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FROM PASSION TO SCIENCE: INSIGHT INTO THE HISTORY AND PRESENT STATE OF PIGEON-RELATED ARTIFACTS PRESERVED IN THE NIKOLA TESLA MUSEUM

ABSTRACT

Among the numerous artifacts, i.e., archival documents, monographs, serial publications, newspaper clippings, and personal and technical items, preserved in the Nikola Tesla Museum in Belgrade, there are two letters and three samples of pigeon supplements, sent to the famous scientist, engineer, and inventor, at his request, by the Philadelphia Seed Co. (Philadelphia, U.S.A.) in late 1937 and early 1938. The principal aim of the research was to (1) analyse the written sources and published literature that bring us closer to an understanding of his relationship with pigeons, among which are the previously mentioned documents of the correspondence; (2) investigate the physicochemical properties of the artifacts; and (3) perform microbiological analysis in order to determine the degree of contamination and to issue recommendations for their further housing in the museum if needed. Research has yielded new and interesting facts, almost unknown to date, from the famous scientist's life. Furthermore, it showed the nature of the investigated supplements: mineral hematite (T:27.35) and charcoal of various granulations (T:27.39; and T:27.40) and demonstrated the good condition of the preserved artifacts, with the degree of microbial contamination ranging from 1.5 to 4.0, and CFU g-1 from 3.85 to 214.29. The only documented contaminants are beneficial bacteria of the genus Bacillus, while moulds and pathogenic microorganisms in general were absent.

KEYWORDS: CHARCOAL, CONTAMINATION, CORRESPONDENCE, HEMATITE, MICROORGANISMS, NIKOLA TESLA, MUSEUM, PIGEONS, PRESERVATION, SUPPLEMENTS.

INTRODUCTION

Nikola Tesla (Smiljan, July 10th, 1856 – New York, January 7th, 1943), was an American scientist of Serbian origin, who contributed to science and the technical and technological progress of human civilization, mostly as the inventor of the rotating magnetic field, induction motor, polyphase alternating current and the complete system of production, distribution and use of

electricity. He constructed a generator of high-frequency currents and voltages, known today as the Tesla transformer, coreless transformer or Tesla coil. A long list of 311 patents in total, registered in 27 countries, is testimony to his vision and creativity, but also to his dedication to scientific research in the most diverse fields – from energy, radio engineering, wireless control, lighting technology, mechanical engineering and aviation, to the application of high-frequency and high-voltage electricity in industry and medicine (Маринчић 2006; Циврић и Стојљковић 2006) Like every great man, Nikola Tesla has his own oeuvre, but also an authentic life, interesting and intriguing for numerous researchers of the most diverse professions and orientations – from historians of science, electrical and mechanical engineers, computer scientists, telecommunications, aviation, and military experts, to medical experts, psychologists, ecologists and philosophers.

The great creators' legacy is a precious, authentic testimony about them and their works. It is a kind of source and an undoubted incentive for numerous researchers to penetrate the secrecy of their lives and, thus, discover their wishes, aspirations and achievements. Thanks to Tesla's careful preservation, despite the frequent changes in the locations where he lived and created, his legacy still exists, housed in the Nikola Tesla Museum[1] in Belgrade. The legacy is a unique entity consisting of archival documents, museum exhibits (personal and technical items), and library materials (monographs, serial publications, and newspaper clippings). It is kept, processed, and studied within the three collections of the Museum: Archive, Collective Fund, and Library. The most significant part of the fund is certainly the Tesla archive with over 156,000 documents – a historical testimony of his life and work, but also a first-class source, not only for the history of the technical and technological development of society from the end of the 19th and the first half of the 20th century, but also for the study of the contemporary lifestyle in the U.S.A. and Europe.

The Collective Fund of the Nikola Tesla Museum consists of nine collections with over 1,200 artifacts. The collection contains original technical items from the field of mechanical and electrical engineering, Nikola Tesla's personal and clothing items, medals and decorations he received, as well as fine and applied art items from his legacy.

The three objects from the legacy – samples of pigeon supplements – are not the result of his work and creativity, nor devices, parts of equipment, or materials used in his numerous pieces of laboratory research, but indisputable material evidence of his concern for the health of pigeons:"Venetian Red", "Charcoal No. 6", and "Charcoal No. 10", obtained by Nikola Tesla from the Philadelphia Seed Co. Since these artifacts have not been researched until now, the Nikola Tesla Museum and the Faculty of Biology, University of Belgrade took a joint step into this research with two main goals. The first was to present a part of Tesla's legacy for the first time and, therefore, new and interesting details from his life and work, while the second was to offer recommendations for better storage and preservation of these original artifacts in the future, if needed. In order to realize these goals, it was necessary to analyse and define the cooperation denominators between Nikola Tesla and the Philadelphia Seed Co. (archival documents – letters of correspondence), examine the physicochemical properties of the pigeon supplement artifacts, and determine the degree of microbial contamination.

DESCRIPTION OF THE PRESERVED ARTIFACTS

The archive of Nikola Tesla contains two original letters, sent to him by the employees of the Philadelphia Seed Co. in the U.S.A. (**Figure 1**). The content of the letters is of a business nature. No corresponding envelopes were preserved. The first document – a letter from Joseph B. Hertzfeld, director of the Food Department of the Philadelphia Seed Co. – was sent to Nikola Tesla at the New Yorker Hotel on November 22nd, 1937. In

[1] The Nikola Tesla Museum is a unique institution of science and culture and is entirely dedicated to the famous scientist, engineer, and inventor. It was founded by the decision of the Government of the Socialist Federal Republic of Yugoslavia on December 5th, 1952, and opened to the public on October 20th, 1955. The former family villa of the politician and industrialist Đorđe Genčić, located in Krunska Street, in the very centre of Belgrade, was designated as the Nikola Tesla Museum building. This representative building, built in 1929 according to the project of the famous Serbian architect Dragiša Brašovan, was declared a cultural monument in 1987.

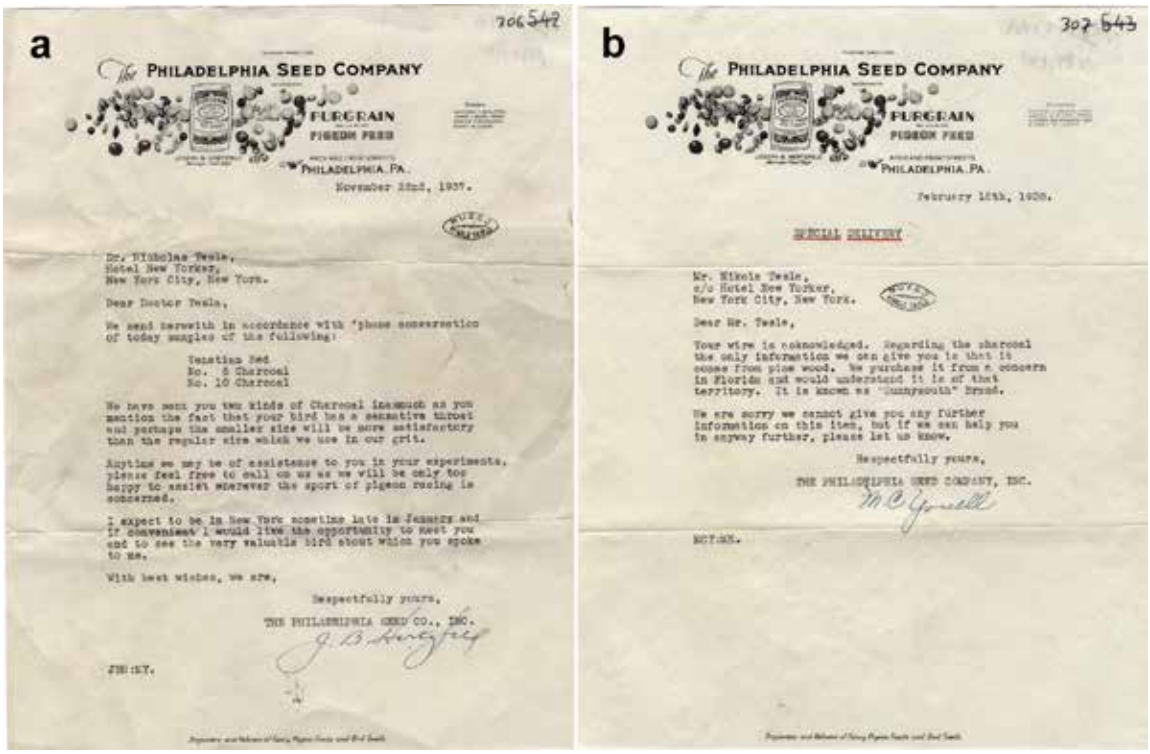

Figure 1. Letters of correspondence between Nikola Tesla and the representatives of the Philadelphia Seed Co.: a. Joseph B. Hertzfeld, November 22nd 1937; b. M.C. Yonell, February 12th 1938 (from Nikola Tesla Legacy, Nikola Tesla Museum, Belgrade).

the letter, Herzfeld pointed out that, in accordance with their telephone conversation, he was sending three samples of pigeon supplements, offered help with Tesla's experiments and everything related to pigeon racing, and then emphasised that he would come to New York at the end of the following January and use the opportunity to meet Tesla and see his "precious bird" (Nikola Tesla Legacy, MNT, LXI, 306A). The second letter was a response to Tesla's telegram, from M.C. Yonell, one of the Philadelphia Seed Co. employees, on February 12th, 1938, and contained details about the origin of the supplements and detailed Yonell's willingness to help Tesla with anything else that might be required (Nikola Tesla Legacy, MNT, LXI, 307A).

Three samples of pigeon supplements, delivered to Tesla's New York hotel at the end of 1937, are kept in the Collective Fund of the Nikola Tesla Museum, specifically in the collection of items from the field of chemical technology[2] (numbered T:27.35; T:27.39; and T:27.40) (**Figure 2**). The supplements are packed in specially made paper bags (83.27 [W] x 202.00 [L] mm). They are folded in half, which ensures that the supplements cannot be scattered. When the upper part of the bags are folded, their dimensions are 83.27 [W] x 100.45 [L] mm. In the mid-top section of the folded part (lid), a semi-circular part is cut, so that the bags can be opened more easily. On the lower front parts of the bags, the name and address of the store is printed: The Philadelphia Seed Co. (Incorporated), Arch and Front Streets, Philadelphia, Pa., U.S.A. On the same side, typed, are the supplement names ["Venetian Red" (T:27.35); "Charcoal No. 6" (T:27.39); "Charcoal No. 10" (T:27.40)], underlined in red.

[2] Collections of items from the field of chemical technology consist of 60 different museum artifacts, namely: 24 metal samples (copper, iron, steel, nickel, aluminium, anodized aluminium, zirconium, chromium, lead), three metal vessels, 2 graphite vessels for melting metals (one incomplete), two zirconium vessels, 5 wooden boxes with glass vials containing fine oil for lubricating chronometers, powder samples (charcoal, mineral hematite), several samples of steel, nickel, and silver wires and rods, as well as analytical scale with an associated set of weights.

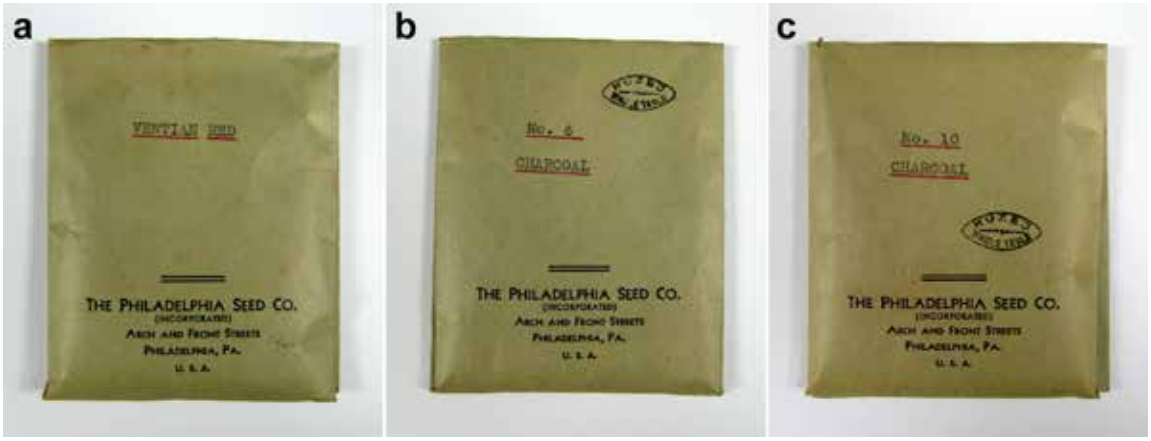

Figure 2. Samples of pigeon supplements kept in the Collective Fund of the Nikola Tesla Museum: a. "Venetian Red" (T:27.35); b. "Charcoal No. 6" (T:27.39); c. "Charcoal No. 10" (T:27.40) (from Nikola Tesla Legacy, Nikola Tesla Museum, Belgrade).

MATERIALS AND METHODS

Characterisation of the supplements

Raman spectroscopy

The analysed samples were pulverised in an agate mortar, tableted using a hand press, and spectra were collected using a Thermo Scientific DXR Raman spectroscope coupled with an Olympus confocal microscope with a 50x objective lens. The spectroscope was equipped with a 780 nm solid state laser. The acquisition time was 50 s. The spectrum was obtained from the surface of the tableted sample and OMNIC Specta Software (Thermo Scientific) was used for processing the spectra. Identification was carried out by comparing the obtained spectra with reference spectra of different carbon sources.

Stereomicroscopic observations

The morphology of the pigeon supplements was analysed using a Nikon SMZ 745T stereo microscope equipped with a Dual Sight 1000 camera.

Scanning electron microscopy and energy-dispersive X-ray spectroscopy

For the scanning electron microscopy with energy-dispersive X-ray spectroscopy, the analysed supplements were put on adhesive carbon tape on aluminium cylinders. The images and spectra were obtained at the University of Belgrade—Faculty of Mining and Geology, using a JEOL JSM–6610LV microscope coupled with an X-Max energy dispersive spectrometer. The samples were gold coated (d = 15 nm, ρ = 19.2 g/cm^3) using a Leica EM SCD005 sputter coater. Secondary electron and backscattered electron images were obtained using a W-filament gun, at 20 kV acceleration voltage in high-vacuum mode (15–30 μPa of pressure in the sample chamber) and with magnifications ranging from 150 to 30,000×.

Determination of the degree of contamination

ATP bioluminescence method

To assess, in situ, the degree of total contamination of the studied artifacts, with microorganisms and organic residues, the ATP bioluminescence method was applied (Unković *et al.*, 2019). For this, ATP swabs and the Lightning MVP portable luminometer (BioControl Systems) were used on all artifacts. The results were compared to the manufacturer's provided reference scale and placed in one of the three categories of contamination (*zone of cleanliness*): clean zone (0.0–2.5); caution zone (2.5–3.0); and danger zone (3.0–7.5).

Isolation and identification of microorganisms

Sampling for microbiological analysis was conducted on April 4th, 2020, using sterile cotton

swabs. In laboratory conditions, samples were diluted in 10 ml of sterile dH_2O and agitated mechanically for 10 min, after which 1 ml of the resulting aliquot was inoculated on a general growth medium, Malt Extract Agar (MEA), recommended for the detection, isolation and enumeration of fungi, particularly yeasts and moulds, as well as bacteria, in various materials. The inoculated plates were incubated at 25 ± 2 °C. After an incubation period of 7 days, the plates were analysed and isolated microorganisms were identified on the basis of colony morphology. The grown colonies were also counted and the results were expressed as Colony Forming Units per gram of sample (CFU g^{-1}).

RESULTS AND DISCUSSION

Historical background of the artifacts

Nikola Tesla published six autobiographical articles in the magazine "Electrical Experimenter", from February to October 1919. He wanted to present events from his life in an interesting way in a renowned and very popular American magazine and, thus, pique the interest of the young generation in science and scientific-technical research. In the March issue of the magazine, he presented an interesting detail from his earliest childhood. It was related to the relocation of his family from the village of Smiljan to the nearby town of Gospić. Of this, he says: "*It almost broke my heart to part from our pigeons, chickens and sheep, and our magnificent flock of geese which used to rise to the clouds in the morning and return from the feeding grounds at sundown in battle formation, so perfect that it would have put a squadron of the best aviators of the present day to shame*" (Tesla 1919: 843).

As a boy, Tesla enjoyed feeding pigeons, and chickens and other poultry, taking them in his arms, and hugging and caressing them. In a letter addressed to Pola Fotić, the daughter of Konstantin Fotić (1891–1959), he stated that, from time to time, he played in the poultry yard. There were days, says Tesla, *when* "*our geese, led by the gander, rose high in the air and flew down to the meadow and brook where they sported like swans in the water and probably found some food. I would then feed and pet the pigeons, the poultry and our grand resplendant* [*sic*] *cock, who liked me. In the evening, the gander brought back his flock, who made a few turns above the house and then came down with a deafening noise. The sight of the flying geese was a joy and inspiration to see*." (Tesla 1939)

One could say that the love and care of animals were exalted feelings that Tesla took with him from his native Smiljan and that he would express regularly in the latter part of his life, especially with regard to pigeons. He did this in various ways: by feeding flocks of pigeons in public places (New York Public Library Square on 42nd Street and St. Patrick's Cathedral Square on 50th Street), by keeping and feeding the birds in his hotel room, but also by his selfless care for their wellbeing when they were sick.

John Joseph O'Neill (1889–1953), in his book "Prodigal Genius: The Life of Nikola Tesla" presented several interesting details from the scientist's life related to feeding and caring for pigeons. He says: "*When he [Tesla] appeared and sounded a low whistle, the blue, brown and white-feathered flocks would appear from all directions, carpet the walks in front of him and even perch upon him while he scattered bird seed or permitted them to feed from his hand*." (O'Neill 1944: 307–308)

On a given day each week, Tesla would have one of his secretaries buy three pounds each of rape, hemp, and canary seeds, and then they would mix them all. Every day the scientist would take a paper bag, fill it with seeds, and go to feed the pigeons. In addition to feeding the birds in the street, Tesla also kept them in his hotel rooms. He had baskets for up to four pigeons, and a big bowl of seed nearby.

One day in 1921, Tesla became seriously ill in his office on 40th Street. As the symptoms became more severe, he realised that he would not be able to return to his room in the St. Regis Hotel. He called the secretary and gave her precise instructions on what needed to be done. She was to call the hotel, find the maid on the 14th floor, and convey Tesla's message to her to feed the dove that day – "a white female with grey wings" – and to do so regularly until further notice. A few months later, O'Neill said, Tesla did not show up at the office one morning. He stayed in the room because he had to take care of his sick dove. For the next few days, he did not come to work (O'Neill 1944: 309–311).

This activity caused numerous misunderstandings with the hotel management and staff. Of this O'Neill writes: "*Great flocks of them [pigeons] would come to his windows and into his rooms, and their dirt on the outside of the building became a problem to* [*sic*] *the management and on the inside to* [*sic*] *the maids.*" The scientist tried to solve the problem by putting the birds in a large basket and moving them to his close associate's estate outside of New York. However, as soon as the birds were released, they would immediately return to the hotel. The hotel management made it clear to Tesla – he would either have to stop feeding them or move out. He moved out. After that, he lived in the "Pennsylvania" hotel and the "Governor Clinton" hotel, but, unfortunately, the outcome was the same in both. From 1933, he lived in the "New Yorker" hotel, where he spent the last years of his life (O'Neill 1944: 312–313).

Sava Kosanović (1894–1956), the youngest son of Tesla's sister Marica, also wrote about the fact that the scientist used to feed the pigeons. In his text entitled "With Nikola Tesla", Kosanović states: "*After dinner, Tesla takes the already prepared bag of pigeon food and goes for a walk. In front of the magnificent building of the Public Library, on Fifth Avenue, Tesla scatters the food to the pigeons, who gather there, like in St. Mark's Square in Venice. It is his favorite pastime and leisure. Entertainment imbued with feelings.*" (Косановић 1927: 4)

Another interesting event related to this activity was described by John O'Neill. He stated that in 1916, Tesla was awarded the Edison Medal.[3] However, a few moments before the award ceremony at the Engineers' Club in May 1917, the celebrant disappeared. Bernard Arthur Behrend (1875–1932), chairman of the Edison Medal Executive Committee, noticed that the celebrant, before leaving the room, fed the pigeons and put a paper bag in the pocket of his formal suit. Behrend realised what was happening and rushed out to the nearby Bryant Park library, only to witness an amazing site:

"*In the center of a large thin circle of observers stood the imposing figure of Tesla, wearing a crown of two pigeons on his head, his shoulders and arms festooned with a dozen more… On either of his outstretched hands was another bird, while seemingly hundreds more made a living carpet on the ground in front of him, hopping about and pecking at the bird seed he had been scattering*." (O'Neill 1944: 231–235)

In the text of the article entitled "Dr Tesla Gives Home to an Errant Pigeon That Flew Into 40th-Storey Room in Hotel", published in the *New York Times* on February 6th, 1935, it was stated that the previous day, a maid on the 40th floor of the New Yorker hotel had telephoned the management to say that she had found a carrier pigeon in one of the vacant rooms. While the management was trying to solve the problem, the maid mentioned it to Nikola Tesla since she knew from experience that Tesla loved pigeons and would be able to help them. Since he already kept one convalescent pigeon in his room, he pointed out that the two could keep each other company. He examined the bird and concluded that it was not sick, but hungry and a little upset, because, in the absence of anything edible, it had eaten snow. (Anon. 1935).

Two years later, on May 1st, 1937, the *New York Times* published a related article. The text entitled "Tesla Is Provider of Pigeon Relief" confirms that Tesla was still taking care of the pigeons, though not personally. The previous autumn he had hired a young Western Union messenger named John Lucan to feed the birds in Bryant Park twice a day. Lucan also took care of the sick birds and made sure they had enough water during the winter, when the fountains are dry. The journalist stated that the scientist had been interested in pigeons for seventy-five years, since his earliest childhood in his native village of Smiljan (Anon. 1937).

Analyses of the artifacts

In order to examine the present state of the pigeon supplements kept in the Collective Fund of the Nikola Tesla Museum, their physicochemical properties, as well as the total degree of microbial contamination, were determined.

[3] The Edison Medal was established by a group of friends, associates, and admirers of the great scientist and inventor Thomas Alva Edison (1847–1931), at the American Institute of Electrical Engineers (AIEE). It was established on his 57th birthday, February 11, 1904, to commemorate the 25th anniversary of the successful introduction and commercial development of the incandescent lamp he had invented. The award is given for achievements in the field of electrical science.

Physicochemical properties of the artifacts

The mass of the studied artifacts, both the total and that of the supplements alone, as well as their chemical composition, are summarised in **Table 1**. Raman analysis of the chemical composition of supplements has shown that the "Venetian Red" supplement (T:27.35) is an iron oxide with a trace of chalk, i.e., the mineral known as hematite (α-Fe_2O_3) (**Figure 3a**). At the same time, both "Charcoal No. 6" (T:27.39) and "Charcoal No. 10" (T:27.40) are derived from charcoal (**Figures 3b and 3c**) and are the same type of supplement but of a different granulation (**Figure 4**). These findings were further supported by scanning electron microscopy and energy-dispersive X-ray spectroscopy, which not only gave an insight into the finer details of the supplements' morphology, but also confirmed their chemical composition. Both "Charcoal No. 6" and "Charcoal No. 10" were shown to be composed of C and O, with miniscule impurities of Ca and K, while "Venetian Red" is composed of O and Fe, with admixtures of Ca, S and C (**Figure 5**). Further analysis of the supplements' morphology, observed under the lens of the stereo microscope, has demonstrated that "Charcoal No. 6" is composed of rough-surface grains of mostly uniform size, while "Charcoal No. 10" demonstrates a variety of shapes, of unequal size and surfaces ranging from rough to glassy. According to the letter that Nikola Tesla received from the seller, both charcoal samples (1) were obtained by processing pine wood growing in the area of Florida ("*the only information we can give you is that it comes from pine wood*") (Nikola Tesla Legacy, MNT, LXI, 307A), (2) are smaller than the regular grain size, and (3) are suitable for birds with sensitive throats ("*as you mention the fact that your bird has a sensitive throat and perhaps the smaller size will be more satisfactory than the regular size, which we use in our grit*") (Nikola Tesla Legacy, MNT, LXI, 306A).

Artifact code	Mass (g)		Chemical composition
	paper bag + supplement	supplement	
T:27.35	35.4891	30.7853	hematite (α-Fe_2O_3)
T:27.39	5.5429	1.3184	charcoal (C)
T:27.40	14.9062	10.6575	charcoal (C)

Table 1. Mass (g) and chemical composition of pigeon supplements kept in the Collective Fund of the Nikola Tesla Museum

Present state of the artifacts

Analysis of the microbial contamination demonstrated a "very pale microbial print", which indicates the good condition of the preserved pigeon supplements, with the degree of microbial contamination in the range of from 1.5 to 4.0, and CFU g^{-1} in the range of from 3.85 to 214.29 (**Table 2**). Supplement T: 27.35, i.e., "Venetian Red", was in the best condition, with a zone of cleanliness value of 1.5 (clean zone) and a mean CFU g^{-1} of 3.85. In all three cases, the only documented contaminants are beneficial (good) bacteria of the genus *Bacillus*, with a total absence of pathogenic and deteriogenic microorganisms (**Figure 6**). It is very indicative that filamentous micromycetes (moulds) were not detected in any of the analysed

Artifact code	Zone of cleanliness	CFU g^{-1}	Isolated microorganisms
T: 27.35	1.5 (clean zone)	3.85	Bacteria
T: 27.39	2.8 (caution zone)	214.29	Bacteria
T: 27.40	4.0 (caution zone)	16.66	Bacteria

Table 2. Degree of microbial contamination of pigeon supplements kept in the Collective Fund of the Nikola Tesla Museum

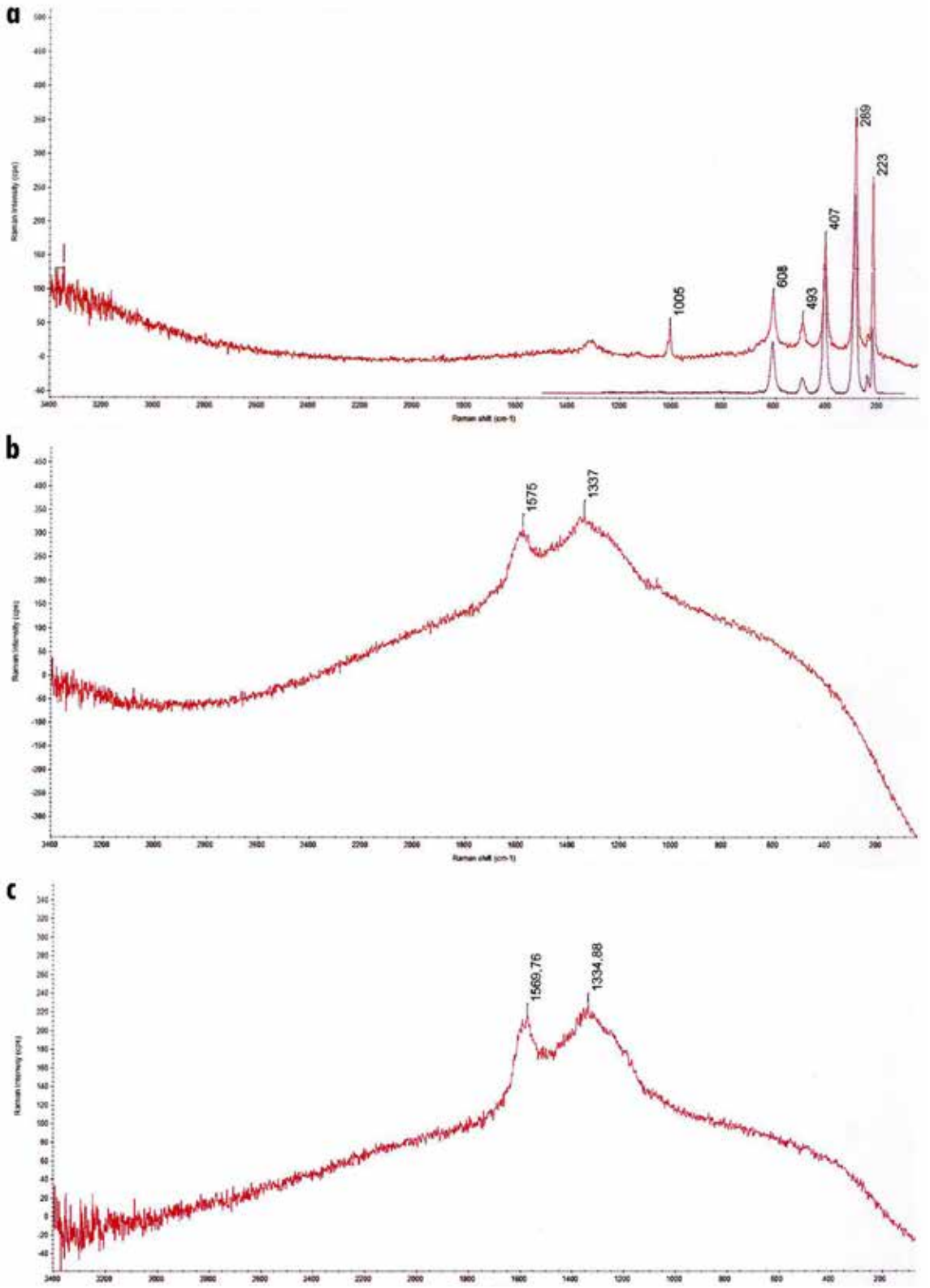

Figure 3. Raman spectroscopic analysis of pigeon supplements kept in the Collective Fund of the Nikola Tesla Museum: a. "Venetian Red" (T:27.35) – hematite; b. "Charcoal No. 6" (T:27.39) – carbon; c. "Charcoal No. 10" (T:27.40) – carbon.

Figure 4. Morphology of pigeon supplements kept in the Collective Fund of the Nikola Tesla Museum, observed under a stereo microscope: a. "Venetian Red" (T:27.35); b. "Charcoal No. 6" (T:27.39); c. "Charcoal No. 10" (T:27.40).

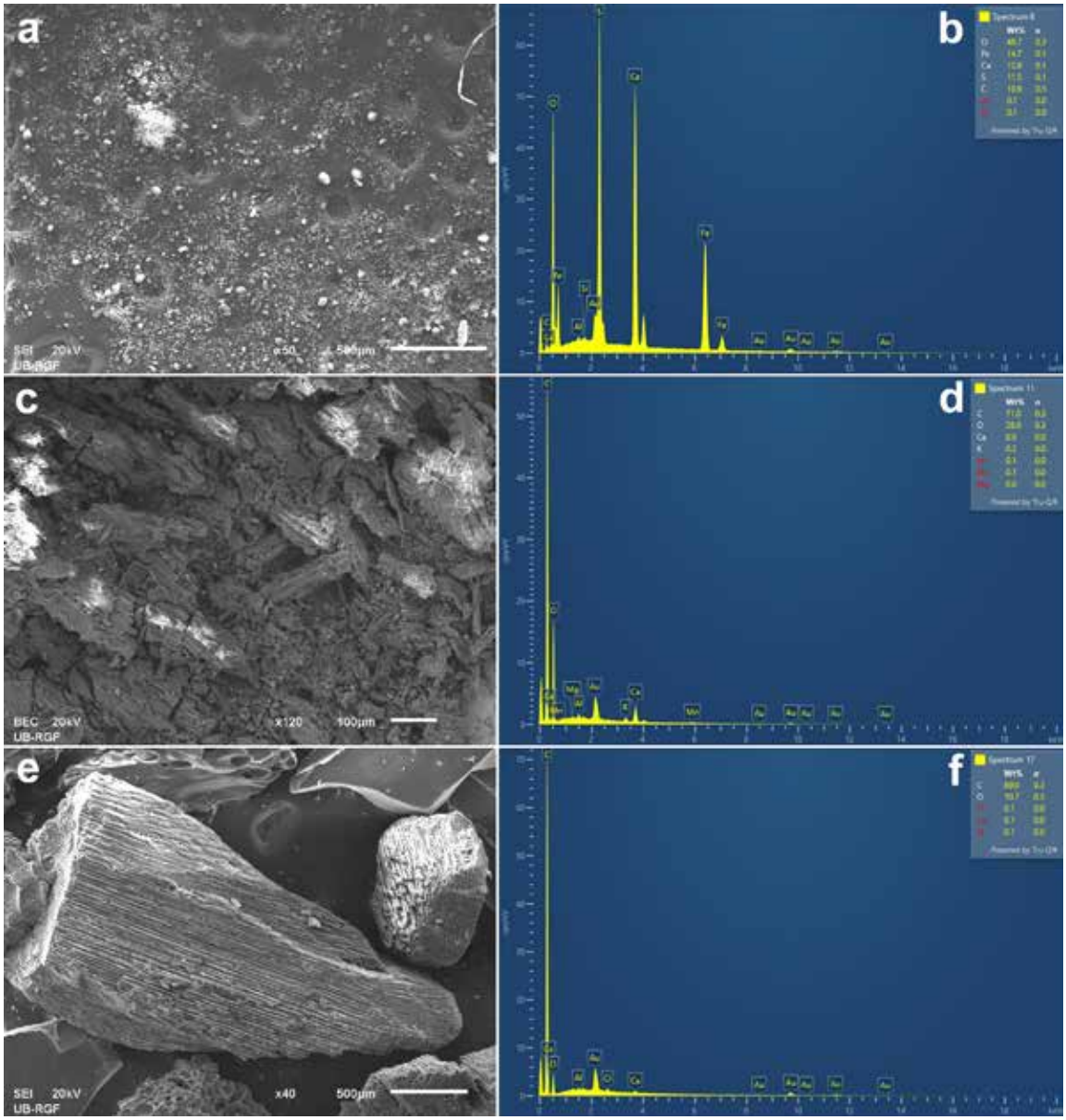

Figure 5. Morphology and chemical composition of pigeon supplements kept in the Collective Fund of the Nikola Tesla Museum, analysed with scanning electron microscopy coupled with energy-dispersive X-ray spectroscopy: a, b. "Venetian Red" (T:27.35); c, d. "Charcoal No. 6" (T:27.39); e, f. "Charcoal No. 10" (T:27.40).

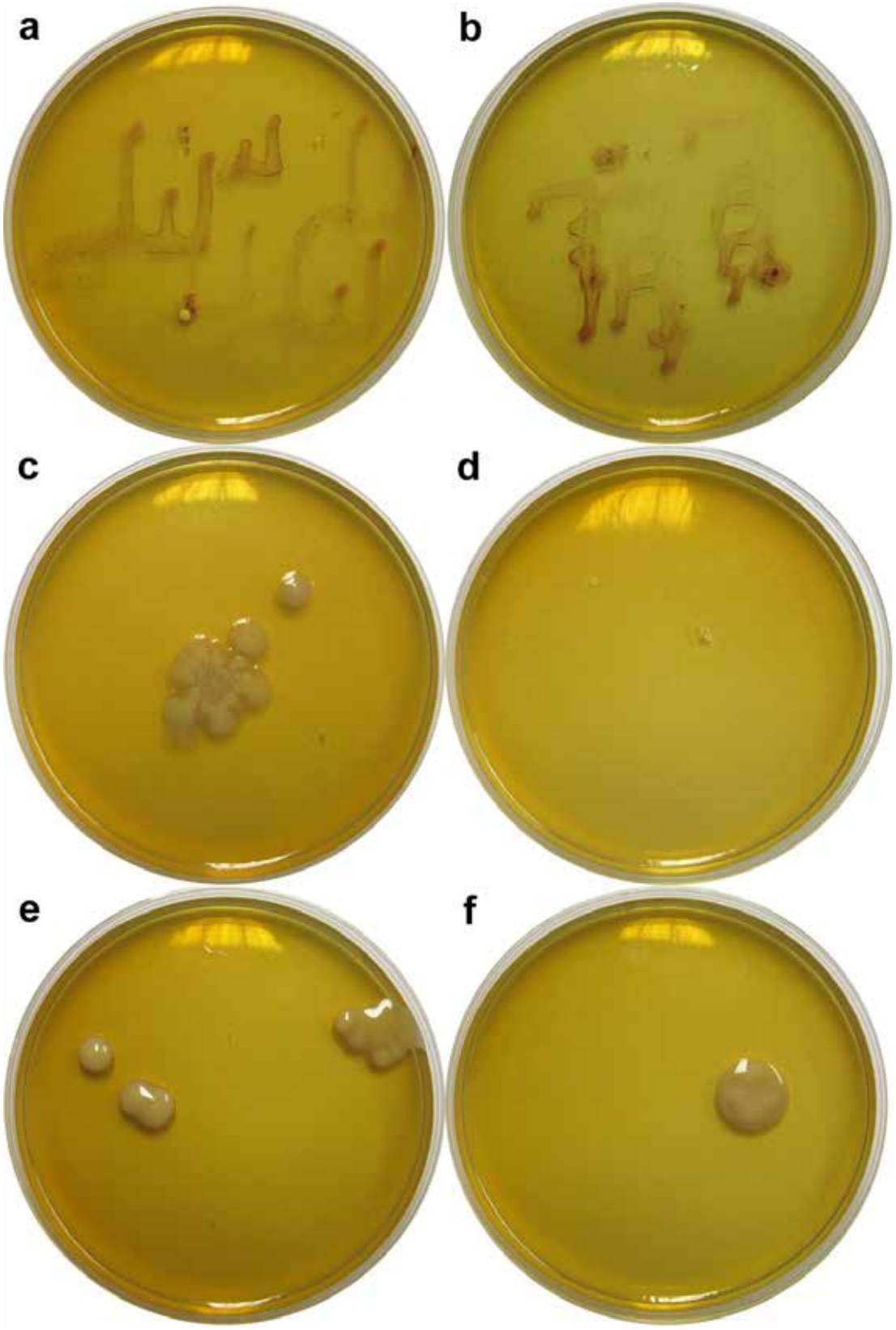

Figure 6. Microbial contamination of pigeon supplements kept in the Collective Fund of the Nikola Tesla Museum, observed under a stereo microscope: a, b. "Venetian Red" (T:27.35); c, d. "Charcoal No. 6" (T:27.39); e, f. "Charcoal No. 10" (T:27.40).

supplements. It is even more surprising that the supplements Nikola Tesla fed to the pigeons are almost sterile, even today, after nearly a century since their production.

CONCLUSION

Tesla was an enigma during his lifetime. Neither his close friends nor acquaintances could boast of either knowing or being able to explain him well. At the very least, a man who did not live like all the other people of the era was the subject of particular interest, and sometimes ridicule and disbelief. Numerous legends circulated about him, and when not always having enough material to determine his true character, human curiosity sometimes tried to construct it using various fragments, insufficiently verified, sometimes inaccurate, grouping them according to their own beliefs and perspectives. It is little wonder that the image formed in this way was inappropriate and, very often, wrong. For the sake of truth, the data about his personality need to be researched, systematised, and clearly presented to the scientific and professional community, as well as to the general public.

Based on the preserved documents of the correspondence between Nikola Tesla and the Philadelphia Seed Co., as well as numerous other analysed literature sources and paper clippings, it is quite clear that the famous scientist had a pronounced passion for pigeons and other birds, which entailed tender care for their wellbeing and a healthy diet. This care is not only seen in his nurturing behaviour towards pigeons but is also reflected in the chemical composition of analysed supplements he ordered from the Philadelphia Seed Co., i.e., hematite and charcoal, which presumably acted as a source of iron and assisted in the removal of toxins in pigeons.

Over the course of his rich scientific, engineering and inventing career, Nikola Tesla received 116 basic patents, with which he protected a total of 125 of his inventions. The remaining 195 patents represent their analogues. It is very interesting for our research that his last activity related to the protection of industrial property came on June 23rd, 1938, when he submitted his only trademark application, with which he protected a special type of food for poultry. The name of his food was "Factor Auctus" - "growth factor". The US Patent Office registered the trademark under number 372,906 on November 21st, 1939 (Šarboh 2007: 104).[4] The reason for this work in a new field was probably his long-term concern for pigeons, but also his curiosity about many scientific fields, something that was also visible in his correspondence with the Philadephia Seed Co. regarding his interest in the origin of the pigeon supplements.

Nowadays, although almost a century old, pigeon supplements presented in this paper and kept in the Collective Fund of the Nikola Tesla Museum, are still practically sterile, which indicates decades of responsible and professional care for the wellbeing of artifacts in Tesla's legacy, which should continue unchanged in the future.

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REZIME

OD STRASTI DO NAUKE: ISTORIJA I STANJE ARTEFAKATA POVEZANIH SA GOLUBOVIMA IZ TESLINE ZAOSTAVŠTINE U MUZEJU NIKOLE TESLE

KLJUČNE REČI: DRVENI UGALJ, KONTAMINACIJA, PREPISKA, HEMATIT, MIKROORGANIZMI, NIKOLA TESLA, MUZEJ, GOLUBOVI, ČUVANJE, SUPLEMENTI.

Među mnogobrojnim artefaktima (arhivska dokumenta, monografske i serijske publikacije, novinski isečci, lični i tehnički predmeti) koji se čuvaju u Muzeju Nikole Tesle u Beogradu, nalaze se dva pisma, kao i tri uzorka suplemenata za golubove koje je čuvenom naučniku, inženjeru i pronalazaču, na njegov zahtev, poslala Filadelfijska semenara (država Pensilvanija) krajem 1937. i početkom 1938. godine. Ciljevi ovog istraživanja bili su: (1) analiza pisanih izvora i literature koji nam govore o Teslinoj ljubavi prema golubovima, među kojima su i napred pomenuta dokumenta prepiske; (2) utvrđivanje fizičko-hemijskih svojstava suplemenata za golubove iz Tesline zaostavštine; i (3) sprovođenje mikrobiološke analize u cilju procene stepena kontaminacije, i u skladu s rezultatima izdavanje preporuke za njihov smeštaj i dalje čuvanje. Istraživanje je pružilo interesantne detalje iz Teslinog života i rada. Određen je hemijski sastav suplemenata: mineral hematit (T:27.35) i drveni ugalj različitog stepena granulacije (T:27.39 i T:27.40), i konstatovano dobro stanje sačuvanih artefakata, sa procenjenim stepenom kontaminacije u opsegu od 1.5 do 4.0 i CFU g^{-1} u opsegu od 3.85 do 214.29. Jedini zabeleženi kontaminanti uzoraka bile su dobre bakterije roda *Bacillus*, dok plesni i generalno patogeni mikroorganizmi nisu zabeleženi, što je pokazalo da su predmeti tokom proteklih decenija bili pod profesionalnom brigom stručnjaka Muzeja Nikole Tesle u Beogradu i da za sada nije potrebno izdavati dodatne preporuke za njhovo dalje čuvanje.

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(http://viminacium.org.rs/e-biblioteka/arheologija-i-prirodne-nauke/; http://viminacium.org.rs/en/e-biblioteka/archaeology-and-science/).