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OSWALDO GONÇALVES CRUZ

The 150th birth anniversary of the Brazilian scientist, physician, bacteriologist, epidemiologist and public health officer Oswaldo Gonçalves Cruz (1872 - 1917), the founder of Brazilian microbiology, was celebrated on August 5, 2022. His personality is broadly described in material historical sources: philately, bonistics, and numismatics (including medal art). At the same time, the information contained in each literary source is not sufficient to introduce art medals into scientific biomedical circulation. **Aim of study:** To explore and introduce into scientific biomedical circulation art medals — tangible historical sources studied by medal art, a section of the special historical discipline of numismatics, related to the life and work of Oswaldo Cruz. **Methodology:** Both general scientific (historical and logical) and special (subject-chronological and retrospective) methods were used in the work. Numismatic, medical and biological literature, materials of international numismatic auctions, and websites of world mints have been studied. **Results:** Award and commemorative medals of Brasil and Portugal relating to the life and scientific heritage of Oswaldo Cruz have been studied and described. Medals were issued for the presentation to Oswaldo Cruz, foreign and Brazilian medical institutions, on the occasion of congresses, anniversaries of Cruz and his institute, as a reward. **Conclusions:** The study has become a new step in the development of the history of biomedical science, supplementing the knowledge of the artistic reflection of Oswaldo Cruz's life in the medal art. Such material historical sources as art medals, enabled us to capture the pages of the biography and scientific work of Oswaldo Cruz in a new plane, introducing the medals into scientific biomedical circulation.

Keywords: *Oswaldo Cruz, Oswaldo Cruz Institute, art medal, history of biomedical science.*

Introduction. The 150th birth anniversary of the Brazilian scientist, physician, bacteriologist, epidemiologist, and public health officer Oswaldo Gonçalves Cruz (1872—1917), the founder of Brazilian microbiology, was cele-

brated on August 5, 2022. Daniel-Ribeiro C.T. and de Lima A.L.G.S. [1] emphasize the scale of Cruz personality: 700 pages of his Opera Omnia and his biography by Egydio Sales Guerra (the same volume) [2]. The large number of

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publications cover Cruz's life and researches. So, we will not go into lengthy stories about Cruz and his activities, or make any historical discoveries. The main historical sources for most publications are the written resources and photographic documents [1, 3]. At the same time, the importance of material historical sources should be taken into account, first of all, the objects studied by auxiliary (or ancillary) sciences of history: numismatics, bonistics, phaleristics, philately, etc. Information contained in coins, medals, banknotes, postage stamps is the source for studying the history of science, arts, geography, politics, etc. [4]. Oswaldo Cruz personality is broadly described in material historical sources: philately [5–8], bonistics [9], and numismatics (including medal art) [10–19]. The publications in specialized numismatic and scientific sources, the auctions of art medals with images without the technical parameters of medals and «legends» (images and inscriptions) or only «legends» cannot be considered to be introduced into scientific (biomedical) circulation as tangible historical objects [11–19].

This research is aimed at investigating and introducing art medals featuring the life and scientific work of Oswaldo Cruz into the scientific biomedical circulation.

Materials and methods. Both general scientific (historical and logical) and special (subject-chronological and retrospective) methods have been used in the research. Collection, analysis, and interpretation of data on the medal art were carried out with the help of specialized books, catalogs, and journals (numismatic and biological). Valuable information was also found by researching various numismatic European, Brazilian, and USA trading platforms such as eBay, MA-SHOPS, Delcampe, ANTONIO FERREIRA — LEILOEIRO PÚBLICO, FELIX CONRADO — LEILOEIRO OFICIAL, FRANKLIN LEVY — LEILOEIRO OFICIAL, and information on world mints.

Results and discussion. Oswaldo Cruz was graduated from the Faculty of Medicine in Rio

de Janeiro in 1892. In 1894 he founded and was a coordinator of the Clinical Analysis Laboratory of the Policlínica Geral do Estado do Rio de Janeiro. In 1897 he attended the course of «Microbie Technique» in the Pasteur Institute (Paris, France). Simultaneously, he trained in a number of institutions, including the Paris Toxicology Laboratory, a laboratory of glassware factory. Oswaldo Cruz was one of the coordinators (technical director) of the Instituto Soroterápico Federal (Federal Serotherapeutic Institute). From 1902 he was President of this Institute. The Institute founded and produced sera and vaccines against bubonic plague. A few years later, taking into account the outstanding achievements of Oswaldo Cruz in experimental medicine and sanitation, the National Congress gave the Institute his name by official Decree No. 1802 dated December 12, 1907. Over these few years (1900–1907) Cruz launched a rapid succession of important sanitary campaigns: he developed a new technique for killing mosquitoes (carriers of malaria and yellow fever) and their breeding grounds, fumigating houses, and isolating the sick; his sanitary campaign against the bubonic plague was successful, by its end he had introduced obligatory notification of cases, isolation of sick people, treatment with the sera produced at his Institute and extermination of the rats populating the city.

To begin with, chronologically one of the 20 silver medals was made in 1909 for the IV Latin American Medical Congress in Rio de Janeiro for presentation to foreign bacteriological institutes. However, the main issue was the presentation of a gold medal in a single copy for Oswaldo Cruz on his birthday on August 5 (the congress took part on August 1–8). The medal marked the recognition of Cruz's merits in experimental medicine, sanitation, including as Head of the Public Healthcare Department (corresponding to the position of the Minister of Healthcare). It is noteworthy that 50 bronze medals were also made for presentation to Brazilian institutions [11,

12]. Almost profile, right-turned bust portrait of Cruz is placed on most of the obverse (Fig. 1) of the medal (Ø 50 mm, gold/silver/bronze, author Pillet C., Brazil). Along the edge of the obverse, all around, there is an inscription in Portuguese: «HOMENAGEM · DA · CLASSE · MEDICA · AO · D^R. OSWALDO · CRUZ · RIO · JANEIRO · 1909» (MEDICAL CLASS TRIBUTE TO D^R OSWALDO CRUZ RIO JANEIRO 1909). The reverse of the medal cannot but arouse interest (Fig. 2). Central part is the image of the facade of the main building of the Oswaldo Cruz Institute. The corresponding two-line caption is above the image. Under the image of the institute building there is a seven-line inscription. These are two quotes: the first one is from the Book I of Aulus Cornelius Celsus's «DE MEDICINA»: «CAUSCE · CESTIMATIO · MORBORUM · SOLVIT · / CELSO · MEDICINA · LIB · I · /» (KNOWING THE CAUSE OF A DISEASE IS ENOUGH TO CURE IT. CELSUS. MEDICINA. BOOK I), and the second one — from the Aeneid poem of Virgil: «QUIQUE · SUI · MEMORES · ALIOS · FE · CERE · MERENDO · / OMNIBUS · HIS · NIVEA · CINGITUR · TEMPORA / VITTA / VIRGILIO · ENEIDA/ LIV · IV» (AND THOSE WHO BY MERIT CAUSED OTHERS TO REMEMBER THEM: THE BROWS OF ALL THESE WERE BOUND WITH WHITE HEADBANDS. VIRGILIO. AENEID. BOOK IV). Obviously, the sculptor made a number of inaccuracies, in particular, the Book of the Aeneid is not IV, but VI.

The next medal (Ø 50 mm, bronze, author Campos L., Brazil, 1950) [13] was timed to coincide with two events: the 50th anniversary of the Oswaldo Cruz Institute and the 5th International Congress of Microbiologists. A bust, turned three-quarters to the left, portrait of Oswaldo Cruz adorns the obverse of the medal. There is an inscription in two lines to the left of the portrait: «OSWALDO/ CRUZ» (Fig. 3). On the reverse, against the backdrop of a landscape with the building of the Oswaldo Cruz Institute there is an inscription in 7 lines: «V /CONGRESSO/

INTERNACIONAL/ DE MICROBIOLOGIA/ 17—24 AGOSTO1950/ RIO DE JANEIRO/ BRASIL». Above the image of the building of the institute, in a circle, there is an inscription in two lines: «CINQUENTENÁRIO DO INSTITUTO OSWALDO CRUZ / 1900 1950» (Fig. 4). All the inscriptions are in Portuguese.

The medal (Ø 55 mm, bronze, Brazil, 1972) [14] is dedicated to the centenary of the Cruz birth. Most of the obverse is an almost profile bust portrait of the scientist turned to the right. Below, in a circle, there is a two-line inscription in Latin: «OSWALDO GONÇALVES CRUZ / MDCCCLXXII — NONIS AVGUSTIS — MC · MLXXII» (Fig. 5). Probably, the sculptor made a mistake. Cruz was born not on August 9 but on August 5. The reverse (Fig. 6) reproduces Cruz's famous ex-libris with an inscription in Latin: «SABER · ESPERAR · PODER · QUERER» (TO KNOW, TO EXPECT, TO BE ABLE, TO WANT).

Another medal was created in Brazil for the 100th anniversary of Cruz. A head, turned three quarters to the left, portrait of Oswald Cruz is located on the obverse of the medal (Ø 50 mm, white metal, 1972) [15]. On the right there is a two-line, horizontal inscription: «OSVALDO/ CRUZ» (Fig. 7). Most of the reverse (Fig. 8) is taken by the image of the building of the Oswaldo Cruz Institute. Above, in a circle there is an inscription in Portuguese: «100 ANOS DO NASCIMENTO DE OSWALDO CRUZ» (100 YEARS OF THE BIRTH OF OSWALDO CRUZ). Below, on the left and on the right, there are the anniversary dates: «1872 1972». Under the image of the institute building there is a two-line inscription, the first line is horizontal: «INSTITUTO OSWALDO CRUS» (OSWALDO CRUS INSTITUTE), the second line is in a circle, Cruz's motto: «NÃO ESMORECER PARA NÃO DESMERECECER (OC)» (NOT TO WANE TO NOT BE BELITTLED).

In July 1974, the 5th Congress of Brazilian Microbiologists took place at the Gama Filho University. This private university, which exist-



Fig. 1. Medal 1909. Obverse



Fig. 2. Medal 1909. Reverse



Fig. 3. Medal 1950. Obverse



Fig. 4. Medal 1950. Reverse



Fig. 5. Medal 1972 (1). Obverse



Fig. 6. Medal 1972 (1). Reverse

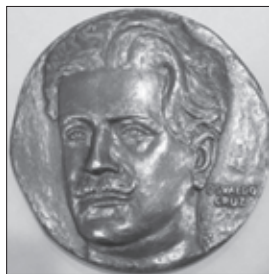


Fig. 7. Medal 1972 (2). Obverse



Fig. 8. Medal 1972 (2). Reverse

ed from 1951 to 2014, was famous as the largest medical school in Brazil. The bust portrait of Oswaldo Cruz, turned three-quarters to the left, is most of the obverse (Fig. 9) of the congress medal (Ø 55 mm, gilded bronze, Brazil) [16]. In a circle, on a dais, there is the scholar's motto: «NÃO ES-MORECER PARA NÃO DESMEREÇER (OC)» (NOT TO WANE TO NOT BE BELITTLED) and crossed laurel branches. In the center of the reverse (Fig. 10) there is the emblem of Universidade Gama Filho (Gama Filho University) and, in a circle, — the corresponding inscription. Along the edge of the reverse, around the circle, there is an inscription in Portuguese: «V CONGRESSO BRASILEIRO DE MICROBIOLOGIA · JULHO — 1974» (V BRAZILIAN CONGRESS OF MICROBIOLOGY · JULY — 1974)

In the 1970s, the Portuguese sculptor Armindo Viseu created a series of medals dedicated to outstanding physicians. A right-facing profile bust portrait of Oswaldo Cruz is most of the obverse (Fig. 11) of one of these medals (Ø 70 mm, bronze, Portuguese Mint) [17]. The portrait is located against the background of a multi-figured composition. Probably, the two male figures in the foreground on the right symbolize the struggle of the hero of the medal against the spread of infectious diseases (the fight against mosquitoes, carriers of infection, and their breeding grounds, fumigation of houses). The other figures symbolize the adults and children saved by Cruz, in particular, by vaccination against smallpox. The idea of the reverse (Fig. 12) is similar to all the medals of this series. Above, in a circle there is the inscription: «OSWALDO CRUZ», below, a floral ornament separates a five-line horizontal inscription in Portuguese: «MÉDICO BRASILEIRO EMPREENDEU/ A MAIS VASTA COMPANHIA CONTRA/ A EPIDEMIA DA PESTE E FEBRE/ AMARELA FOMENTANDO VACINAÇÃO EM/ MASSA DO NORTE A SUL DO BRASIL». (BRAZILIAN DOCTOR WHO HAS UNDERTAKEN THE BIGGEST CAMPAIGN AGAINST THE PLAGUE AND YEL-

LOW FEVER EPIDEMIC FOSTERING MASS VACCINATION FROM NORTH TO SOUTH OF BRAZIL). In the lower part of the reverse, against the background of an open book, there is a medical emblem — a snake wrapped around the staff of Asclepius, and a burning lamp. On the left and on the right, there are the dates of Cruz's life, 1872 and 1917.

A bust, turned three quarters to the left, portrait of Oswaldo Cruz is placed in the center of the obverse (Fig. 13) of the Brazilian medal (Ø 60 mm, silver/bronze, author — Dias K., Mint of Brazil, 2000) [18]. It was dedicated to the 100th anniversary of the institute; Cruz was one of the its founders, and then the Head of it. The background for the portrait is a cross and a microscope; mosquitoes are depicted on the left, laboratory equipment — on the right and below. Below, on the left, there is a two-line inscription: «OSWALDO / CRUZ». Most of the reverse (Fig. 14) is the image of the main building of the Institute; on the top, there is a two-line inscription: «100/ANOS» (100 YEARS); on the bottom there is a two-line inscription: «FIOCRUZ/ 1900 2000».

FIOCRUZ is the Fundação Oswaldo Cruz (Oswaldo Cruz Foundation). The history of the foundation dates back to May 25, 1900 when the Instituto Soroterápico Federal was established. In May 1970, it was named the Fundação Instituto Oswaldo Cruz (Oswaldo Cruz Institute Foundation), adopting the acronym FIOCRUZ, which has been used since May 1974, when it took on its current name Fundação Oswaldo Cruz. FIOCRUZ is a scientific institution for research and development in biology. Today, this institution is a national health institute of the Brazilian government; it covers a large number of issues related to the health and well-being of the Brazilian population.

In 1913, Cruz was elected a member of the Brazilian Academy of Arts and Letters. In 1915, due to health problems, he resigned as Director of the Oswaldo Cruz Institute and moved to Petropolis, a small city in the mountains near Rio. On August 18, 1916, he was elected mayor of this



Fig. 9. Medal 1974. Obverse



Fig. 10. Medal 1974. Reverse



Fig. 11. Portuguese medal. Obverse



Fig. 12. Portuguese medal. Reverse



Fig. 13. Medal. 2000. Obverse



Fig. 14. Medal. 2000. Reverse



Fig. 15. Cruz award medal. Obverse



Fig. 16. Cruz award medal. Reverse

city. Cruz outlined an extensive urbanization project that he never saw completed. He died in 1917 at the age of 45.

Finally, the Oswaldo Cruz Award Medal of the Faculty of Medicine of the Federal University of Minas Gerais (Universiade Federal de Minas Gerais). This research university is situated in Belo Horizonte, Minas Gerais. It is one of the top 5 universities in Brazil and the largest federal university. The profile head portrait of Oswald Cruz, turned to the left, is placed in the center of the obverse (Fig. 15) of the medal (Ø 31 mm, gilded bronze). Around the circle there is an inscription in Portuguese: «UNIVERSIDADE DE MINAS GERAIS FACULDADE DE MEDICINA» (UNIVERSITY OF MINAS GERAIS FACULTY OF MEDICINE). The reverse (Fig. 16) contains a text. Above, three lines in Latin from Horace: «INTEGER VITÆ

SCELERISQUE PURUS» (UPRIGHT OF LIFE AND FREE FROM WICKEDNESS). Below there are two lines in Portuguese: «PRÊMIO/ OSWALDO CRUZ» (OSWALDO CRUZ AWARD). After the word «PRÊMIO» — a horizontal laurel branch.

Conclusions. Oswaldo Cruz is one of the outstanding specialists in experimental medicine and sanitation of the early twentieth century. The study of material sources such as art medals as an integral part of historical study, is an important stage in contemporary historical research. This study is a new step in the development of the history of biomedical science, supplementing the knowledge of artistic reflection of the origins of microbiology and epidemiology in medal art. Award and commemorative desktop medals have been studied, described, and introduced into scientific biomedical circulation.

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ОСВАЛДУ ГОНСАЛВІС КРУС

5 серпня 2022 року виповнилось 150 років від дня народження бразильського вченого, лікаря, бактеріолога, епідеміолога та медичного менеджера Освальду Гонсалвіса Круса (1872 – 1917), засновника бразильської мікробіології. Його особистість широко описана в матеріальних історичних джерелах: філателії, боністиці і нумізматиці (включаючи медальєрне мистецтво). Водночас, інформації, що міститься в літературних джерелах, недостатньо для введення художніх медалей у науковий біомедичний обіг. **Мета дослідження:** Дослідити та ввести в науковий біомедичний обіг художні медалі, пов'язані із життям і діяльністю Освальду Круса, матеріальні історичні джерела, які вивчає медальєрне мистецтво, як розділ спеціальної історичної дисципліни нумізматики. **Методологія:** В роботі використано як загальнонаукові (історичний, логічний), так і спеціальні (предметно-хронологічний, ретроспективний) методи. Вивчено нумізматичну, медичну та біологічну літературу, матеріали міжнародних нумізматичних аукціонів, сайти монетних дворів світу. **Результати:** Вивчено та описано нагородні та пам'ятні медалі Бразилії та Португалії, що стосуються життя та наукової спадщини Освальду Круса. Медалі були створені для вручення Освальду Крузу, іноземним і бразильським медичним установам з нагоди конгресів, ювілеїв Круса та його інституту - як нагороди. **Висновки:** Дане дослідження є новим кроком у розвитку історії біомедичної науки, що доповнює знання про художнє відображення діяльності Освальду Круса в медальєрному мистецтві. Речові історичні джерела — художні медалі дають змогу охопити сторінки біографії та наукової діяльності Освальду Круса в новій площині, ввівши медалі в науковий, біомедичний обіг.

Ключові слова: Освальду Крус, Інститут Освальду Круса, художня медаль, історія біомедичної науки.