign of goitre. On 10 artworks beside the signs of goitre other pathologies could detected on same person.

2/ *Osteoarthritis:* with swelling and deformity of joints was diagnostised on 31 persons (females 2, males 22, angels 7) on 20 paintings (Figs. 5, 6, 12). Both the interphalangeal and other joints of the hands were involved in most cases. The dislocation of interphalangeal joints and charasteristic deformity was seen on icon of Michael archangel. Swelling of knee that may be psoriatric arthritis in one mosaic (Fig.7) was visible. The osteoarthritis is eleven times frequent on males, than in females. From Byzantine literature is known the arthritis of several emperors such as Alexios Comnenos, Isaac Angelos, Johannes Palaiologos VIII., Constantinos IX. etc. (Caughey 1974, Józsa 2003, Lascaratos 1995). The paleopathological findings verifyed the frequent osteoarthritis in Byzantine times (Hershkovitz et al. 1995).

3/ *Anomalies of the eyes* was demonstrated on 11 persons on 11 artworks. The most frequent anomaly was the strabism (fig.8) which was seen both on saints and Christ portraits. Both convergent and divergent strabism could detected. Other anomalies (blindness, etc.) were rare. Only two blind persons was found in our material (The healing of blind. Frescoe 1312—1322, Mystras, and Mosaic from the 12$^{th}$ century in the Monreale cathedral [Fig.9.] ).

4/ *Osteoporosis* was rare condition in Byzantine times, while portrayed on three icons, on six persons. I found the best representation of spinal osteoporosis on paintings with tittle: Dormition of Saint Ephraim the Syrian. All subjects which have osteoporosis spine alteration were hermit. No on clergymen nor saints or "civils" osteoporotic alterations can't seen. The trunk looks short in contrast with the lenght of the the legs, and a dowager's hump is clearly visible. He has a bald forehad corresponding to this old age.

5/ *Palsy* with unknown etiology was detected on four persons (Fig.9.) all with paralysis of the lower limbs In one case could presume poliomyelitis (Heine—Medin disease) as etiology, wich cause an excavated foot (Fig.10). After healing of children palsy, often occur the excavated foot.

6/ *Traumatic and posttraumatic* lesions are relative rare on icons. Amputated lower limb on one miniature, herniated muscle (on thigh) on six icons, scar of face (probable after sword injury) in one case was recognized. On 3 artworks (two fescoes and one mosaic) the so called "manu cornuta" could diagnostised. The manu cornuta occur after the injury of the common extensor muscle or tendons of fingers, while by this alteration the third and fourth fingers can't extended. The portray of manu cornuta was seen on pictures of Saint Paul or Saint Peter (Fig.11.) in Sicily. The so called Madelung's deformity occur after bad healed fracture of the wrist. The Madelung's deformity was depicted on Christ portraits on two frescoes (Fig. 12.).

6/ *Developmental anomalies* were detected on five artworks on five persons. Hydrocephalus, microcephaly (Fig. 13), head deformity, hunchback and ossifying anomaly (chondrodytrophia) was identifyed on 1—1 persons, all males (Józsa 2006).

7/ *Overweight and obesity* was visible on four icons, by four female saints (Saint Catherine, Saint Anasthasia, etc.), while not on males.

*Bad physical condition,* lean or cachectic habitat was detected on 7 subjects on 5 artworks, mostly Saint John the Baptist was portrayed as a cahectic male.

8/ *Herpes* of the lower lip was depicted on the icon of Archangel Michael's (Fig. 12).

9/ *Gynecomasthia,* i.e. female breast of male is caused by hormonal disturbance or by chronic liver disease. Gynecomasthia was found on two frescoes, both portrayed Christ (Fig. 11).

10/ *Other pathologies* (varicositas of lower limbs, Dupuytren's disease, anomaly of great toe [ hallux valgus ] and others) were recognize in small numbers. The number of pathologies visible on persons and pictures are summarized in Table I.).

## Discussion

The existence of religious importance of holy icons an authentic manifestation of orthodox lithurgical art are connected with revealed truth of christianity of which they are witnesses. Their form and iconographic formulation encapsulate the spiritual experience of the orthodox church as an indivisible whole compounded of past, present and future. The icons furnish not only the correct interpretation of the word of truth and they offer guidance for the spiritual life while also demostrate the illnesses of the inhabitants of Empire. In the history of art can found abundant discussion around iconography, colours, composition, techniques of paintings etc. of the Byzantine icons, but the pathological conditions of portrayed persons are mostly uninvestigated. In previous articles I examine the visible alterations of locomotor systems on icons (Józsa 2006) and childbirth and baby care (Józsa 2007B), and another study in this field was publicated by Charlier (2003). Neither other publications can found in medical nor in art historical literature from the pathologies on Byzantine paintings. The investigation and evaluation of Byzantine sacral art from this viewpoint is undiscovered.

The paintings originated from talented as well as less talented artists. Accordingly, signs of illnesses may often not have been reproduced appropriately because of lack of artistic competence or artistic idealisation rather than because Church decoration. Signs of illnesses mught not be detectable because body parts may have been presented in a non—standard way. Clothing determined largery by fashion also made evaluation difficult. Another important limitation is that artists did not reproduce signs of illnesses because they were stigmatising. For many centuries hunchback were considered to be linked. Therefore artists may have tried to mantain or even increase the magnificance and dignity of their sitters by not representing their alteration realistically.

In summary, on the Byzantine sacral artworks can many pathological conditions recognize, while the diagnostised alterations are not representative of the general population.

## Table I. Physiological and pathological conditions depicted on Byzantine artworks

| Physiological conditions | Number of persons | Number of artworks |
|---|---|---|
| Gravidity | 5 | 5 |
| Childbirth | 11 | 11 |
| **Physiological conditions altogether** | **16** | **16** |
| | | |
| **Pathologies** | | |
| Goitre | **42**<br>female 6<br>male 14<br>kids 4<br>angels 18 | 19 |
| Osteoarthritis | **31**<br>female 2<br>male 22<br>angel 7 | 20 |
| Paralysis with unknown etiology<br>Acute atrophic paralysis (Heine-Medin) | **4**<br>**1** | 3<br>1 |
| Pes equinovarus | **2** | 2 |
| Osteoporosis | **6** | 3 |
| Strabism | **9** | 9 |
| Blindness | **2** | 2 |
| Dupuytren's contracture | **7** | 4 |
| Muscle hernia | **6** | 6 |
| Cachexia | **7** | 5 |
| Obesitas | **4** | 4 |
| Manu cornuta | **3** | 3 |
| Chondrodystrophy | **1** | 1 |
| Kyphoscoliosis | **1** | 1 |
| Pes excavatus | **1** | 1 |
| Cranial deformity | **1** | 1 |

| | | |
|---|---|---|
| Hydrocephalus | 1 | 1 |
| Microcephaly | 1 | 1 |
| Gynecomasthia | 2 | 2 |
| Madelung's deformity | 2 | 2 |
| Triphalangeal thumb | 1 | 1 |
| Lower limb amputation | 1 | 1 |
| Scar on the face | 1 | 1 |
| Abdominal ascites | 1 | 1 |
| Herpes labialis | 1 | 1 |
| Varicositas of limbs | 1 | 1 |
| Hallux valgus | 12 | 9 |
| **Pathologies altogether** | **150** | **106** |
| **Physiological and pathological conditions on sacral artworks altogether** | **166** | **122** |

## LEGEND FOR FIGURES

Fig. 1.: Visitation Mary to her older cousin Elisabeth. The transparent virgins. Pelendri chapel in Cyprus, 14th century.

Fig. 2. Childbirth of Rebecca. Miniature. 11th century. Bibliotheca Apostolica Vaticana, Rome,

Fig. 3. Virgo Hodegetria. 13th century icon. Philotheou Monastry, Mounth Athos. Both the Virgin and Christ portrayed with diffuse goitre. The Child has probably congenital goitre

Fig. 4. Christ Pantocrat. Icon, early 14th century. Great nodular goitre on Christ portray. Byzantine Museum, Athen.

Fig. 5. Christ Pantocrator. Icon, 12th century. On the neck of Christ show a marked diffuse goitre. On the right hand both the interphalangeal and metacarpophalangeal joints are swollen.

Fig. 6. Saint Georg, 14th century, icon. On the right hand the interphalangeal joints are swollen (osteoarthritis). Byzantine Museum, Athen

Fig. 7. Mosaic from the cathedral of Monreale (Sicily), 12th century. Probably psoriasis, and psoriatric arthritis of the knee joint is depicted.

Fig. 8. Convergent strabism on frescoe of Panagia church (14th century) Crete.

Fig. 9. Mosaic (detail) from the 12th century in the Monreale cathedral, Sicily. The paralytic with wood tool approach to Christ.

Fig. 10. Trimorphon. 15th century, Crete. On the right foot pes excavatus deformity (probably after Heine—Medin disease) is visible. The Byzantine Museum. Athen.

Fig. 11. Mosaic from the catedral of Monreale 12th century. Manu cornuta is visible on the right hand of Saint Paul. The hand tip up to the neck.

Fig. 12. Frescoe in the church of Nerez (Macedonia). Lamentation of Christ, 12th century. The gynecomasthy of Christ (arrow) and Madelung's deformity of the right wrist (triangle) are depicted on frescoe.

Fig. 13. Microcephaly. (Virchow—Seckel disease). Frescoe, Kastoria (Crete) 13th century.

Fig. 14. Archangel Michael. Icon, 14th century. Chora monastery, Constantinople. On the portray of archangel multiple pathological conditions are visible. Diffuse goitre, osteoarthritis of the phalangead and metacarpophalangeal joints with the deformity of left index finger, and herpes of the lip.

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## SUMMARY

The sacral works of western civilisation is well understood, while the very important and also rich Byzantine art, especially sacral art have been disregarded. Among 500 artworks on 122 pictures 36 different physiological (gravidity, labour) or pathological (goitre, joint diseases, palsy etc.) conditions was detected. The depicting of gravidity and child birth was rare. The endemic goitre as a result of iodine deficiency was portrayed on 42 persons, osteoarthritis (mostly of the hands) on 31 subjects. Anomalies of the eyes on 11 persons, and palsy, traumatic and posttraumatic lesions, developmental anomalies, osteoporosis, gynecomasthia and other pathologies could also detected on the Byzantine sacral artworks. However, on the Byzantine sacral artworks can many pathological conditions recognize, while the diagnostised alterations mostly are not representative of the general population.

**Key words:** Byzantine icons, pathologies, physiological conditions,

## BIZÁNCI IKONOK ORVOSI SZEMMEL

A nyugati szakrális művészet termékeit orvosi szempontból alaposan értékelték, ám a hasonlóan gazdag bizánci műalkotásokra és különösen az egyházi műalkotásokra nem fordítottak gondot. A művészettörténetben kimerítő tanulmányok foglalkoznak a bizánci ikonok kompozíciójával, technikájával, színhasználatával stb., de az azokon felismerhető kóros állapotok jórészt felderítetlenek. Tanulmányomat 500 bizánci szakrális alkotás (ikon, freskó, mozaik, miniatúra) vizsgálatára alapozom. A műalkotások az V.- XVI. századokból származnak, többségük (480 mű) az ikonrombolás utáni időszakból. Az alkotásokat művészi értéküktől függetlenül értékeltem. Jól lehet az alkotók célja nem a patológiás jelenségek, hanem a személyiség és/vagy szentség megörökítése volt. Az 500 műalkotáson 1370 személy (712 férfi, 212 nő, 73 gyermek és 373 angyal) szerepelt. A fiziológiás és kóros állapotoknak csupán töredéke (kb. 10 %-a) mutatkozik a felszíneken (bőr és izomelváltozások, bénulás, golyva, szemészeti eltérések), mindezek ellenére az 500 műalkotás közül százhuszonkettőn (24,4 %) harminchat-féle élettani jelenséget (terhesség, szülés, csecsemőgondozás), vagy betegséget illetve kóros állapotot (golyva, ízületi gyulladás, kancsalság, bénulás stb.) tudtam megállapítani. Az élettani állapotok ábrázolása ritkán fordult elő, ezzel szemben jódhiányos golyvát 42, a kéz kisízületeinek gyulladását 31, kancsalságot 11 személyen lehetett megállapítani. Gyakori volt a bénulás, sérülések utáni állapot, fejlődési rendellenességek és más kóros állapotok megjelenítése.

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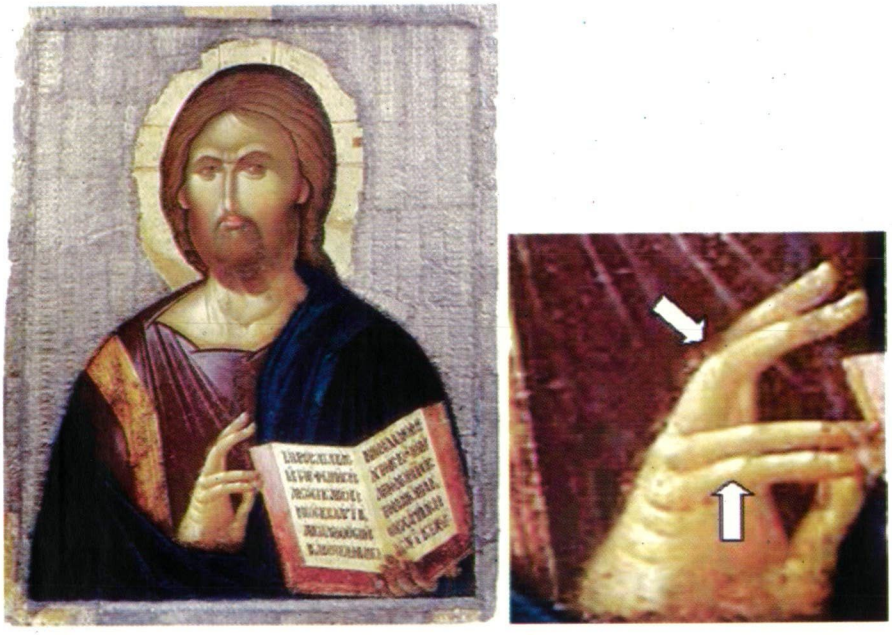

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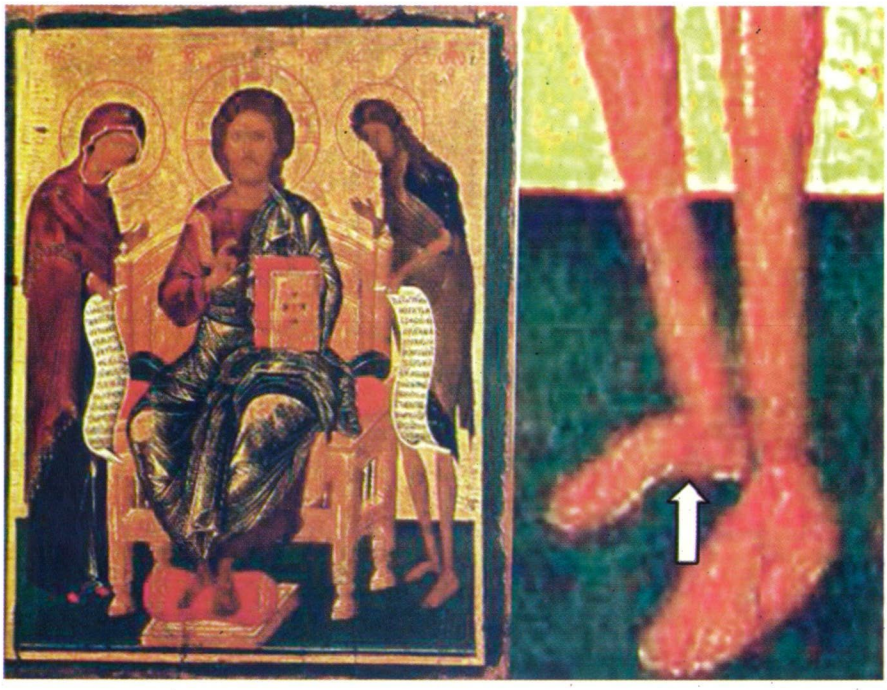

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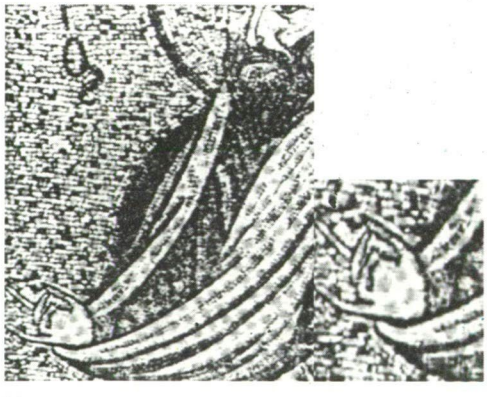

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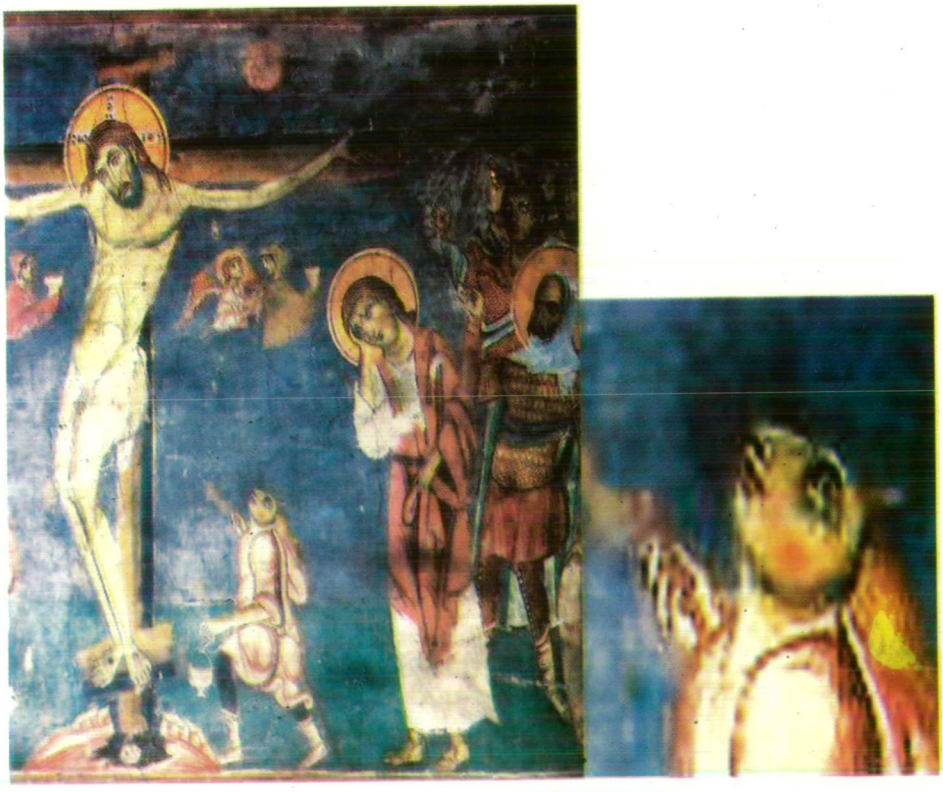

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