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Lunar crater names. The invisible face of epistemic violence shining upon us every night

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Abstract

Lunar craters are the only and most significant surface features of a planetary body in Outer Space that are visible to the naked eye. While we can only look at the surface of other planets and their moons through probes, robots and telescopes, the moon requires no instruments or technological tools to be seen. Despite this significant difference – that the Moon's surface features are visible to any human on a clear night, the history and current process of naming Lunar craters does not recognize that difference. Rather, Lunar craters are subject to the same type of seemingly scientific naming process as that ascribed to the remaining 40 planetary bodies in our Solar System that currently have a naming protocol for surface features. In this paper, I argue that both this lack of distinction and the resistance (under the umbrella of both historical precedent and scientific selenographic naming conventions) to name changes of prominent Lunar craters has resulted in a unique form of post-terrestrial epistemic violence – a violence evident in global social pedagogies of outer space that remain silent on this most important issue of who has the right to name the heavens.

Keywords

Lunar crater, Space, epistemic violence, pedagogy

Introduction

Geography, whether terrestrial or extra-terrestrial, occurs at an intersectional point between natural science and human culture. While certain elements of geography, such as the presence of a certain feature, are objective facts, other elements of the field must, by the very limits of language, be arbitrary products of culture

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and power. These limits extend to the broader force of social pedagogy – the culture of learning and knowing that shapes not just what we know, but how we come to know it. One of the major issues within social pedagogy is the deconstruction of colonial and ideological programming that is most evident in the categories we create to label and legitimize ourselves and others. This problem of categories "is called the problem of universals in philosophy. This is also the subject of landform ontology, which deals with feature classification and its standardization, and is defined as a formal specification of a shared conceptualization. The philosophical problem of universals is manifested in (...) the following question: "Do mountains exist?"[1] Or, more didactically, where does a mountain end? There is no singular line carefully drawn by nature that indicates, independent of human interpretation, that a mountain ends here. As we examine any particular feature at a more refined scale, that problem ultimately becomes scientifically intractable and culturally dependent. As such, it requires the introduction of typologies that are ideologically bound.

According to Feyerabend science includes 'ideological elements'.[2] These ideological elements are linked to what Bourdieu[3] refers to as 'agents of power' – institutional structures (universities, ministries, dictionaries, encyclopedias, etc..) that reinforce a particular classification as 'correct' and therefore 'true'. According to Fairclough, "Ideologies are closely linked, to power, because the nature of the ideological assumptions embedded in particular conventions, and so the nature of those conventions themselves, depends on the power relations which underlie the conventions; and because they are a means of legitimizing existing social relations and differences of power, simply through the recurrence of ordinary, familiar ways of behaving which take these relations and power differences for granted. Ideologies are closely linked to language, because using language is the commonest form of social behavior, and the form of social behavior where we rely most on common-sense assumptions."[4] The derivative of ideologies being linked to language is that they are also linked very closely to the particular names of things. A good historical example of this is the reversion of Leningrad to St. Petersburg once the Soviet Union dissolved. Nothing objectively changed, and yet a city of millions was suddenly a different city.

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[1] H.I. Hargitai, D. Page, E. Canón-Tapia, C.M. Rodrigue, *Classification and characterization of planetary landforms*, [in:] *Encyclopedia of planetary landforms*, New York 2015, https://doi.org/10.1007/978-1-4614-3134-3.

[2] *Ibidem.*

[3] D. Swartz, *Pierre Bourdieu: The cultural transmission of social inequality*, „Harvard Educational Review" 1977, *47*(4), p. 545–555.

[4] N. Fairclough, *Language and power*, London 1989.

In her famous work "Can the Subaltern Speak" Gayatri Spivak refers to Pierre Macherey's formulation for the interpretation of ideology. Macherey writes, "What is important in a work is what it does not say. This is not the same as the careless notation »what it refuses to say«, although that would in itself be interesting: a method might be built on it, with the task of measuring silences, whether acknowledged or unacknowledged. But rather this, what the work cannot say is important, because there the elaboration of the utterance is carried out, in a sort of journey to silence."[5] Few subjects of global significance have been more silent about the majority of humans on Earth than the Lunar Craters of the Moon. Everyone can see at least half of the larger craters on a clear night. And yet, the craters themselves are almost exclusively named for white male astronomers and scientists. That disparity is not am imbalance – it is an epistemic erasure carefully constructed and concealed through the rhetoric of historical precedent and standards of scientific nomenclature. It is a form of epistemic violence – violence that is the result of domination through the production and legitimization of knowledge and the derivatives of knowledge. Epistemic violence is, in many cases, almost invisible, because it comes across as liberation. But, in actuality, it is a work of persistent domination through the agency of 'legitimate' legitimization – only these institutions in these places with these 'credentials' have the right to proclaim a scientific fact as true. That is in incredible form of power, because it is ultimately the power to decide what is true.

The purpose of this paper is not to say that the work of lunar astronomers, scientists and outer space explorers does not deserve merit and distinction through the act of 'naming'. Nor is it to say that a consistent system of surface feature nomenclature for the planetary and other bodies of our Solar System is not needed. Rather, it is to say that the current system for doing so, with respect to Lunar craters, arbitrarily privileges certain groups over others in the name of objective science and, in so doing, perpetuates a new form of post-terrestrial epistemic violence that produces upon the bodies in Outer Space the same silencing and elimination of a voice that the colonial and post-colonial mechanisms of education, science and knowledge production have produced on Earth. Interestingly, not a single academic article about this specific gap appears to have been published. The only article found to date on the subject appears in the New York Times under the title: "An Artist Sketches the Giant Gender Gap on the Moon." The article reviews the work of the artist Bettina Forget. "She started underlining craters named for women. 'There was not much to underline,' Ms. Forget said. Of the 1,578 moon craters that had been named at that time, only 32 honored women (a 33rd was named

[5] G.C. Spivak, *Can the Subaltern Speak?*, [in:] *Colonial Discourse and Post-Colonial Theory*, Abingdon 1994, p. 66–111.

in February). 'I didn't expect 50 percent. I'm not that optimistic,' she said. 'But 2 percent? I was really shocked"[6] Ms. Forget completed sketches of all 32 craters. They have displayed at an "art gallery in Sherbrooke, Quebec and at the Rio Tinto Alcan Planetarium in Montreal."[7] The title of her series "Women With Impact" is "meant to highlight the underrepresentation of women in science, technology, engineering and math (STEM) fields," Ms. Forget said. "A crater is an absence of matter, a void," she said. "That's a parallel with a void of women in STEM."[8]

Ms. Forget's fundamental insight in her work is critical to understanding the nature of power and ideology. It is not merely what is said or named. It is also what is erased. Pierre Macherey's formulation of ideology as being explicitly linked to both what is said and what is not said is critical in understanding the history and current status of the names of Lunar Craters as a form of epistemic violence. "[Bourdieu's] episteme is the »apparatus« which makes possible the separation not of the true from the false, but of what may not be characterized as scientific' – ritual as opposed to crime, the one fixed by superstition, the other by legal science."[9] What Bourdieu characterizes as 'symbolic violence' and Spivak builds on and refers to as epistemic violence can best be thought of in this context as a silencing or elimination through the construction of a singular legitimate form of name production. That legitimate form, tasked with naming planetary surface features, rings, and natural satellites is the International Astronomical Union's (IAU) Working Group for Planetary System Nomenclature (WGPSN).[10] The paper is not specific critique of the WGPSN's internal working practices. The current iteration of the WGPSN's internal working group guidelines, for example, explicitly preferences women and under-represented groups in the World as preferred candidates for future Lunar Crater names. Nothing is mentioned, however, of two facts: the craters NOT named are quite small. Hence, preferencing historically under-represented groups through arbitrarily small crater designations only becomes, in effect, a peculiar type of post-colonial breadcrumb. In addition, as Spivak says, "I have tried to argue that the substantive concern for the politics of the oppressed which often accounts for Foucault's appeal can hide a privileging of the intellectual and of the 'concrete' subject of oppression that, in fact, compounds the appeal."[11]

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[6] K. Kornei, *An Artist Sketches the Giant Gender Gap on the Moon*, "New York Times" 2021, https://www.nytimes.com/2021/04/27/science/moon-craters-women.html [accessed: 3.01.2023].

[7] *Ibidem*.

[8] *Ibidem*.

[9] G.C. Spivak, *op. cit.*

[10] V.V. Shevchenko (et al.), *The IAU/WGPSN Lunar Task Group and the Status of Lunar Nomenclature*, 40th Lunar and Planetary Science Conference, March 23–27, 2009, https://www.lpi.usra.edu/meetings/lpsc2009/pdf/2016.pdf [accessed: 3.01.2023].

[11] G.C. Spivak, *op. cit.*

The work of the WGPSN represents exactly this specific type of intellectual privileging – not acknowledging the broader true context within which the WGPSN is situated. "The subaltern cannot speak. There is no virtue in global laundry lists with 'woman' as a pious item."[12] Lists that "add" women are not the same things as lists that "replace men". Rather, what is needed is an analysis of the ontologies of power within which the IAU is situated and the historical practices associated with Lunar Crater naming that have resulted in the current system of post-terrestrial epistemic violence.

A Statistical Survey of Current Lunar Crater Names

Lunar craters form about 95% of all named lunar features.[13] It is estimated that there are about 20 million craters on the Moon. Of the 20 million craters on the Moon, the vast majority (99%) are smaller than 20 kilometers in diameter. There are approximately 6,000 Lunar Craters that are larger than 20 kilometers in diameter. The earth and moon are tidally locked into an orbital pattern such that the time it takes for the moon to rotate on its axis (1 lunar day) is also the time it takes for the moon to rotate around the Earth. As such, we always see exactly the same side of the moon, the side we generally refer to as the 'near side'. The far side of the moon was not visible to humans until the Soviet Union launched the Luna 3 probe in 1959 that was able to successfully photograph the 'far side' of the moon. Of the 6,000 Lunar Craters larger than 20 kilometers in diameters, approximately 1600 are currently named. (The number changes on a frequent basis as new names are added.)

The following statistics, relevant to the 1600 or so named Lunar Craters will help contextualize the nature of the post-terrestrial epistemic violence that this paper addresses.[14] In general, the larger the crater two factors appear to be true – the earlier it was named and the more significant the person for whom it was named ought to be. Since the formation of the IAU (at which several hundred craters had already been named), the following significant years stand out: 1935 (567 Crater names added – all significant people); 1961 (27 Crater names of significant people added – 6 Russian, 6 French, 4 German, 3 Italian, 2 British, 1 Mongolian, 1 American and 1 Chinese); 1970 (515 large crater names are added, most from the far side – and a significant fraction refer to either Russian individuals or names relat-

[12] *Ibidem.*

[13] C.A. Wood, *The system of lunar craters, revised*, "The moon" 1972, *3*(4), p. 408–411.

[14] L.A. Andersson, E.A. Whitaker, *NASA catalogue of lunar nomenclature* (No. NAS 1.61:1097), 1982; S.G. Pugacheva, V.V. Shevchenko, *C2. Statistics and Systemaization of the names of the Lunar Nomenclature*, "A. Archaeo-astronomical objects" 2016, *22*, p. 226.

ed to the Soviet Union. This honors the fact that the Soviet Union was the first to photograph the far side of the Lunar surface); 1973 (57 Crater names added); 1976 (161 Crater names added); 1979 (68 Crater names added); 1988 (7 SS Challenger Crew names added); 2006 (8 SS Columbia Crew names added on the far side); 2009 (22 Noble prize winners added).

It is also statistically significant to note that of the 1600 or so named Lunar Craters, only 32 are named after women.[15] Because there are so few, it seems appropriate to name them. They are: Hypatia of Alexandria (355 or 370–415); Catherine of Alexandria (~287–~305); Nicole-Reine de la Briere Lepaute (1723–1788); Caroline Lucretia Herschel (1750–1848); Mary Fairfax Greig Somerville (1780–1872); Anne Sheepshanks (1789–1876); Catherine Wolfe Bruce (1816–1900); Maria Mitchell (1818–1889); Agnes Mary Clerke (1842–1907); Sofia Vasilyevna Kovalevskaya (1850–1891); Annie Scott Dill Russell Maunder (1868–1947); Williamina Paton Fleming (1857–1911); Annie Jump Cannon (1863–1941); Antonia Maury (1866–1952); Henrietta Leavitt (1868–1921); Mary Adela Blagg (1858–1944); Mary A. Proctor (1862–1957); Marie Sklodowska-Curie (1867–1934); Lise Meitner (1878–1968); Amalie Emmy Noether (1882–1935); Louise Freeland Jenkins (1888–1970); Priscilla Fairfield Bok (1896–1975); Gerty Theresa Radnitz Cori (1896–1957); Judith Arlene Resnik (1949–1986); Sharon Christa McAuliffe (1948–1986); Kalpana Chawla (1962–2003); Laurel Blair Salton Clark (1961–2003); Valentina Vladimirovna Nikolayeva Tereshkova (1937–); Marie Tharp (1920–2006); Elisabetta Pierazzo (1963–2011); Hildegard von Bingen (1098–1179); Dorothy Vaughan (1910–2008). Coincidentally, it is worth noting that there are more craters named for Jesuit priests (40) than women.

There has evolved, since the 1970s a clear Western/Russian duopoly on Crater Names. 128 new Lunar Crater names on the far side are named after Russians or significant features of the USSR. There are, in addition, 14 Lunar Craters on the near and far side named after significant individuals from China, 35 Lunar craters on the near and far side are named named after significant individuals from the Middle East, 9 Lunar craters on the near and far side are named after significant individuals from Japan, 7 Lunar craters on the near and far side are named after significant individuals from India and 1 is named after a significant individual from Africa.

The final statistical note about Lunar Crater names relates to 45 names that were proposed and then rejected in the 1980's. Rejected names included almost exclusively European writers, poets and artists, with the exception of: one Persian author, two Egyptian writers, one Nicaraguan author, one American writer, one Chinese writer and several authors from Greco-Roman antiquity. What these

[15] S.G. Pugacheva, V.V. Shevchenko, *op. cit.*

numbers demonstrate is that, for all practical purposes, the moon has been recolonized. A system has been created, and that system is defended as the only legitimate system of naming. As such, what new names appear, even if they all represent women and the global south, will also represent features on the Lunar surface that are small and insignificant. If there is going to be an equal distribution of names on the Moon that equitably represents the cultures and languages of Earth, it will not happen through the current system of the IAU.

The Current State of Lunar Crater Naming

While interpretations of shadows on the Moon as animals, faces or other distinct features common to Earth have occurred for thousands of years, a systematic attempt to name prominent Lunar Craters did not begin until 1645. "Michiel Florent van Langren produced a lunar map in 1645 [that] bore over 300 names, following the system of subdividing lunar topography into land masses and seas (a distinction based on Plutarch), and craters or peaks."[16] Unfortunately, neither Langren's approach to Lunar Crater naming, nor that of Johannes Hevelius, who introduced his own naming system in 1647 based on geographical correlates to Earth, survived. To quote the American idiom 'the third time's a charm', it was the 3rd attempt at lunar crater nomenclature, proposed by Giovanni Riccioli that survived. "Riccioli was a Jesuit professor at the University of Bologna in Italy who, in 1651, published his richly illustrated work *Almagestum Novum*, which included his lunar map (above). What Riccioli contributed to lunar nomenclature was a systematic approach to naming features: Craters were named after scientists and various celebrities and mountains for their terrestrial counterparts, while seas (maria) were assigned symbolic, fanciful names. Although other lunar cartographers would add new names and change some, the Riccioli hierarchy has survived to the present day."[17] "From the 244 names Riccioli proposed on his lunar map, 201 are still in use."[18] What is also significant to note is that the 201 names in use today are also among the most prominent and visible on the 'near side' of the Moon – the side that faces the Earth. While there are over one thousand named craters today, and the far side of the Moon has been both photographed and mapped since 1959 by the Soviet probe Luna 3, Riccioli's impact on Lunar Crater names stands out.

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[16] P.C.J. van der Krogt, F.J. Ormeling, *Michiel Florent van Langren and lunar naming*, [in:] J. Tort i Donada, M. Montagut i Montagut (ed.), *Els noms en la vida quotidiana. Actes del XXIV Congrés Internacional d'ICOS sobre Ciències Onomàstiques*, Barcelona 2014, p. 1851–1868.

[17] G. Seronik, *The Lunar Name Game,* Sky News, 2016, 18 October, https://www.skynews.ca/the-lunar-name-game/ [accessed: 6.12.2018].

[18] P.C.J. Van der Krogt, F.J. Ormeling, *op. cit.*

Since the time of Riccioli, the process of officially naming Lunar Craters has come under the purview of the International Astronomical Union (IAU) in Paris, France. "The IAU has been the arbiter of planetary and satellite nomenclature since its organizational meeting in 1919 in Brussels. At that time a committee was appointed to regularize the chaotic lunar and Martian nomenclatures then current. The IAU committee was an outgrowth of an earlier committee established in 1907 by the Council of the International Association of Academies, meeting in General Assembly in Vienna."[19] A Report of the committee in 1935 provided the first systematic listing of lunar nomenclature. "Later, 'The System of Lunar Craters, quadrants I, II, III, IV' was published by D.W.G. Arthur and others (1963, 1964, 1965, 1966), under the direction of Gerard P. Kuiper. These catalogues listed the names (or other designations) and coordinates of features in the current, greatly expanded lunar nomenclature; the accompanying map (also in four parts) showed their locations. These works were adopted by the IAU and became the recognized sources for lunar nomenclature."[20]

Significant changes were made to the work of the IAU after the Soviet Union's launch of the Sputnik satellite in 1957. The ability to send satellites and probes into Outer Space greatly altered the ability to photograph, identify and discover planetary and lunar features in Outer Space. "As detailed images became available of one newly discriminated extraterrestrial surface after another, the need to name features on these surfaces became evident. Once again the IAU assumed the task of expanding and overseeing planetary nomenclature so that the effort would proceed in an orderly, fair, and evenhanded way."[21]

What is most significant, at this point in history, is that the year 1957 coincides with the year that the first (not last) British Colony in Africa gained independence – Ghana. While the Sputnik may have changed the technological capacity of humans to map and discover the features of planets and moons in Space, a significant percent of humans lived in territories under colonial administration. The notion that Colonial empires could imagine a process a planetary nomenclature to proceed in fair and evenhanded way, when their very wealth and structure of Empire depended on global structural inequality and unfairness is ironic, to say the least. To put it simply, no system of naming planetary features in Outer Space could be considered fair or unbiased if the system in which it operated was, by its very design, both unfair and biased.

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[19] R.M. Batson, J.F. Russell, *Gazetteer of planetary nomenclature 1994* (No. 2129), US Department of the Interior, US Geological Survey, 1995.

[20] *Ibidem*.

[21] *Ibidem*.

Neither the birth of the space age, nor the emergence of a post-colonial era forced any kind of fundamental re-imagining of the system of Lunar Crater nomenclature. At the current time, the IAU has created a permanent executive level committee charged with official naming of all planetary features. According to their internal website: "The task of naming planetary surface features, rings, and natural satellites is managed by the International Astronomical Union's (IAU) Working Group for Planetary System Nomenclature (WGPSN). There are currently 15,361 IAU-approved surface feature names on 41 planetary bodies, including moons and asteroids. The members of the WGPSN and its task groups have worked since the early 1970s to provide a clear, unambiguous system of planetary nomenclature that represents cultures and countries from all regions of Earth."[22] The last line is worth highlighting, since it has proven to be technically true, but statistically insignificant – at least up to the present time. In order for a new Lunar Crater name to be approved there is a specific and formal process. "Name requests are first reviewed by one of six task groups (Mercury, Venus, Moon, Mars, Outer Solar System, and Small Bodies). After a task group has reviewed a proposal, it is submitted to the WGPSN. Allow four to six weeks for the review and approval process. Upon WGPSN approval, names are considered formally approved and it is then appropriate to use them in publications. Approved names are immediately entered into the database and shown on the website."[23] In addition, there are some general guidelines that the IAU has developed for a Lunar Crater name to be considered. These include: the names must be 16 characters or less in length; they should be one word; they should pronouceable; non-offensive; not similar to an existing astronomical object; not include pet animals; not be commercial in nature; no names of individuals, places or events principally known for political, military or religious activities; and, no names of living individuals. Finally, the official website of the WGPSN working group explicitly says: "The IAU avoids changing any planetary names because there are publications as well as old maps and globes with those names, and it causes confusion in the literature and research to change them. Therefore, we only recommend changing a name if absolutely and demonstratively required."

The question we are confronted with, from the lens of structural power, is simple: are these restrictions themselves a form of epistemic violence? To answer this question, we can look at the WGPSN from a critical lens. The current 9 members of the task group for Lunar Nomenclature consist of 2 women and 7 men. Four members come from the United States, 1 comes from Germany, 1 comes from Chi-

[22] T. Gaither, R. Hayward, *Working Group Planetary System Nomenclature*, "Planetary Nomenclature: An Overview and Update for 2017" 2017, *49*.

[23] *Ibidem*.

na, 1 comes from Russia, 1 comes from the Ukraine and 1 comes from the United Kingdom. Women are disproportionately not represented in the task group and there are no representatives from the Global south. The only exception is one of the American scientists on the task force who is of Egyptian origin.

The WGPSN attempted to address the broad issue of equity and inclusion by creating, since 2017, an equity and inclusion working group. The nine sections of the working group cover the following areas: visually challenged; hearing impairments; motor impairments; inclusive outreach; neurodiversity and mental health; hospitals, children's homes, nursing homes and prisons; best practice on enforcement of standards; Management of Diversity and Inclusion in Large International Collaborations and, finally, Migrants, Displaced People and Refugees, Underrepresented Ethnic Groups, Under-privileged.[24] Pierre Macherey's formulation of ideology comes to mind – what is important is what it does not say. While the sections of the working group focus on issues important to the advancement of science, they completely ignore the two major areas systematically under-represented and (practically) ignored in planetary surface feature nomenclature: women and the global south. Where they are mentioned are principally through the lens of outreach to, not the lens of learning from. Essentially, the WGPSN and IAU suffer from what Plato refers to so presciently in the Republic – who will watch the watchers? Can scientists be truly aware and interested in altering the very systems of power that legitimize them as scientists in the first place?

Carl Sagan understood this problem. "In 1973, in an atmosphere moving into international thinking, Carl Sagan proposed a new approach of naming: planetary nomenclature should represent not only science, philosophy and mythology of the western world, but the entire human culture."[25] Sagan's vision for a human culture-based approach to planetary surface nomenclature did not emerge from a vacuum. Rather, it emerged from a power struggle that had, at its root cause, the cold war in Outer Space. By virtue of the rapid and early achievements of the Soviet Union in photographing and mapping the far side of the moon, the Soviet Union fundamentally changed the power dynamic in the IAU and insisted on Russian names for the prominent features and craters of the far side of the moon. Internal debates and power struggles occurred within the IAU as the Soviet Union challenged, for example, the use of the Latin alphabet in naming. The challenges

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[24] A. Ortiz-Gil, L. Canas, *Working Group Astronomy For Equity And Inclusion. Triennial report 2018–2021*, [in:] M. T. Lago (ed.), *Transactions IAU. Reports on Astronomy 2018–2021*, Vol. XXXA, https://www.iau.org/static/science/scientific_bodies/working_groups/259/wg259-triennial-report-2018-2021.pdf [accessed: 3.01.2023].

[25] H.I. Hargitai, K.B. Shingareva, *Planetary Nomenclature: a Representation of human Culture and alien Landscapes*, [in:] A. Ruas (ed.), *Advances in Cartography and GIScience*, Vol. 2, Heidelberg 2011, p. 275–288.

to the IAU's authority even went to the UN and almost succeeded. "In 1971, the United Nations »Group of Experts on Geographical Names« (created in 1967) set up a »Working Group on the Names of Extraterrestrial Topographic Features«, as part of a global initiative on the »Standardization of Geographical Names«. Its Chairman, Dr. A.M. Komkov, from Moscow, wrote to A. Dollfus, then President of Commission 17 of the IAU a letter explaining that his Working Group had been tasked by the United Nations to take the lead on the problem of »extraterrestrial names«. Komkov attached a very critical review of the status of the IAU lunar nomenclature methods: this had to be changed, under the UN authority and following the recommendations of its Working Group, yet to be elaborated."[26] This challenge was a direct result of both advances in Soviet Lunar science and selenography and an understanding by the broader global community that the humanity 'being in space' also had an affect on humans 'named space'. "This was the start of a long struggle between the IAU and the UN, which lasted over ten years, until 1982, when the UN dissolved its Working Group and finally recognized the authority of the IAU on assigning »extraterrestrial names«. This important episode in the history of the IAU paradoxically was never brought up to the IAU top management, i.e., its Executive Committee, nor recorded in the IAU Transactions or any other official IAU document."[27] Rather, the IAU insists upon on its status as the only legitimate authority to declare names as official.

There appear to be a number of tools that the IAU uses to promote its structural dominance. The first is the insistence on using terms in Latin and in using the Latin alphabet. "Using terms in Latin and continuing the practice of using mythological names and introducing international names: all these factors contributed to alienate the extraterrestrial landforms alien enough on their own."[28] The second is a reflexive model of discursive practices that reinforces the legitimacy of the scientific community as an agent of decision-making in non-scientific matters. "According to the present view, planetary landforms are named in order to make scientific communication easy about them. They also serve to commemorate famous scientist, artists, philosophers etc. But at the same time, all these people belong to a particular nation, country, where people rightly think that the area which bears a name of their fellow citizen, belongs to them more than other areas."[29] Undoubtedly, the significant work of scientists and explorers should be acknowledged, but should it happen at the cost of a radically disproportionate representation of what human culture is? "When humans name a landform in a sense they also claim the

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[26] T. Montmerle, *What's in a name? When the UN Challenged the IAU (1971–1982), a Hidden Story*, [in:] T. Montmerle, D. Fauque (ed.), *Astronomers as Diplomats*, Cham 2022, p. 429–463.

[27] *Ibidem*.

[28] H.I. Hargitai, K.B. Shingareva, *op. cit.*

[29] *Ibidem*.

area to be their property: by naming they may feel that it belongs to them. This is the domestication of alien landscapes."[30] Whether intentional or not, this domestication of alien worlds is happening through a framework that echoes the very same inequalities of the 19th and 20th century colonial eras on Earth. We are, in fact, allowing the a dominant and male 'Global West' to engage in the same practices of silencing and negating as they have for centuries. We are allowing it because the process, ultimately, is not questioned. "A major problem is the opaque decision making process of IAU: it is never known why a particular name was selected."[31] Although the presence of a committee invites the idea of democracy, and although the IAU today has members from countries all around the World, the face of the moon, under the IAU's system of nomenclature will always be a colonial face of post-terrestrial epistemic violence. It should be noted that this is not meant to be a critique of the IAU as an institution. Rather, the purpose of this critical analysis is to situate the work of IAU within the broader system of epistemic violence that is the result of a domination of legitimacy that largely comes from Western Universities and scientific institutions.

Post-Terrestrial Epistemic Violence

Thus far, I have alluded in this text to the phrase post-terrestrial epistemic violence. I would like to conclude this paper by both contextualizing the term with respect to Lunar Crater names and explaining its broader significance beyond the issue of what Edward Said would surely refer to as the 'Orientalism' of the contemporary moon. Post Terrestrial Discourse is an exploratory study of the emergence of fields of power in near interplanetary space and the discourses that mediate those fields. The fields are the result of several forces converging together for the first time: the advancement of reliable and reusable rocket technology spurring a viable commercial outer space industry, the advancement of lunar exploration by multiple countries, the emergence of a persistent media presence in outer space and the challenges posed to the Outer Space treaty of 1967, as a result of which individual humans and corporations, not just governments, are creating or intend to create a permanent presence in outer space. At the intersection of all of these forces is a simple fact: for the first time we are confronted with a media and discourse created by humans, where the principle field of power for that media and discourse remains in outer space itself.

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[30] H. I. Hargitai, D. Page, E. Canón-Tapia, C. M. Rodrigue, *op. cit.*

[31] H.I. Hargitai, K.B. Shingareva, *op. cit.*

Post-terrestrial discourse refers to the long-term cultural meaning making in space through the usage of materials and media with the specific intention of altering and creating power in space for humans occupying, working in and colonizing that specific part of outer space – from LEO (Low Earth Orbit) to the Martian Surface. It is any word or object of culture or communication that has a potential to exert or alter power in space – as it relates to sustained human activities in space, to the production of human culture in space and to the development of sustained economies and colonies in outer space.

The names of planetary features, specifically those of the Moon, are the first and most powerful instances of expanding human culture into space, along with all of its sustained power imbalances and global inequalities. While all of the treaties about the use of Outer Space maintain that is meant for all humans and that it cannot be owned, that is, in fact, already untrue. Lunar crater names that eliminate women and the global south already indicate a type of colonial ownership of near outer space. Those treaties represent a new type of token inclusion that has become systemic – western institutions of knowledge production have co-opted the global 'practices and models' of inclusion and have brought to the marginalized parts of the world an imposed version of inclusion – one, that like all versions of colonialism, seeks to do good in the name of learning about and not from the lesser cultures. "Confronted by the ferocious standardizing benevolence of most US and Western European human-scientific radicalism (recognition by assimilation), the progressive though heterogeneous withdrawal of consumerism in the comprador periphery, and the exclusion of the margins of even the center periphery articulation (the 'true and differential subaltern'), the analogue of class-consciousness rather than race-consciousness in this area seems historically, disciplinarily and practically forbidden by Right and Left alike."[32] It is not only forbidden – it is erased. There are no debates about the presence of women or the Global south in the way that human beings are currently labeling, imagining and invading near Outer Space. There is, in fact, the opposite: an insistence that the Western model of inclusion is all that is needed to solve the problem.

Edward Said wrote, speaking of the Colonial era, "Orientalism expresses and represents that part culturally and even ideologically as a mode of discourse with supporting institutions, vocabulary, scholarship, imagery, doctrines, even colonial bureaucracies and colonial styles." Lunar crater nomenclature has recreated a new colonialism in Outer Space. I believe that this new colonialism can best be understood as a part of a broader set of post-terrestrial discourse practices. The reason is simple: to imagine the significance of the sustained and current model of Lunar Crater names, and other practices of naming and classifying in the Solar System

[32] G.C. Spivak, *op. cit.*

that reflect the same biases, we have only to consider the eventual and almost certain near future problem: a child moving to a Lunar colony and wondering why none of the places around them refer to someone like them.

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