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Dynamism in space and space dynamics: The influence of the new physics and technology on space-time imagery in selected literary works of American modernist writers of the 1940s and 1950s

Dynamika przestrzeni i dynamika w przestrzeni: Wpływ nowej fizyki oraz technologii na obrazowanie czasoprzestrzenne w wybranych utworach pisarzy amerykańskich z lat 40. i 50.

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SUMMARY

The dissertation constitutes an attempt to explore the intermedial relationship between the new scientific and technological achievements from the first half of the twentieth century and literature, with special focus being placed on the influence of Einstein's Theory of Relativity, outer space exploration, and the popularization of the scientific findings on the creation of literary space-time imagery in selected works of American late modernist prose of the 1940s and 1950s. The paradigm shift induced by Einstein's groundbreaking publication from 1905 known as the "Photoelectric Effect" paper not only ignited the revolution in the field of physics but also contributed to a series of socio-cultural changes in America. These are particularly intensified in the 1920s, during the period of high modernism, which coincides largely with the time of the greatest popularity of scientists such as Edwin Hubble, Arthur Eddington, Niels Bohr, or Max Planck to list just a few. The participation of some of the most prominent figures from the scientific community in the creation of popular science discourse places scientific achievements in new contexts, in which they create new, intermedial networks of interconnections and influences with the elements of popular and high culture. The intensification of efforts aimed at popularizing the new scientific achievements in the 1920s thus initiates an ongoing dialogue between scientific thought and more abstract, humanistic attempts to explore reality. The dialogue enters the period of revival in the 1940s and 1950s, mostly due to the fact that the second wave of increased interest in popular science coincides with the technicization of social life and the technicization of war in the 1940s. The 1950s, in turn, feature an invigorated interest in Einstein's Theory of Relativity. The scientific problems of time, space and their mutual relationship are once again placed at the center of both scientific and popular scientific discussion. For this reason the cultural, and therefore literary, image of the era is to a considerable extent shaped by achievements of science and technology. The above mentioned "Renaissance" of the Theory of Relativity in the 1950s contributes primarily to creating new sensitivities in ordinary perception and literary representation of time and space, proving the notions of absolute time and space as well as the traditional Newtonian perspective on the physical reality inadequate in the light of the new findings. The analysis of selected works of American prose from the 1940s and 1950s based on close reading allows to conclude that the relationship between literature and science is internally

complex and goes beyond the scope covered by the majority of studies exploring science fiction texts written during the late modernist period. Selected works by some of the leading American authors of the 1940s and 1950s, such as Ernest Hemingway's *Islands in the stream*, James Jones' *The thin red line*, Norman Mailer's *Barbary shore*, Flannery O'Connor's “The displaced person”, or James A. Michener's *The bridges at Toko-Ri* exhibit characteristics of the influence of new physics, space exploration and the technicization of life and war on literary space-time imagery. The new scientific findings are brought into literature by discourse series oscillating around the Theory of Relativity and other related scientific discoveries. Hence, the mechanisms of the influence of science on selected works of American late modernist prose is analyzed in the study within the conceptual framework of Foucauldian discourse analysis, as presented by the philosopher in "The order of discourse"; the text constitutes both a theoretical basis for the analysis as well as provides a repository of methodological tools applied in the present study. The subjective perception of space by the characters, the stratification of the represented worlds into overlapping, yet autonomous space-times with separate frames of reference, time as an internally incoherent phenomenon, alternative dimensions of time such as memory, imagined past, alternative present, the motif of the human body viewed in the categories of a microcosm, or a machine whose movement in space-time leads to its deformation, constitute the main thematic axes of the research on the influence of the new physics, the popularization of science and the technicization of life on American late modernist fiction of the 1940s and 1950s.

STRESZCZENIE

Rozprawa stanowi próbę zgłębienia intermedialnej relacji między nowymi osiągnięciami naukowymi oraz technologicznymi z pierwszej połowy XX w. a literaturą, ze szczególnym uwzględnieniem wpływu teorii względności Einsteina oraz badań związanych z eksploracją przestrzeni kosmicznej, a także ich popularyzacją w przestrzeni społecznej, na kreowanie światów przedstawionych w wybranych utworach prozy Amerykańskiej późnego modernizmu lat 40. oraz 50. ubiegłego wieku. Zmiana paradygmatu naukowego za sprawą przełomowej publikacji Einsteina z 1905 r. dotyczącej efektu fotoelektrycznego (ang. the „Photoelectric Effect" paper) zapoczątkowała nie tylko rewolucję naukową w dziedzinie fizyki, ale również przyczyniła się do szeregu zmian społeczno-kulturowych w Ameryce, których szczególne nasilenie przypada na lata 20. XX w., a więc na szczytowy okres modernizmu. Jest to czas największej sławy nie tylko Alberta Einsteina, ale również badaczy takich jak Edwin Hubble, Arthur Eddington, Niels Bohr, czy Max Planck. Uczestnictwo wybitnych postaci ze środowiska naukowego w tworzeniu dyskursu popularnonaukowego sprawia, że osiągnięcia z dziedziny nauk ścisłych wchodzą w zupełnie nowe konteksty, tworząc intermedialne sieci wzajemnych powiązań i wpływów z elementami kultury popularnej oraz wysokiej. Intensyfikacja działań mających na celu popularyzację nauki w latach 20. XX w. otwiera zatem stały dialog między myślą ścisłą a bardziej abstrakcyjnymi, humanistycznymi próbami zbadania rzeczywistości. Dialog ten przeżywa szczególne ożywienie w latach 40. i 50. XX w.; druga fala wzmożonego zainteresowanie nauką popularną zbiega się bowiem z technicyzacją życia społecznego oraz technicyzacją wojny w latach 40. ubiegłego wieku. Lata 50. z kolei przynoszą odrodzenie teorii względności Einsteina, ponownie stawiając w centrum dyskusji naukowej i popularnonaukowej kwestię czasu, przestrzeni oraz ich wzajemnej relacji. Kulturowy, a co za tym idzie, literacki obraz epoki kształtowany jest zatem w dużej mierze poprzez rozwój nauki oraz techniki. „Renesans" teorii względności w latach 50. XX w. przyczynia się przede wszystkim do budowania nowej wrażliwości na percepcję czasu i przestrzeni w literaturze, prowadząc do odejścia od tradycyjnej newtonowskiej perspektywy absolutnego czasu i przestrzeni. Analiza oparta na close readingu wybranych utworów prozy amerykańskiej z lat 40. i 50. XX w. pozwala stwierdzić, że związek literatury z naukami ścisłymi oraz technologią jest dość złożony i sięga znacznie dalej, niż wskazywałyby na to opracowania utworów science fiction

powstałych we wskazanym okresie. Wybrane utwory wiodących amerykańskich autorów lat 40. i 50. XX w., takie *Wyspy na Golfsztromie* Ernesta Hemingwaya, *Cienka czerwona linia* Jamesa Jonesa, Brzeg barbarzyńców Normana Mailera, „Uchodźca" Flannery O'Connor, bądź *Mosty Toko-Ri* James A. Michenera noszą wyraźne znamiona wpływu nowej fizyki, naukowej eksploracji przestrzeni kosmicznej oraz technicyzacji życia i wojny na sposób kształtowania literackich światów wyobrażonych. Treści te przenikają do literatury poprzez serie dyskursywne oscylujące wokół teorii względności i pokrewnych odkryć z dziedziny nauk ścisłych. Stąd też mechanizmy wpływu nauki na literaturę zbadane zostaną przy pomocy narzędzi metodologicznych zaczerpniętych z perspektywy teoretycznej na dyskurs zaproponowanej przez Foucaulta w „The order of discourse". Subiektywna percepcja przestrzeni przez bohaterów, rozwarstwianie się światów przedstawionych na nakładające się na siebie, a mimo to autonomiczne czasoprzestrzenie z osobną ramą odniesień, czas jako fenomen wewnętrznie niespójny, możliwe, alternatywne wymiary czasu, takie jak pamięć, przeszłość wyobrażona, alternatywna teraźniejszość, a także motyw ciała ludzkiego postrzeganego w kategoriach mikrokosmosu, bądź maszyny, której ruch w czasoprzestrzeni prowadzi do jej odkształcenia, stanowią główną oś tematyczną przedstawionych w niniejszej dysertacji badań nad wpływem nowej fizyki popularyzacji nauki oraz technicyzacji życia na prozę Amerykańską późnego modernizmu, klasyfikowaną poza gatunkiem science fiction.

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OŚWIADCZENIE

Ja, niżej podpisana Klaudia Borkiewicz, doktorantka Szkoły Nauk o Języku i Literaturze Uniwersytetu im. Adama Mickiewicza w Poznaniu oświadczam, że przedkładaną pracę dyplomową pt: *Dynamism in space and space dynamics: the influence of the new physics and technology on space-time imagery in literary works of selected American modernist writers of the 1940s and 1950s* napisałam samodzielnie. Oznacza to, że przy pisaniu pracy, poza niezbędnymi konsultacjami, nie korzystałam z pomocy innych osób, a w szczególności nie zlecałam opracowania rozprawy lub jej części innym osobom, ani nie odpisywałam tej rozprawy lub jej części od innych osób. Oświadczam również, że egzemplarz pracy dyplomowej w formie wydruku komputerowego jest zgodny z egzemplarzem pracy dyplomowej w formie elektronicznej.

Jednocześnie przyjmuję do wiadomości, że przypisanie sobie, w pracy dyplomowej, autorstwa istotnego fragmentu lub innych elementów cudzego utworu lub ustalenia naukowego stanowi podstawę stwierdzenia nieważności postępowania w sprawie nadania tytułu zawodowego.

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(czytelny podpis studenta)

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Introduction

Although literature and exact sciences are commonly seen as two radically divergent fields with few and comparatively rare points of contact, various forms of interaction between these two areas are still possible and frequently yield new, unexpected meanings. The cross-field influence resulting in either subtle inspirations or a thorough, large-scale fusion, usually takes the form of a dialogic relationships, which in the vast majority of cases assumes greater responsiveness on the part of literature.

Increased literary interest in science is particularly pronounced in 19th century literature; popularization of scientific achievements, both fueled by and fueling public curiosity about the newly discovered natural phenomena, creates a breeding ground for the proliferation of science-related themes in literary texts. Romanticized and mythologized, the motifs taken from chemistry, biology, or physics enrich 19th century literature with new influences, establishing a promising linkage between the scientific and the literary.

The beginning of the twentieth century brings unprecedented socio-cultural transformations. With the vast majority of the changes stemming from the development of science and accompanying technological advancement, the spirit of modernity remains to a considerable degree under the influence of scientific progress. Modernism as a new artistic and literary movement is therefore largely inspired by the achievements of science and technology, which played crucial role in setting the directions for the future and re-shaping the image of the present in the first decades of the twentieth century. Of particular importance for the adoption of the new literary and artistic approach towards reality are Einstein's groundbreaking discoveries presented by the scientist for the first time in a series of papers published in 1905 in *Annalen der Physik*. The young patent-

examiner's revolutionary theories on the nature of light, Brownian motion, mass-energy equivalence and, most importantly, the Theory of Special Relativity, made 1905 acquire the status of *annus mirabilis* not only in physics but in the entire modern culture.

Scientific and technological anchorage of modernism is perhaps most visible in America of the Roaring Twenties. The first two decades of the new century are marked with an increased public demand for the popularization of complex scientific theories, otherwise unintelligible for all those who for various reasons have no intellectual and/or physical access to the topics discussed by professionals in academia. As easily understandable and freely accessible scientific content becomes a highly desirable commodity for the general public, popular scientific magazines thrive, cherishing the golden era. Its true beginning is marked by the famous 1919 solar eclipse experiment conducted by a group of scientist headed by Eddington, one of the greatest advocates of Einstein's theories in Great Britain. The efforts undertaken during May 1919 expedition contributed to the confirmation of Einstein's scientifically controversial findings from 1905. As the validity of Relativity Theory is no longer a debatable issue, the old Newtonian perspective on the world is officially abolished. Relativity proves the concepts of absolute space and time insufficient in the light of the new findings and forces new sensibilities in the perception of reality, now viewed as the four-dimensional continuum.

The radical change of perspective on the world experienced by America of the 1920s finds its reflection in high modernist literature. Literary works created during the decade directly following the success of the solar eclipse expedition engage in a vibrant interplay with the new, socio-cultural context to a considerable degree shaped by science and technology. The profound paradigm shift challenges not only the ordinary ways of seeing space and time but also finds its way into literature, undermining the traditional literary outlook on the world, forcing writers to adopt a new, revisionist approach towards formerly unquestionable truths and, perhaps most importantly, generates an urgent need to devise fresh, more adequate ways of translating the spatio-temporal experience into the text. Therefore, American modernist poetics of experimentation, reality dismantling, and de-construction in the 1920s is firmly anchored in science-induced perceptual revolution. Modernist writers' play with artistic means of expression, compositional structure, and style, which constitute key features of 1920s literary aesthetics, can be seen as the echo of the experiments conducted in physics. In both cases, the effects achieved by means of either scientific or narrative exploration of the for-

merly unthought-of dimensions of reality are closely related to the distortion of the commonly accepted image of the world.

Since in the light of Einsteinian new physics neither space nor time can be treated as stable phenomena characterized by reliable qualities, their representation, or rather re-construction in high modernist American literature has to reflect the general mistrust towards the orderly vision of the world. In the pre-relativistic period, the commonly accepted image of reality was based on Newtonian mechanics – a set of laws essentially underpinned by a non-negotiable assumption that time and space function as absolute and to a considerable degree independent entities. Narrative space and time in the literary works of the peak period of modernism are therefore frequently subject to distortion, decomposition, and/or deformation, becoming a suggestive expression of the new, profoundly altered perceptual sensitivities.

The influence of science on literature and/or culture of both the early and the peak period of modernism is unquestionable and has been already discussed in various studies which pay particular attention to the specific role the scientific development and technological growth of the first decades of the twentieth century played in the shaping of the new movement. Amongst the publications on the topic particularly noteworthy are Morrisson's *Modernism, science, and technology* (2017), Marchitello and Tribble's *The Palgrave handbook of early modernist literature* (2017), Peppis' *Sciences of modernism: Ethnography, sexology, and psychology* (2014), or Drouin's *James Joyce, science, and modernist print culture* (2015). Yet, it is worth to notice that the predominant trend observable in the majority of studies on the subject in focus is the adoption of a centralizing approach that aims at structuring modernism around the nucleus constituted by the 1920s, with the preceding and following years being treated as a diluted essence of the peak period.

Additionally, in the generalizing mode of theorizing the relationship between modernist science and culture, American context is usually (if at all) treated as an element of a larger research landscape rather than the main object of the study. As such, the most frequently proposed perspective on modernism resembles the structure of a spherical wave, where the centre is expressly outlined, the direction of wave propagation is clear and can be easily determined, and the outward movement of the particles from the center towards the peripheral sphere is inherently related to the wave's progressive fading away. Although in many cases justified, the adoption of such a view on

modernism usually results in little to no attention being paid to the existence of repetitive patterns present within the frames of the movement, but re-appearing during its sub-periods with variable frequency and altered intensity. An interesting example of the aforesaid phenomenon is the re-appearance of the trends related to science popularization observable in America of the 1940 and 1950s, and the associated increased interest of non-academics in the new technological solutions and scientific findings. The renewed public curiosity for Einsteinian physics, of which the progressive development since its rise in 1905 keeps shaping modernist perspective on the world throughout the next decades, is particularly strong in America of the 1940s and 1950s. Both the second world war and the fiftieth anniversary of Einstein's Theory of Relativity create a vibrant and internally variegated context in which to analyze American literature of the two aforementioned decades.

The impact of (popularized) science and the technicization of life on literature has been widely discussed in various studies on science fiction. The linkage between science and technology on the one hand and science-fiction on the other constitutes an important aspect of the works discussing the texts created between 1939 – 1946, during the Golden Age of science fiction. The concentration of scientific efforts on the exploration of the outer space along with the rapid development of technology and its intensified application in all the areas of social life ranging from everyday activities, to military actions, become an important repository of themes and motifs for science-fiction genre. Both the development of science and technology, and the profound paradigm shift caused by the publication of Einstein's 1905 papers, followed by other revolutionary findings in the field of astronomy or quantum mechanics, significantly contributed to the crystallization and further development of science-fiction.

In the light of the above discussed, the influence of the new technological findings and scientific discoveries from the first half of the twentieth century on American science-fiction texts appears unquestionable, and has been broadly discussed in studies such as *Close encounters? Science and science fiction* (1990) by J. Lambourne, M. Shallis, and M. Shortland, *Monsters, mushroom clouds, and the Cold War: American science fiction and the roots of postmodernism, 1946-1964* (2001) by M. Keith Booker, or in publications discussing the bi-directional relationship between science and literature amongst which worth mentioning are M. Brake and N. Hook's *Different engines:*

How science drives fiction and fiction drives science (2008), or a relatively recent study by B. Luokkala entitled *Exploring science through science fiction* (2014).

Nevertheless, it is not only an increased interest in the achievements of science observable in America of the 1920s with its profound influence on the development of science-fiction genre and on the creation of spatio-temporal constructs in high modernist literature that should be viewed as an inherent part of a broader picture of American modernism. The Renaissance of Einstein's Relativity Theory celebrated in the 1950s, along with a robust recovery of popular science in the 1940s and in the following decade, provide an internally diversified framework of new ideas and perspectives which have a particularly strong impact on American late modernist culture. This allows the hypothesis that the echoes of relativity, quantum physics, exploration of space and the technicization of life and war are to be found in American late modernist literature as well. Refreshed and reinforced by the fiftieth anniversary of the Theory of Relativity, the distrust towards absolute space and time finds its reflection in literary constructions and representations of both space and time, now more often understood as a single phenomenon – four dimensional continuum.

For this reason, the present dissertation aims at exploring the influence of Einsteinian relativistic physics on American late modernist literature of the 1940s and the 1950s. Special research attention will be paid to the analysis of literary space-time imagery which, infiltrated by Relativity Theory discourse series, shows features of relativistic deformation, disturbance, and instability. The study in focus thus attempts to address the above specified research gap by seeking to provide a more detailed analysis of the previously largely neglected and only superficially discussed impact of Einsteinain new physics and related scientific findings on American late modernist literature classified beyond the genre of science fiction.

While exploring the subtle linkage between science and American literary works created in the 1940s and 1950, the thesis will simultaneously be seeking to answer several complementary research questions. These determine the general direction of the research in focus, at the same time setting the main subject of the study within a broader contextual framework. To explain the mechanisms of influence and their effects on American late modernist literature, the study will aim at exploring how the scientific findings associated with the Theory of Relativity in particular and space exploration in general are translated into the discourse of popular science. This will require tracing

possible trajectories of the leakage of the ideas born and developed within the hermetic scientific environment but successfully borrowed, re-used, re-interpreted, and disseminated by various speaking subjects in the contexts only loosely connected with science or essentially unrelated to it.

The preliminary hypothesis assumes that the increased interest in the findings from the field of (relativistic) physics made accessible to the general public during the second wave of popular science craze in America of the 1940s and 1950s contribute to a significant reinforcement of the changes in the socio-cultural understanding of space and time provoked by Einstein's *annus mirabilis* papers and the first wave of popular science craze, which begins in America with the confirmation of General Relativity in 1919 and coincides largely with The Roaring Twenties. For this reason special research attention will be paid to the effects of extensive popularization of the scientific findings from the first half of the twentieth century on the perception of both the spatial and the temporal dimensions of reality, and the way altered perceptual sensitivities influence literary space-time creations in late modernist period. A general discussion on the scientific context to the study will be provided in Chapter 2 of the thesis, while particular interpretational sections within Chapter 3, 4, and 5 will feature more detailed and text-oriented development of the ideas introduced in the second chapter of the thesis.

As far as the methodological basis for the study is concerned, the analysis will be conducted through the lens of foucauldian discourse analysis, with particular emphasis being placed on the mechanisms of discourse series dissemination and control. The notion of discourse series will constitute the most important methodological tool, which applied to Relativity Theory is understood in the dissertation as a single stream or coexisting but frequently largely heterogeneous streams of speech on Einstein's Theory of Relativity as well as other correlative scientific findings. Foucault's theory on discourse production, dissemination, and control offers a particularly variegated reservoir of theoretical tools which match the complexity of the subject of research. The internal variegation and adaptability of the ideas presented by Foucault (1981) in "The order of discourse" suit the needs of the present study that assumes frequent ventures into the non-literary and extra-linguistic contexts. Due to the fact that the philosopher's perspective on discourse is characterized by a considerable degree of flexibility, the model of discourse management and spread discussed by Foucault (1981) in "The order of discourse" proves universal enough to be applied to the study on literature. Additionally,

the comprehensiveness of the conceptual scheme within the theory allows to name complex, internally variegated, and frequently largely heterogeneous cross-field processes of Relativity Theory discourse series creation, (institutional) control, takeovers, and their either strictly regulated or spontaneous spread. Furthermore, with its metadiscoursive character Foucault's theory on discursive practices provides the most relevant conceptual framework that accounts for high diversification of the processes of discourse creation, control and spread in various contexts, and thus provides the most relevant repository of tools for the analysis of the subtleties of Relativity Theory discourse series manifestation in American late modernist literature.

While Foucault's theory of discourse will constitute the main methodological basis for the study, the approach will be complemented with elements of Dick Higgins' theory of Intermedia. Additionally, the discussion on literary space-time imagery in selected American late modernist works of fiction will feature occasional references to Deleuze and Guattari's concept of a desiring machine, whereas the discussion on human body in (relation to) space and time will undertake a brief dialogue with Freudian psychoanalysis. The sporadic borrowings from the repositories of methodological tools that fall beyond the theoretical framework offered by Foucault will complement the discussion on literary representations of material reality with additional theoretical perspectives.

Regarding the scope of the study, as it has already been mentioned, the thesis will focus on selected works of American late modernist fiction created during the 1940s and 1950s. The literary texts chosen for the analysis include Ernest Hemingway's *Islands in the stream*, James Jones's *The thin red line*, Flannery O'Connor's "The displaced person", Norman Mailer's *Barbary shore*, and James A. Michener's *The bridges at Toko-Ri*. The texts will be analyzed in terms of the influence of Relativity Theory and science on the creation of space-time imagery and the narrative construction of the material dimension of the represented world. The works listed above are classified as belonging to late modernist period due to their orientation towards the modernist poetics of the text, or an overall stylistic anchorage in high modernist literary patterns. The study is based on an assumption that the attempt to study the influence of Einsteinian new physics on the creation of literary space time imagery in widely recognized and extensively discussed works of fiction by recognized American authors has the potential

provide a new interpretational perspective on the seemingly thoroughly researched and comprehensively discussed works of American late modernist literature.

Hence, it will not be overstated to declare that in essence the dissertation is consistent with Steinbeck's (1990: 279) belief that "all life is relational to the point where an Einsteinian relativity seems to emerge". Steinbeck, perhaps the best scientist among modernist writers and the best writer amongst scientist, displays his unique sensitivity to broadly understood science and art, bringing literature, biology, and relativistic physics into one in *The log from the Sea of Cortez*, in many respects a mesmerizing account of the abundance of (marine) life, complexity of space(s), and the subtlety of the temporal conditions in which reality can be ceaselessly re-playing its act of continuous becoming. Although, quite subversively, none of the writer's texts will be discussed in detail in the thesis, the above quoted observation by the author on the relativistic element underlying the construction of reality serves as the keynote to the dissertation and will be treated as the point of departure in the search for the echoes of the dialogue between American late modernist literature and Einsteinian physics.

Chapter 1: Methodology

1.1. Foucault and the study of literature

The major objective of this chapter is to provide the methodological basis for conducting research on the influence of both the theory of relativity and the new physics on literary space-time imagery in selected American late modernist non-science fiction prose texts. The research would be conducted using the methodological framework based on Foucault's theory of discourse and discourse analysis. Therefore, a special focus will be placed on foucauldian notion of discourse and discursive series. The concept will be applied to the part of research aimed at analyzing the way in which the purely scientific content related to the new discoveries in the field of physics and astronomy undergoes the process of science popularization and spreads into various areas of popular culture, reaching and permeating non-science fiction literature.

In order to provide a broader contextual framework for both the concept of discourse and discourse series, the chapter will also constitute a brief review of Foucauldian philosophical and scientific thought, including the discussion on the philosopher's approach towards literature and possible application of Foucault's theory on discursive practices in literary studies. In order to outline a larger contextual framework to foucauldian thought, several references to critical commentaries on Foucault's theory of discourse analysis and discursive series will be also provided in the chapter. Additionally, a reference will be made to Dick Higgins' model of *Intermedia* presented as a supplementary methodological approach to the one based on Foucault's theory.

Could Foucauldian discourse analysis be described concisely and briefly as a scientific theory providing a methodological basis for research on discourse and speech,

it would be perhaps characterized as a largely heterogeneous and internally diversified theory with no rigid or specific framework that would unequivocally delineate its scope and application possibilities. In view of its complexity, foucauldian discourse analysis appears as a theory which decidedly eludes any attempts to organize it into a clearly structured repository of methodological tools with a specific research purpose. For this reason its application to the study on literature may appear as problematic. Nevertheless, the theory's internal complexity and diversity can be economized by bringing into the major methodological framework of the study only the underlying constitutive elements of foucauldian approach towards the analysis of discourse and discourse series. These key components however will be contextualized within a larger frame of reference based on both Foucault's philosophical thought and critical commentary on the philosopher's work.

That the theory lacks a fundamentally inalterable internal structure entails certain methodological risk to the study, as it precludes concretization of applied research methods. Moreover, due to its multidimensionality and inner diversification the theory appears as incoherent; not only has foucauldian discourse analysis undergone some major transfigurations over time, but also its theoretical framework appears as highly malleable depending on the context in which it is applied. As Ying (2021:25) notices, "what [Foucault] provides for his readers are nothing more than fragments of theory". The seemingly empty spaces between them can either be treated as disturbing discontinuities, places where the sequence of meaning suddenly loosens and finally breaks down, or intriguing crevices, fissures in the theory's framework, which provide a breeding ground for the creation of new meanings. In its final, but presumably not finite form, foucauldian discourse analysis eventually disposes of structure in favor of adopting a more inclusive scheme. According to Ying (2021:25), the peculiar fragmentation of the theory, which abounds with places of peculiar suspensions and understatements, opens new methodological and research possibilities:

> [R]esearchers have repeatedly rediscovered, appropriated or adapted terminology, analytical perspectives and thinking resources from this theoretical "toolbox". In these heterogeneous expositions, discourse theory repeatedly reveals itself and unfolds multiple scenes of heterogeneous meanings in numerous material writing spaces, enriching the theoretical connotations of discourse and highlighting its theoretical openness.

The malleability of Foucault's theory of discourse analysis makes it highly adjustable, which perhaps lies at the core of its universality. Of course, its modifiability can become a source of risk, as too much interference to the methodological basis of the study can significantly influence the quality of conducted research. Nevertheless, as Ying (2021: 25) emphasizes, the essence of foucauldian discourse analysis as a theory to constitute a methodological foundation for research is its openness that allows new opportunities on part of the researcher.

And if Foucault's theory on discursive practices, with all its internal diversity and non-linearity of argument finds its way to linguistics, a field of study frequently categorized as belonging to the area of "hard" sciences, than it is all the more likely to provide a comprehensive methodological framework for the study of literature. The peculiar literariness of foucauldian theoretical approach on discourse analysis, its fluidity and multiperspectivity, along with its sectional suspensions and open spaces in the theory's somewhat amorphic structure, can prove especially useful in literary studies, unlocking new research opportunities rather than entailing high research risks.

In fact, the scope of Foucauldian theoretical framework for discourse analysis is broad enough to encompass literature itself. However, "it is not generally well known that Michel Foucault, the archaeologist, the genealogist, the thinker of power and sexuality, had, for the want of better phase, a "literature phase"', states Saghafi (1996: 79, 80) expressing the general critical opinion that Foucault's temporal interest in literature is usually perceived in the categories of "a brief and misguided flirtation", and therefore treated as a period of lesser importance in the development of Foucault's theory on language, speech and discourse analysis. Similar opinion has been expressed by Golder and Fitzpatricke (2009: 94), who argue that Foucault's exploration of literature was generally treated by researchers as negligible due to its transient character. The philosopher's commitment to literature falls within a period after his first renowned publication *Madness and Civilization: A History of Insanity in the Age of Reason* and, although it offers some thematic unity to Foucault's philosophical pondering upon discourse and madness, it significantly re-territorializes its contextual embedding. After that transitory switch towards literature Foucault re-orientates his philosophical and academic activity towards the contexts formerly explored. This makes the aforementioned 'literary phase', to use Saghafi's conceptualization, appear either as a temporary suspension which brought minor contribution to the development of Foucault's theory or a preparatory

period that, despite its alleged lesser significance allowed for the crystallization of Foucault's thought (Golder and Fitzpatricke 2009: 94). The span of Foucault's theory between rigid, scientific approaches and more abstract humanist attempts to state reality allows for applying it to research of interdisciplinary character. For the same reason, foucauldian theory of discursive practices constitutes a relevant methodological framework for the study on science in literature. In fact, foucauldian discourse analysis can be viewed as a theory belonging simultaneously to two discourse series: history of science and theory of literature. Thus, the peculiar split of Foucault's thought between two seemingly contradictory areas of scientific exploration makes it acquire characteristics of meta-discourse series which at some points overlap and interfuse.

Literature was of particular interest to Foucault mainly in the first half of the 1960s, when the philosopher published a series of texts, in which the focus clearly shifts from psychological insight and themes related to madness to similar phenomena explored in a more specific context of literature. A brief analysis of Foucault's publications that appeared in the early 1960s, the vast majority of which were published in *La Nouvelle Revue Française* or *Critique*, as well as the philosopher's academic and cultural activities of which interviews, radio discussions and lectures are predominant (Karskens 2019), clearly shows that Foucault's engagement in literature in the opening period of his scientific career was based on a multifaceted and extensive research approach.

Foucault's commitment to literary studies was marked by several book reviews that appeared in 1961 and 1962. These seemingly inconsequential publications initiated a dynamic process of translation of Foucault's formerly established observations on the phenomena related to madness into a more abstract context of literary expression. "Just as there had been a Foucault who seemed likely to become a psychologist and psychiatrist, there was now a Foucault who seemed likely to become a major literary critic", states Macey (2019: 121) comparing the Foucault of the first half of the 1960s to Blanchot. And it was perhaps the literariness of Foucault's theory itself, its fluidity, flexibility and scope which, when combined with the influence of the discussions led with Blanchot, oriented the philosopher's thought on language and discourse towards their realization in literature.

Discussing the unexpected reterritorialization of foucauldian discourse analysis from the socio-cultural and historical to literary context, Macey (2019: 122) notices that

Foucault's discussions on literature are founded on the premises similar to those presented by the author in his 1961 work entitled *Madness and Civilization: A History of Insanity in the Age of Reason*, which subsequently underwent a series of transfigurations in several minor publications such as book reviews. Basing on an excerpt from one of Foucault's articles from the early 1960s, Macey (2019: 122) argues that the philosopher's vision of literature is based on and can be summarized by a general assumption that every literary work, regardless of its genre, is a part of a broad, indeterminate, and enigmatic universum of the written word. Literature, with textuality as its intrinsic feature, can be thus analyzed as of one of the layers of language, located somewhere between the vocalization of the concept and its primeval, pristine essence described by Foucault as 'the Word' (Macey 2019: 122).

Setting literature firmly in the context of language, Foucault builds a pronounced link between literature and discourse relying on the assumption that literary forms of expression are subject to the same rules and control mechanisms which govern the production and dissemination of discourse. And although literature was the major focus of Foucault's academic and philosophical activity for a relatively short period of time, this reconfiguration of thinking about discourse and literature makes some permanent room for the study of literary texts in Foucault's evolving theory in the next decades. Thus, although Foucault's "literary period" is considered as a phase of minor importance in the development of foucauldian philosophy, it can be considered as a valuable contribution to literary criticism.

An interesting study on the role of literature in the overall development of Foucault's philosophical thought has been presented by Freundlieb (1995). Looking for the traces of the philosopher's early interest in literature in his later works, Freundlieb (1995) divides Foucault's career into four major phases, for each of which literature serves as a major point of reference. The proposed periodization of Foucault's philosophical work and categorization of the variegated ideas forming the theory constitutes a complex and detailed approach. Depending on the perspective taken by researchers, Foucault's work is usually divided into two or three major phases as proposed in Larsen (1997:15) and Flynn (2005: 17) (two phases 'archeological', 'genealogical') or Lemke (2019:19) (three phases: 'archeology', 'genealogy', 'subject theory'). A different categorization has been proposed by O'Leary (2009: 56), who presents Foucault's interest in literature in a macro perspective, using it as a filter imposed on the totality of his

work, which results in a division into a ‘literary’ and ‘post literary phase’, with a short period of convergence between these two phases in 1975 and 1976, marked by two subsequent publications: *Discipline and punish: The birth of the prison* and the first volume of *The history of sexuality* entitled *The will to knowledge*.

An approach closer to the categorization put forward by Freundlieb (1995) is the one referred to by Macey (X), who cites the four-stage periodization proposed by Dreyfus and Rabinow, where the ‘archeological’ phase is also identified as the ‘quasi structuralist phase’ and is followed by two subsequent stages, ‘genealogical’ and ‘ethical’. It is also crucial to note that these three primary stages are preceded by the ‘Heideggerian phase’, that could be perceived as a peculiar ‘phase zero’ in the overall evolvement of Foucault’s theory (Macey 2019: X). As Macey (2019: X) further notices, although complex and influential, the study conducted by Dreyfus and Rabinow does not match the intricacy of Foucault’s theory, restricting the multidimensional character of the philosopher’s inquiry to a more focused perspective. This, in turn, leads to the omission of some of Foucault’s engagements, which are not fully compliant with the major narrative line of the philosopher’s theory, such as his temporary but intense interest in literature (Macey 2019: X).

In the light of the above mentioned developments, it can be concluded that Freundlieb’s (1995) periodization, which focalizes around usually neglected aspects of Foucault’s philosophy constitutes a valuable, correlated perspective on the his work, bringing literature to the surface of the research, but at the same time contextualizing it within the evolving structure of the philosopher’s internally diversified theory. In Freundlieb’s study the first period has been categorized as ‘an early archeological phase’ with literature being treated as a representative example of “counter discourses”, inextricably connected with the phenomena related to madness (Freundlieb 1995: 301). Viewed from this perspective literature appears as enmeshed in contradictions between the madman’s speech and the rational discourse of reason, playing the role of the antagonistic *Other*. The essence of this phase could be perhaps best illustrated by the following excerpt from Foucault’s 1966 work *The order of things: An archaeology of the human sciences*:

> Literature is the contestation of philology (of which it is nevertheless the twin figure): it leads language back from grammar to the naked power of speech, and there it encounters the untamed, imperious being of words. (...) literature becomes progressively more differentiated from the discourse of ideas, and encloses itself within a radical intransitivity;

> (...) it breaks with the whole definition of genres as forms adapted to an order of representations, and becomes merely a manifestation of a language which has no other law than that of affirming – in opposition to all other forms of discourse – its own precipitous existence; and so there is nothing for it to do but to curve back in a perpetual return upon itself, as if its discourse could have no other content than the expression of its own form; it addresses itself to itself as a writing subjectivity (...). (Foucault 1989: 327).

Viewed from foucauldian perspective literature appears as a radically dichotomous discursive phenomenon, which draws its power form language but at the same time stands in opposition to philology to which language is by all means central. Its potential to influence the external stems from a highly particularized usage of words which in the context of a literary discourse progress towards the original fullness of meaning. In this way, language captured within the spectrum of literature starts to function in an inverted scheme, turning away from its non-random, orderly formal structure in favor of engaging in a more abstract, tumultuous universum of meanings and tensions between them. This in turn accounts of its intransitivity, a pronounced incompliance with the reality external to it. As a self-contained and self-enclosed discursive universum literature engages in a continuous process of self-expression, self-affirmation and self-glorification in of and via the use language. The peculiar self-referentiality of literature can be symbolically expressed by Foucault's metaphor of a mirror, which, in the face of the author's death, reflects the perpetually self-evoking nebulousness, "the being of the murmur" and "the formless" (Hollier 1992: 134).

This phase undergoes transfiguration to the end of the 1960s and gradually progresses towards 'a later archeological phase', in which literature ceases to be regarded as a discourse-in-opposition and starts to function as one of many other discourses that are subject to discourse dissemination and control mechanisms (Freundlieb 1995: 301). However, the rules behind these mechanisms remain unrevealed, which, taking into consideration the ideas put forward by Foucault in *The order of discourse* (1981), allows to conclude that literature can be perceived as a discursive phenomenon closely related to the idea of 'ritual' and, correspondingly, to the society of discourse, which assumes exclusivity restriction of certain discursive practices. According to Freundlieb (1995: 301) the beginning of the 'late archeological phase' was marked by the publication of Foucault's 1969 work *The archaeology of knowledge.*

The third stage in the Foucault's philosophical activity is described by Freundlieb (1995: 301) as the 'genealogical phase' and is characterized by a pronounced re-

orientation of Foucault's point of focus from the mechanisms governing discourse creation and dissemination to the power-knowledge relations, especially with reference to their influence on the creation of the speaking subject in the discursive context. The fourth and last phase can be viewed as a re-contextualized continuation of Foucault's inquiry into the questions of self-formation, subject agency, and subjectivity explored within the frame of reference constituted by the concept of "aesthetics of existence" (Freundlieb 1995: 301).

The brief remark on the categorization proposed by Freundlieb (1995) allows to organize Foucault's philosophical inquiry into four general approaches, with literature as the major point of reference for each of the differentiated periods. This helps to conceptualize the factors influencing the importance of literary studies to Foucault's work as well as to determine the place literature occupies in the philosopher's theory viewed from a large-scale perspective. Nevertheless, the major methodological structure for the study proposed in this dissertation will be derived directly from Foucault's theory on discourse analysis and related concepts of discourse dissemination and control series. These will be discussed in the following sections of the chapter.

1.2. Discourse analysis and literary studies

Discourse studies, in their cross-disciplinary dimension, constitute a relatively young field of academic research, embracing diversified areas of study from linguistics, through psychology to communication studies (van Dijk 2011: XV). As a discipline oriented towards the exploration of the way individuals and groups use language in various social contexts, discourse analysis constitutes a broad and internally complex area of enquiry, which unifies a wide range of branches of knowledge with a common denominator of language understood as a collection of meaningful signs involved in different types of communicative practice.

The linkage between literature and discourse studies stems from the need to explore and circumscribe the unique language of literature, both with reference to narratives created by particular individuals and those characteristic of a given genre. Whether

focusing on narration viewed as a form of external, meaningful structure framing the tale, or narration understood as the tale itself (Bal 1999: 52-53), discourse analysis in literary studies aims at defining the particularity of such language use, that allows for creating alternative dimensions of reality and decides about the literariness of a textual structure. According to Johansen (2002: XII) "literary texts are linguistic utterances communicated from an author to a readership at a given time under specific social and cultural conditions and within, or in relation to, the literary institution". As the author further notices, literary texts are always "rule-governed" and should be perceived as such, in spite of the study they are subject to (Johansen 2002: XII). In this view linguistics, and by analogy discourse analysis, can be regarded as a vast repository of tools for literary criticism and literary studies. This approach stems from structuralism and seeks for formalization of literary studies by equipping the discipline with formal tools and strong methodological basis.

The linkage between linguistics, discourse analysis and literary criticism crosses the boundaries of a rigid, systematic approach and continues to develop in post-structural thought, where "a plurality of meanings is welcomed" (Gavery 1997: 52). As the traditional, formalized way of conducting research is no longer considered "to have any superior access to knowledge and truth", methodological formalism and technicality become "just one discourse among many", giving ground to more flexible scientific approaches (Gavery 1997: 52). This builds new responsiveness of a scientific method to the object of study, introducing a dialogic relationship, rather than hierarchical dependence between various fields of academic inquiry. Since particular fields of study exist in language, respective branches of science can be considered, to some extent, as concurrent with their representative discourses. It can be thus assumed, that the aforementioned dialogic interrelation is possible due to the linguistic dimension of the production and representation of scientific knowledge. And if subject, analyzed from the Lacanian perspective of the Other, can be viewed as someone "who is only made of language, who is derived from language, and depends on language" (Pavón Cuéllar 2010: 163), then it can be stated that the existence of science is strongly dependent not only on the subject itself, but also, or above all, on a superordinate entity of language which, according to Pavón Cuéllar (2010: 163), acts as an all encompassing, causative force.

As Campbell (2004: 48) notices, Lacan's perspective on discourse, although not based on any explicit definition, situates it close to speech understood as an "act of sig-

nification". This, in turn, brings into focus the formal dimension of discourse. As a phenomenon that takes an active part in the act of communication, discourse does not only appear as a carrier of semantic load, but also mirrors the internal structure of language, to which it subordinates, creating an ordered "chain of signifiers" that constitute "a necessary and stable structure of signification", on which particular communication acts are based (Campbell 2004: 48). Referring to Žižek's understanding of Lacanian representation of discourse Briton (2012: 59) emphasizes that one of its most essential features is intersubjectivity, both at the level of meaning creation and the appearance of an act of communication itself. This approach presupposes that discourse is by nature dialogic and arises from the tension between the elements necessary for the act of communication to occur. The subject and object of discourse, the Other, and the meanings carried by the ordered chain of signifiers enter into a dynamic relationship. In this view, discourse should not be perceived as a stable and finite communicative phenomenon, but rather as a communicative act in a continuous process of becoming.

The approach towards discourse viewed as a series of processual communicative practices that undergo constant transfigurations due to both the outside influence and internal tension between particular series or their elements will be used as a general methodological framework for the exploration of the impact of science on American late modernist non-science fiction literature. The theory of relativity and the corresponding scientific discoveries which found their path from purely scientific context to popular science and popular culture, finally resonating in American literature of the 1940s and 1950s, exhibit the characteristics of discourse series. This can possibly be attributed to the dynamism of interactions between the highly academic discursive practices related to the achievements of the new physics and their popular science equivalents, the tensions between (popular) science and the contexts external to it, and the complexity of activities of the subjects involved in discourse dissemination and control.

The proposed methodological approach however is based on the premises of intersubjectivity as it focuses on the analysis of the discursive character of Einsteinian scientific though, its functioning within popular culture, and impact on literary space time imagery in American late modernist prose, rather than on the exploration of the development of purely scientific knowledge in its formal dimension. Special research attention will be paid to the (non)linearity of discursive series created as a result of the permeation of scientific content to popular culture and late modernist American litera-

ture, which due to the mechanisms of discourse dissemination and control, were subject to abrupt closure, gradual phasing out or transfiguration. In order to demonstrate the dialogic nature of discursive series related to the dissemination and popularization of the new scientific discoveries in the area of physics, Dick Higgins model of *Intermedia* will be applied to research as a supplementary methodological tool. The combination of Higgins perspective on intermediality with foucauldian theory of discourse series offers a broader analytical network for the exploration of the interrelations between particular media or discourse series and late modernist American literature.

However, the above discussed dialogism of discourse evinces itself not only at the level of its inner dynamics, but also in its relationship with the context external to it. According to Chattopadhyay (2020: 121), Lacan's understanding of discourse goes beyond its obvious linguistic dimension in favor of applying a more encompassing perspective on the subject matter, which allows for the activation of extralinguistic units from the context external to discourse. Viewed from Lacanian perspective, discourse "involves 'social bond' (*lien social*)", since "what belongs to the world outside is intrinsic to it" (Chattopadhyay 2020: 121). Although this idea is strongly connected with a complex notion of semblance, it can be universally understood as the capability of discourse to respond to, or even absorb the elements of "the referential world outside itself"(Chattopadhyay 2020: 122). This proves the presumption that discourses, although frequently analyzed as self-contained phenomena functioning within highly particularized contexts of clearly delineated boundaries, do not function in isolation.

1.3. Discourse and discourse series: foucauldian perspective

Analyzing closely Foucault's theory on discourse and discursive practices, one cannot help but acknowledge, that the theory's multifocality, internal diversification and openness to further evolvement makes it particularly problematic to grasp its essence and provide clear-cut, comprehensive definitions of the theory's key concepts. Even the ideas that remain central to Foucault's philosophy, such as discourse and discursive series are by their very nature elusive and defy simple, unambivalent categorization. The long-lasting presence of the concepts of discourse and discursive series in scientific research in general and linguistics in particular, does not ease the task of delineating the

terms' meaning and scope. In fact, it is perhaps foucauldian discourse analysis, where these concepts appear as the most nebulous.

Both the notion of discourse and discourse series in Foucault's work are by no means self explanatory and should be approached as processual concepts that evolve gradually along with foucauldian thought. This, however, does not mean that Foucault's ideas of discourse and discourse series are indispensably bound to, and function solely within foucauldian philosophy. The lack of clearly delineated boundaries to these concepts opens them for the implementation in new contexts and fields of study, such as literature (During 1992, Blanco 2020), education (Popkewitz and Brennan1997, Ball 2013), cultural studies (Bratich, McCarthy, and Packer 2003), linguistics (Andersen 2003, Kachru 2017), sociology (Dean 1994, Bunton and Petersen 1997), and psychology (Hook 2007), to list just a few.

Possible application of foucauldian discourse analysis for psychology has been discussed by Arribas-Ayllon and Walkerdine (2008), who present a concise history of the development of Foucault's theoretical approach, contextualizing it within a larger framework of philosophy, linguistics and socio-political transformations that influenced the evolvement of foucauldian theoretical approach to analysis of discursive practices. Although the study is oriented towards the application of Foucault's theory in the field of psychology, the viewpoint adopted by the researchers is rather universal and allows for a better understanding of Foucault's research methods. Taking into consideration the character of Foucault's theory which "eschews formalization" (Arribas-Ayllon and Walkerdine 2008: 91), the authors offer a holistic outlook on foucauldian discourse analysis, adopting a generalizing, large-scale perspective. As the approach taken by the researchers is rather descriptive and summarizing than systematizing, the study manages to preserve the specific character of Foucault's theory on discursive practices with all its flexibility and openness.

1.3.1. Between structuralist theories and post-structural thought

The discussion on foucauldian discourse analysis by Arribas-Ayllon and Walkerdine (2008: 91) is founded on the determination of the three key aspects of the philosopher's theory: 'genealogy' also known as historical exploration, the mechanisms go-

verning knowledge-power relations, and the phenomenon of 'subjectification' understood as the processes, acts of signification or contexts which create the conditions for the construction of the (speaking) subject. These notions stem directly from the all-encompassing concept of discourse. However, since Foucault's theory does not offer an unambivalent definition of discourse that would unequivocally set the semantic scope of the term, the authors adopt a broad concept of 'conditions of possibility' as a "point of departure" for the discussion about foucauldian perspective on the nature of discourse, discursive practices and discourse analysis (Arribas-Ayllon and Walkerdine 2008: 91). The 'conditions of possibility' thus constitute a collective term for all the situational and environmental circumstances, whose interconnection and interaction creates a breeding ground for the rise of discourse with all the related phenomena, such as power-knowledge relations and the process of subject creation known as 'subjectivity'.

The attempt to determine the characteristics of foucauldian notion of discourse and discourse analysis would be perhaps incomplete without tracing the socio-political and historical changes which set the grounds for the philosopher's theory on discursive practices. These are said to take place in the 1960s and appear as a complex net of social, political and cultural transformations, that challenged status quo in respective fields. According to Arribas-Ayllon and Walkerdine (2008: 92) the major reason for the significant reversal of the prevailing tendencies in humanist thought in the 1960s should be primarily attributed to the bankruptcy of the structuralist theories for humanities, as "(...)structuralism failed to initiate a decisive break from humanism; its tendency to privilege linguistic constants, its failure to theorize conflict and its general disregard for context offered little challenge to the humanist notion of timeless human nature". The tension between the needs of humanities and the theoretical framework offered by structuralism had been gradually increasing and reached its culmination in May 1968, when structuralism and traditional Marxists criticism were ignored as irrelevant for what was going on in France and elsewhere.

According to Arribas-Ayllon and Walkerdine (2009: 92) the reasons for the aforementioned discrepancy stem from the reductionism behind the classical Marxist theory and its failure to account for the complexity of the transformations. The inability of the now obsolete theoretical system to explain reality in all its intricacy and changeability forced a pronounced turn in humanist thought started by the 'new philosophers', such as Foucault, Lefebvere, Deleuze or Guattari (Arribas-Ayllon 2009: 92). As Wolin

(2018: 288) notices the socio-political turmoil of May 1968 exercised a considerable impact on Foucault's "intellectual and political trajectory" and "gave him the courage to investigate the mechanisms of power operating in Western societies", especially in the contexts of practices related to social order and discipline, penal theory and the functioning of the institution of prison. And, according to Arribas-Ayllon and Walkerdine (2008: 92) it were the mechanisms of power, which became the starting point for a post-structuralist discussion in humanities, aimed at seeking for a more flexible and open theoretical explanation for what structuralism and Marxism could not fully analyze and accurately explain.

Foucault, despite his objections towards such categorization, was considered to be one of the leading representatives of structuralist thought (Wolin 2018: 288). However, in the face of the socio-political turmoil of May 1968 Foucault "rejected the functional totality of the ideology" orienting his philosophical inquiry towards a processual exploration of the notion of subjectivity and the knowledge-power relations in the context of discursive practices (Arribas-Ayllon and Walkerdine 2008: 93). According to Lemke (2019: 53), the intensified interest in the mechanisms of knowledge creation and dissemination after the events of May 1968 should be linked to the changed position of both the universities and organizations concerned with education. This brings into focus another important aspect of knowledge-power-discourse interrelation; knowledge does not only exist in a large universum of discourse which allows it to spread in according to certain pre-existing rules and requirements of the societies of discourse, but also functions within a specific institutional framework. Summarizing the cycle of lectures given between 1971 and 1972 Foucault (2019: 229) puts forward a hypothesis, according to which

> power relations (with the struggles that traverse them and the institutions that maintain them) do not only perform a role of facilitation or obstruction with regard to knowledge; they are not restricted to promoting or stimulating it, distorting or limiting it; power and knowledge are not linked to each other solely by the interplay of interests and ideologies; so the problem is not only to determine how power subordinates knowledge and makes it serve its ends, or how it superimposes itself on it and imposes ideological contents and limitations on it.

In the conclusion of the 1971 and 1972 lectures on penal theories and institutions, Foucault develops an overarching hypothesis which in its universality is broader in scope and goes beyond the themes that constituted the major thematic axis of the cycle.

Knowledge viewed from foucauldian perspective is thus entangled in a complex net of 'power relations', which include the institutional aspects of its dissemination, the linguistic and semantic dimensions of discourse that make it possible to spread, and the formal rules governing its diffusion.

1.3.2 Discourse as knowledge

As it can be concluded from the previous sections, foucauldian perspective on discourse and discourse analysis presumes a close interconnection between knowledge and discursive practices. As this interrelation is rather bi- than one-directional, the mutual dependence of knowledge and discourse can be symmetrically reversed by placing discourse instead of knowledge in the major focus.

According to Foucault (2019: 229) "no knowledge is formed without a system of communication, recording, accumulation, and transfer which is itself a form of power linked in its existence and functioning to other forms of power". The aforementioned system of communication, which is also responsible for the retention of information and its dissemination can be specified as discursive practice: a complex and internally dynamic universum that makes it possible for knowledge to materialize in language, spread, and exercise influence on the context external to it. Moreover, Foucault's perspective on discourse presumes its dialogic nature that allows it to enter into a relationship with the forms of power other than the one intrinsic to knowledge, for which it functions as a carrier. In this view, foucauldian notion of discourse appears as a term broader in its scope than its traditional understanding in the field of linguistics:

> (...) when Foucault refers to 'discourse' he is not referring to a particular language use – a piece of text, an utterance or linguistic performance – but describing rules, divisions and systems of a particular body of knowledge. In this sense discourse approximates the concept of 'discipline' in at least two ways: it specifies the kind of institutional positioning of knowledge (...). But also it refers to the practices through which certain objects, concepts and strategies are formed (Arribas-Ayllon and Walkerdine 2008: 98-99).

Discourse, within the theoretical framework of foucauldian discourse analysis, functions as a form of an internally complex and intrinsically dynamic communicative practice, that by no means should be reduced to the textuality or linguality of a communicative

act or a series of acts. Although the linguistic or textual dimension of discursive practice cannot be denied, in foucauldian understanding of the notion of discourse it is rather the internal mechanism governing discursive phenomena that remains central to scientific research and philosophical inquiry. The 'rules', 'divisions' and 'systems' create an operative framework for discourse of which the nucleus is constituted of knowledge expressed in language and interwoven in an net of dialogic relationships with powers both internal and external to the given discursive universum. Therefore, it is the 'body of knowledge' itself that appears as fundamental to discourse.

The inseparability of discourse and knowledge in foucauldian theory on discursive practices makes discourse partially overlap the notion of discipline. The similarity between these two concepts brought into focus by Foucault in the above quoted fragment puts the spotlight on the institutional dimension of discursive practices and links them directly to the mechanisms of power. This proves that foucauldian understanding of discourse reaches beyond the semantic borders delimitating the scope of the term in the field of linguistics. Instead of acting as an operative term describing the particularity of the given communicative practice in a technical manner, discourse in Foucault's theory functions as a multidimensional space which allows communicative practices to occur, involve in power-knowledge relations, and spread into new contexts.

Foucauldian theory of discourse and discourse series does not only constitute a comprehensive repository of methodological tools that can be applied to the analysis of discursive practices, but also can be regarded as a complex, internally diversified narrative on and against the reality expressed in or created by discursive practices. Weaving narratives on discourse and discursive series in a highly particularized language of power and domination, Foucault constructs an open meta-discourse treating on the nature of communicative practices and the mechanisms of control that regulate the dissemination of particular series. The attempt to describe the intersubjective relation between discourse series related to the achievements of the new physics and American late modernist fiction by the use of foucauldian language of power, supremacy, and control may refocus the research attention in this area of study to those aspects of the linkage between literature and science, which were formerly neglected or not fully explored. This brings new research opportunities and may allow to shed new light on the already widely discussed and seemingly researched non-science fiction prose texts created in the 1940s and 1950s by authors such as Hemingway, Shaw, Mailer or Berger, to list just a

few. Basing the methodological framework for the research on foucauldian repository of theoretical tools applicable to discourse analysis does not only allow to examine the complex intersubjective relations between (popular) science and late American modernist literature but also re-contextualizes the literary studies on the topic within a new metadiscourse.

Foucauldian rhetoric of power and supremacy departs significantly in its tone and style from the highly systematized discourse of structuralism dominant in literary criticism in the 1950s. Far from being formalized, the language in which Foucault attempts to capture the nature of discursive practices appears as a somewhat abstract metadiscourse of a non-linear character with numerous loopings, internal dispersals, abrupt breakdowns and resumptions of the minor componential narrative lines. Therefore, with all its flexibility, abstractness and even emotionality, foucauldian language of domination, control and intersubjective relations in discursive practices exhibits superior sensitivity to all the nuance and detail of the complex discursive phenomena and the power-knowledge relationships that govern them. The responsiveness of foucauldian language to the shades of meaning and internal tensions between particular discursive series makes it a powerful research tool providing opportunities for a prompt and accurate identification of the contact points between particular discourse series, or discourse series and the contextual phenomena external to them. And paradoxically, it is the abstract nature of Foucauldian metadiscourse which allows for addressing the nature of discursive practices related to the popularization of Einsteinian physics and its influence on late American modernist literature in all its complexity and interdisciplinarity.

Since American non-science fiction prose created during the Second World War and in the subsequent decade is frequently explored within the rigid framework of structuralist discourse or by the use of Jungian notions of myth and symbol, the application of foucauldian metadiscourse to the study on literature and the influence of Einsteinian new physics on the creation of literary space time imagery may offer a new perspective on the topic. In this view, the proposed shift within the metadiscourse used for the research on the works by the leading late modernist American authors creates new research sensitivity to the aspects of literary space time imagery that were formerly neglected or not fully elaborated on.

1.3.3. Discourse series according to Foucault

Although frequently used in various critical commentaries on Foucault's theory of discursive practices, ranging from works devoted to linguistics through those regarding historical studies to critical texts on literature, neither the concept "discourse series" nor its more descriptive equivalent, "series of discourses", has been explicitly defined. Both in the theory of discursive practices and discourse analysis the above mentioned notion of discursive series appears to function in the categories of a technical term applied in research to denote the sequence of communicative acts.

Nevertheless, as the concept of discourse series constitutes the major axis of the study in focus, this subchapter will be devoted to providing a more complex definition of the term aiming at delineating both its semantic and theoretical scope. Special attention will be paid to examining the functioning of the concept of discourse series within the context of Foucault's theoretical approach towards discursive practices. Also, in order to prove the validity of the application of Higgins' *Intermedia Chart* used as a supplementary methodological tool for the research, an attempt will be made to demonstrate the common points of the two approaches, and to address the limitations of Foucault's theory of discursive series that could be moderated by the presumptions of Higgins' theory of Intermedia.

The notion of series in foucauldian philosophy is closely linked to the theories of power-knowledge relations. A brief review of Foucault's (2019) lectures on penal theories and institutions delivered at the Collège de France between 1971 and 1972 allows to conclude that the term *series* is used most frequently to denote a sequence of phenomena related to (discursive) activities aimed at exercising power, domination, and control. Syntactically, the term is usually followed by a list of aspects constitutive for the relation of supremacy. An overall analysis of Foucault's (2019) usage of the notion of series within the context of power-knowledge relations allows to differentiate three major series types: a series of phenomena constitutive for the relationship of supremacy and control, a series of acts performed by the subjects involved in power-knowledge relations, and a series of events, either resulting from the connection between power and knowledge or creating favorable conditions for the raise of domination and supremacy relations.

Despite the fact that the notion of discourse has not been listed amongst the above mentioned elements integrated within the loose frameworks of particular series associated with power-knowledge relations, the appearance of discursive practices constitutes an overarching scheme allowing for the rise and spread of the series. Moreover, an analysis of Foucault's usage of the term allows to conclude that all of the component elements of particular series can be linked either directly or indirectly to the notion of knowledge and power. This is perhaps most pronounced in Foucault's proposition of the "principle of specificity" viewed as one of the major rules that govern the rise and spread of discourse:

> [W]e must not resolve discourse into a play of pre-existing significations; we must not imagine that the world turns towards us a legible face which we would have only to decipher; the world is not the accomplice of our knowledge; there is no prediscursive providence which disposes the world in our favour. We must conceive discourse as a violence we do to things, or in any case as a practice which we impose on them; and it is in this practice that the events of discourse find the principle of their regularity (Foucault 1981: 65).

Discourse is thus not only entangled in a complex net of interrelations between power, knowledge, and the material reality, but also, in its absolute form becomes the epitome of power itself. However it is crucial to notice that, the phenomenon of supremacy expressed in and exercised by communicative practices is internally structured and relies largely on a molecular-like framework built of a series of (discursive) events, extra- or intra- discursive interventions, conflicts and tensions as well as the operations taken on by the (speaking) subjects such as actions, gestures, and struggles. All of these elements, regardless of their textual or non-textual nature, should be perceived as carriers of meanings arising out of "the desire of truth" and "the power of thinking it" (Foucault 1981: 65). On this basis it is possible to derive a general model of foucauldian series, which can be loosely defined as a sequential concatenation of bundles of knowledge distributed through discursive practices and spreading in the form of overlapping waves with varying scope of influence on the context external to them.

Discourse can be thus thought of as a larger unit within which particular series form dynamic, constantly evolving structures either organized along common axis of "prior significations" which remain in the state of "a primordial complicity with the world" or originating from the same (discursive) event (Foucault 1981: 65). The organization of the internal structure of discourse thus begins at the "silent", primeval level of

thought which is not yet "dressed in its signs and made visible by means of words" (Foucault 1981: 65). However, as Foucault (1981: 65) notices, the realization of discourse can also happen in the opposite direction, heading "from the very structures of language put into action" towards achieving "a meaning-effect". In each of the above quoted cases, the prerequisites for the rise of discourse are the dynamic, gradual evolvement of meaning, and the progression from abstractness to concrete, materialized significations.

If viewed from the macro perspective, the internal structure of communicative practices can be treated as a repetitive pattern, which keeps reoccurring at varying intervals and in different configurations at all levels of discourse formation. Therefore, the notion of series understood as a continuous, progressive appearance of discursive phenomena that intersect and overlap in the process of meaning formation can be transferred to the overarching unit of discourse. Accordingly, discourses may be treated as larger units, able to form greater sequential structures based on the principle of dynamic progression, overlapping, internal diversification, and gradual advancement towards meanings materialized in various communicative forms.

However, the notion of series in foucauldian theory of discursive practices should not be treated only in the categories of an internal aspect of discourse organization. According to Foucault, (1981: 67) extracted and externalized, the concept of series, alongside the event, the regularity, and the condition of possibility, "must serve as the regulating principle of the analysis" becoming one of the major methodological tools used in discourse analysis.

1.4. Discourse dissemination and control according to Foucault's "The order of discourse"

Despite their somewhat limiting distinctiveness, which allows to define and circumscribe them, particular discourses should not be perceived as a finite, and to some extent hermetical set of linguistic, extra-linguistic and, in some cases, non-linguistic units. The dynamics of communicative practices, interrelationship between discourse and the phenomena external to it, as well as the complexity of its internal correlations among the subject, object and the Other, create a breeding ground for the evolvement of discourse,

and its movement between various contexts. A particularly interesting approach towards the discourse dynamic movement between various fields was presented in Foucault's "The order of discourse" (1981). The text, delivered as the inaugural lecture at the Collège de France on December 1970, expresses Foucault's ideas on the production and dissemination of discourse.

In the opening paragraphs of the text, Foucault builds a close link between discourse and speech. Used almost synonymously, both discourse and speech in Foucault's representation merge into one communicative phenomenon, illustrated symbolically as a "nameless voice" (Foucault 1981: 51), which appears as a flowing stream of meaningful sounds organized in words:

> I should have liked there to be a voice behind me which had begun to speak a very long time before, doubling in advance everything I am going to say, a voice which would say 'You must go on, I can't go on, you must go on, I'll go on, you must say words, as long as there are any, until they find me, until they say me, strange pain, strange sin, you must go on (...)'. (Foucault 1981: 51)

Reducing discourse to speech represented symbolically in a form of an amorphous and abstract stream of undetermined words able to carry the subject, Foucault seems to be leaning towards the Lacanian notion of the Other. Entering into a relationship with words and language, the subject "engages in speech to the Other – and the initial primary form of speech which is demand" (Miller 2007: 63). This results in the speaker's identification with "the omnipotent Other of demand" that induces the subject to speak, simultaneously entangling it into language over which the subject has no control (Miller 2007: 63). Once merged with the Other in speech, the subject is said by words ("until they say me"), engaging himself in the continuous process of becoming. This brings into focus Kristeva's notion of 'suject en procès', namely 'subject in process', which positioned between the symbolic on the one hand and the semiotic on the other, is influenced by and involved in the tensions between these two systems (Schippers 2011: 34-35).

Whereas Kristeva's perspective on subject assumes that a major prerequisite for its existence is the subject's implication in the perpetual and dynamic process of its construction, in Foucault's vision of discourse the subject appears as an already existing entity, ready to be carried away by speech, under which it undergoes a series of transfigurations and changes. As a result, Foucault's subject in "The order of discourse" is,

indeed, a fluid phenomenon under construction, however its process of gradual becoming resembles a form of an exteriorization of its inner Self, both in and by the use of language, rather than its initial creation by the forces external to it. Also, in contrast to Lacanian vision of the subject subordinate to the power of the Other, Foucault (1981: 52) underlines that even "if discourse may sometimes have some power" this power "is from us and us alone that it gets it". For Foucault, the subject, despite its apparent passiveness, preserves its agency, remaining the decisive force, either controlling the circulation of speech or succumbing to its dynamic flow and thus allowing itself to be carried away freely by it.

Nevertheless, although the subject occupies a superior position in relation to discourse, the causative power of speech cannot be denied. According to Foucault (1981: 52), discourse and its continuous, unrestrained flow can constitute a major source of the subject's anxiety "at suspecting the struggles, victories, injuries, dominations and enslavements, through so many words even though long usage has worn away their roughness". The hidden hazards of speech dwell in its fluid and dynamic nature, which makes discourse evade the subject's control. Referring to psychoanalytic theories, the author underlines the dualistic nature of discourse, which in a complex net of social relationships acts both as an effective tool for the manifestation of an individual's desire, and as the object of desire itself. Being "the power which is to be seized", discourse becomes an object of various social mechanisms of control, of which the aim is to prove the subject's agency over speech and, consequently, "to ward off its powers and dangers" (Foucault 1981: 51-52).

Exploring social constraints put on the use of discourse, Foucault identifies three major mechanisms of institutional control: prohibition, division and rejection. The first type is immediately connected with the speaker's exclusive right to bring into the focus of discourse the object considered as taboo. It is for the speaking subject's privileged position in the community that the taboo, otherwise prohibited from entering the sphere of speech, can be vocalized in discourse. When it comes to division, Foucault exemplifies it by referring to the concept of 'the madman's speech'. For centuries considered as devoid of meaning, and thus unimportant, the speech of a psychiatric patient was treated as an indicator of their mental disorder, serving as the basis for the differentiation between sanity and insanity. On the other hand, the madman's speech was frequently considered as dwelling somewhere "on the other side of the divine", giving access to pri-

meval truths, which cannot be reached by any ordinary form of discourse (Foucault 1981: 53). However, for Foucault the concept of madman's speech should not be limited to the idea of externalization of insanity, as the unrestrained and free flow of speech characteristic for a madman can be also observed in moments of the subject's loss of control over discourse.

Taking into consideration the above discussed it can be assumed that the constraints put on the dissemination of discourse concern not only the discourse itself, but also the speaking subjects. The internal power relations between the subjects situate some of them in a privileged position over others, which makes only a limited number of individuals eligible to communicate the taboo. Pointing to restrictions that regulate communication and exchange, Foucault (1981: 62) invokes the concept of ritual:

> Ritual defines the qualification which must be possessed by individuals who speak (and who must occupy such-and-such a position and formulate such-and-such a type of statement, in the play of a dialogue, of interrogation or recitation) (...). Religious, judicial, therapeutic, and in a large measure also political discourses can scarcely be dissociated from this deployment of a ritual which determines both the particular properties and the stipulated roles of the speaking subjects.

Rituals appear as a set of predetermined rules that govern communicative behaviors of individuals, both with relation to linguistic and extralinguistic components of a communicative act, embracing not only the speaking subject, but also the addressee of speech and the circumstances external to the communicative situation. As the limitations and requirements imposed on the speaking subject have a direct influence on the character of the discourse produced, it can be assumed that speech is irretrievably connected with the one, who brings it into being. The fact of belonging to and functioning within the same system of reference that shapes the communication act on a micro scale and the dissemination of discourses on a macro scale, allows, to some extent, for the identification of discourses with the subject, or groups of subjects, that contribute to its rise and circulation.

The concept of ritual in Foucauldian analysis of discourse control and dissemination is closely linked to the notion of the 'societies of discourse' (Foucault 1981: 62). These are defined as groups "in which the number of speaking individuals tended to be limited even if it was not fixed" (Foucault 1981: 62). The roles of the speaking subject and the addressee of the speech are not interchangeable, and discourse circulation is

limited to the closed space of the 'society'. Although such restricted groups are rarely encountered in modern world, the rules governing some discursive practices, such as text publication or announcement of certain scientific or technological innovations may substantially resemble those characteristic of the 'societies of discourse'.

Discussing various systems of exclusion with relation to discourse dissemination and control, Foucault makes reference to the concept of the verifiability and falsifiability of discourse. 'The will to truth' functioning as the driving force behind speech, an element of desire boosting the dynamic spread of discourse into various fields of subjects' social activity, should at the same time be considered as a mechanism of suppression. Providing the reader with a brief historical analysis of the polarity between true and false in discourse, Foucault (1981: 54) carries out to the surface of discussion the relationship between power and knowledge:

> There is no doubt that this division is historically constituted. For the Greek poets of the sixth century BC, the true discourse (in the strong and valorised sense of the word), the discourse which inspired respect and terror, and to which one had to submit because it ruled was the one pronounced by men who spoke as of right and according to the required ritual (...).

The formation of social structures is indispensably connected with the use of discourse as a tool of power and control. Although the perspective on the notion of truth carried by discourse has frequently undergone some major transformations caused by scientific paradigm shifts or crucial social changes that occurred throughout centuries, the mechanisms of social support, control, exclusion or prohibition applied to the use and dissemination of discourse have always operated on similar premises and have been aimed at regulating "the way in which knowledge is put to work, valorised, distributed, and in a sense attributed, in a society" (Foucault 1981: 55). Discourse is thus always entangled in the complex relationship between knowledge and power, for the execution of which the mechanisms of exclusion and control are major prerequisites.

Apart from the above discussed systems of external control that manage discourse production and dissemination with a special focus on its relation to knowledge, and to what at a given point in time is considered as true, Foucault (1981:5) also recognizes "internal procedures", which grant discourses some power coming from the inside, and therefore make them able to exercise a certain form of self-control. These include not only the operations aimed at creating internal frameworks responsible for

discourse structuring, organization and classification, but also play a crucial role in discourse dissemination, governing the process of discourse circulation from the inside, rather than from the outside.

Discourses characterized by well-established internal structures based on the reoccurrence of certain linguistic and extra-linguistic features, tend to occupy the position of a 'major narrative' in the collective conscience of the society. This leads to a natural gradation of discourses that remain in a feudal relationship to one another. However, it is crucial to underline that both the internal structure of the hierarchy and the way discourses are graded, are not stable over time and depend highly upon the characteristics of a given epoch.

Discussing the gradation of discourses would not perhaps be complete without mentioning the issue of the relationship between the primary and secondary text, illustrated in "The order of discourse" by the example of *The Odyssey* and the dialogic reference to it made by Bérard's translation, as well as the intertextual links to the epic poem visible in Joyce's *Ulysses*. According to Foucault (1981:57)

> the dominance of the primary text, its permanence, its status as a discourse which can always be re-actualised, the multiple or hidden meaning with which it is created, the essential reticence and richness which is attributed to it, all this is the basis for an open possibility of speaking.

In this view, the stability and repetitiveness of the major narrative, becomes a point of departure for a creative construction and dissemination of discourses which play a supplementary role to the primary discourse, contributing to the externalization of the original text's hidden meanings. This link should be treated as a bi- rather than one-directional transaction between the primary and the secondary text, as the interrelation leads to the rise of new, formerly unexpected meanings that enrich and enliven both discourses with the "principle of commentary" (Foucault 1981: 58). As a result, the primary text, outwardly fixed and finite, offers an inexhaustible set of combinations of ideas that give rise to new discourse threads. The rhythmical reoccurrence of the primary discourse, that happens irrespectively of the time factor, becomes a source of "open multiplicity" based on "the element of chance" and continuous reinvention of the old narrative. These in turn, reformulated by and within the secondary text, may enter formerly unexpected fields of subjects' social activity (Foucault 1981:58).

1.5. Dick Higgins' model of *Intermedia*

Higgins's *Intermedia Chart* presumes unrestrained rotation of all the media represented graphically in a form of circles of various sizes, embraced either fully or partially by a large intermedia sphere. The autonomy of all the elements included in the chart allows not only for a free movement of its composing parts, but also creates favorable conditions for a progressive fusion of particular media. Since the chart is in principle dynamic, the scope of mutual influence of respective media may vary, depending on both internal and external factors affecting the large intermedia universum. As the mechanism behind the movement of the elements within the chart is based on the principle of spontaneity, the results of mutual influence and fusion are rather unpredictable. For this reason Higgins's *Intermedia Chart* takes into account also those media, which have not yet been defined, or are to arise in the future, either autonomously or as a result of the process of fusion and blending. In the view of the above discussed, *the Intermedia Chart* should rather be treated as a conventional representation of complex and dynamic processes of mutual influence and interaction between various media, captured in motion, than a static depiction of stable phenomena.

1.5.1. Dick Higgins' *Intermedia* and Foucault's notion of discourse series: a comparative perspective

Dick Higgins' model of *Intermedia* created in the mid 1960s can be perceived as the artist's response to vibrant and rapid changes in the area of art and culture. Similarly, Foucault's theory of discursive practices, intrinsically linked to knowledge-power relations, can be viewed as largely influenced by a complex net of socio-political transfigurations that took place in the same decade, making some of the mechanisms of power almost palpable in everyday's functioning of individuals within the framework of larger social structures. Of course, as Dreyfus and Rabinow (1983: 104) notice, the events of May 1968 transfer Foucault's research attention from the exploration of discursive practices to the analysis of the mechanisms of power. This, however, is not tantamount to a complete deterritorialization of discourse as the subject of study in Foucault's research by pushing it to the marginal position. It is rather the re-contextualization of the philo-

sopher's earlier theories within a broader socio-political context, achieved due to an externally inspired shift of the center of gravity in the constantly evolving philosophical thought.

According to Dreyfus and Rabinow (1983: 104) this re-focalization of attention, also known as the philosopher's transition from the archeological to the geneaological phase, started the process of the complementation of foucauldian discourse analysis with the notion of power, which, prior to the events of May 1968, functioned as an independent research subject, loosely connected to Foucault's previous theories:

> What was missing from my work was the problem of 'discursive regime', the effects of power proper to the enunciative play. I confused it too much with systematicity, the theoretical form, or something like a paradigm. Between *The History of Madness* and *The Order of Things*, there was under two different aspects, the problem of power which had not yet been well located. (Foucault 1977: 105, as quoted in Dreyfus and Rabinow 1983: 104)

By linking the theory on discursive practices with the question of discursive regime, Foucault juxtaposes two thematic fields, discourse and power, searching for the interconnection points and complex mutual dependencies. In this view, Foucault's methodological approach resembles the one behind the construction of Higgins' *Intermedia* model, with the exception that the position of the two superimposed fields of analysis remains invariable, and the research horizon is narrowed to the most closely related phenomena constituting the major sources of external impact on the two specified fields of study. The dynamics of changes stems from within rather than from outside, and the macro-perspective on the topic matches the scope of the fields' mutual dependence.

Foucauldian metadiscourse on communicative practices and power builds on the visual qualities of language. In *The archeology of knowledge* Foucault (1972: 38) formulates a definition of systems of dispersion "avoiding words that are already overladen with conditions and consequences, and in any case inadequate to the task of designating such a dispersion, such as 'science', 'ideology', 'theory', or ' domain of objectivity'". Rather than using imprecise terms of a wide semantic scope, Foucault conceptualizes the discursive phenomena in a language, which allows for the architectonic creation of structures and systems. Describing discursive formation as a communicative practice which occurs "whenever, between objects, types of statement, concepts, or thematic choices, one can define a regularity (an order, correlations, positions and functionings, transformations)" Foucault (1972: 38) visualizes the synergies and interdependencies by the use of concrete imagery evocative of complex visual representations.

Although Foucault's theoretical formula for the analysis of discursive practices within the framework of power-knowledge relations could be translated into a graphic model, its boundaries would be delineated by the scope of mutual overlapping of the two fields. This would allow for analyzing the power-knowledge-discourse dependencies from a micro perspective, with particular consideration given to the details of the cross-compliance system. Additionally, Foucault's theory on discursive practices, knowledge, and power presumes the analysis of a chosen discursive phenomenon captured at a given point in time. The object of study is therefore analyzed in a stop-frame mode, with the exploration being oriented on the exposure of the mechanisms governing discourse creation, dissemination, and control. This somewhat limited viewpoint does not preclude a broader, more complex perspective on the subject of study, but a more comprehensive outlook on the area explored is restricted only to the closely interlinked phenomena, (speaking) subjects, and thematic areas which exercise a considerable impact on the mechanisms of discourse production, dissemination, and control.

In contrast, Dick Higgins' *Intermedia* model offers a more comprehensive perspective on the mutual interconnections between various fields of culture. Since the graph is by definition dynamic, it should be viewed as one of the multiple possible arrangements of the media involved in motion. Additionally, the Intermedium sphere does not act as a total space that delineates the boundaries for all the interactions. Some of the media taken into consideration by Higgins go considerably beyond the Intermedium domain. Assuming that the principle of dynamism applies not only to the way particular elements of the graph enter into direct interactions but also to their scope and sphere of influence, it can be stated that the whole Intermedium remains under the influence of internal and external factors which make it highly malleable and adaptable to the changing conditions. Higgins' formula for *Intermedia* thus offers a broad perspective, which accounts for the arrangements not yet known, without neglecting the possibility of the rise of the new media.

In his "Statement on Intermedia" Higgins (1966) provides a more comprehensive theoretical background to the graphical *Intermedia* model, placing it against a broader landscape of socio-cultural transformations. The concept of *Intermedia* becomes a complex formula which embraces not only the dialogic interconnections between various media and the mechanisms behind the cross-dependencies but also takes into consideration the new sensibility of artistic reception and changed aesthetic expectations of the (average) consumers of culture. Moreover, Higgins does not focus exclu-

sively on the here and now of the interrelations within the large Intermedium sphere; setting the elements of the graph in motion, the art theorist places the concept within a certain time spectrum. Intermedia therefore have their past from which they emerge, the present in which they are constantly updating themselves in new configurations, and the future understood as possibilities yet to come.

Applying Higgins' *Intermedia* model as a supplementary methodological tool in the research on the influence of Einsteinian new physics, the development of science, and the technicization of life on space time imagery in selected literary works of American late modernist writers of the 1940s and 1950s offers a more comprehensive outlook on the interconnections between science, technology, and literature. Higgins' *Intermedia* model complements Foucault's theory on discourse dissemination and control with an additional perspective, which enables to shift the point of gravity from discourse to broadly understood culture and art. As a result, both the knowledge-power relations and the discourse dissemination and control mechanisms get an additional anchorage in the area of culture, with the *Intermedium* becoming the outer sphere embracing the Relativity Theory discourse and communicative practices connected with its spread beyond the context of academia.

1.5.2. The will to truth

The discussion on the power-knowledge relationship governing the dissemination of a particular discourse or discourse series would be perhaps incomplete without an explicit reference to the question of truth. While discussing the historical conditioning of our perception of the true and false Foucault (1981: 54) notices that "(…) when viewed from the level of a proposition, on the inside of a discourse, the division between true and false is neither arbitrary nor modifiable nor institutional nor violent". The truth, when considered independently of the exterior forces that shape both the discourse and the boundary between the true and false within it, preserves its objective qualities and is by no means the subject to any form of external or internal transformation. Also, it overpowers all attempts of determining its value, and thus eludes any form of contamination with elements of subjectivity.

However, it is not the notion of objective truth that remains in the centre of Foucault's research attention. Rather than exploring truth in the categories of an autonomous, independent quality of discourse, Foucault concentrates on the way truth functions within communicative practices, examining how it conforms to the external forces that constitute the knowledge-power relations and regulate the spread of discourses. In order to mark the difference between the truth analyzed outside the context of power, and the truth viewed as the quality of discourse entangled in a complex net of interconnections between knowledge, control, and dominance, Foucault (1981: 54) distinguishes between the notion of objective truth, "the utterance itself, its meaning, its form, its object, its relation to its reference", and "the will to truth".

Recognizing the invasive, controlling presence of desire in discourse, Foucault (1981: 56) seems to be leaning towards a bold conclusion for his brief analysis, implicitly suggesting the death of "the Greeks 'true' discourse". The failure of the 'true discourse' to observe the role of the "will to truth" in communicative practices is rooted in its excessive preoccupation with the validity of the linkage between the statement and the object it refers to, while at the same time neglecting the external power of the subject in the formation of the appearance of truth:

> (...) since the Greeks 'true' discourse is no longer the discourse that answers to the demands of desire, or the discourse that exercises power, what is at stake in the will to truth, in the will to utter this 'true', if not desire and power? 'True' discourse, freed from desire and power by the necessity of its form cannot recognise the will to truth which pervades it; and the will to truth, having imposed itself on us for a very long time, is such that the truth it wants cannot fail to mask it. (Foucault 1981: 56)

Truth should be thus perceived as an internal quality of discourse, which is however not resistant to the influence of external forces. Being a medium between the inside and the outside of discourse, truth functions as a powerful tool in the knowledge-dominance relations. As an element internal to discourse, but at the same time an object of extraneous desires, truth takes the form of a peculiar gravitational nucleus of a particular discourse or discourse series. Its simultaneous relation with the elements internal to communicative practices, and their outside context becomes a driving force for the spread of discourse, investing it with inner dynamics that make the movement of ideas possible, at the same time largely influencing the shape of its dissemination patterns.

Since all the forms of discursive practices are "invested in desire" and "loaded with terrible powers" the analysis of truth with the exclusion of the influence of these forces would be artificial and unreliable (Foucault 1981: 54). In order to prove the dependence of truth from "the will to truth" linked to knowledge-power relations, Foucault conducts a brief 'archeological' analysis of the phenomenon, placing the main emphasis on its transferrable nature:

> [T]he division that governs our will to know (…) is perhaps something like a system of exclusion, a historical, a modifiable, and institutionally constraining system. There is no doubt that that this division is historically constituted. (…) This historical division probably gave our will to know its general form. However, it has never stopped shifting: sometimes the great mutations in scientific thought can perhaps be read as the consequences of a discovery, but they can also be read as the appearance of new forms in the will to truth. (Foucault 1981: 54)

The will to truth thus can be circumscribed as is the mainspring of discourse, and a major inspiration for power-knowledge relations. This, however, evokes the matter of subject agency in communicative practices; although discourse is driven by its own, internal powers that sometimes appear as even stronger than those of the subject involved in the creation and the spread of discourse, the self-agency of the (speaking) subject in communicative practices cannot be denied. Foucault explicitly suggests that these are the individuals who, placed between the will to truth and discourse in which truth is to be expressed or discovered, who are responsible for the construction of the mechanisms of exclusion or take part in the creation of more complex structures of institutional control. And finally, it is the will to truth that links individuals and discourse with power-knowledge relations, creating a breeding ground for the spread of the new ideas, distributed according to certain pre-determined patterns. In this view, the desire of the speaking subject to reveal, possess or pronounce the truth born out of the will to truth inherent to communicative practices can be perceived in the categories of a flashpoint for the rise and dissemination of discourse series, and is indissolubly linked to the concept of a discursive event.

1.5.2.1.Foucauldian notion of a (discursive) event

The discussion on foucauldian notion of the will to truth and discursive event allows to set a methodological basis for the analysis of the proclamation of the theory of relativity, its long-lasting spread into new fields, and the influence it exercised on space-time imagery creation in American late modernist literature. Viewed from the perspective of Foucault's theory of discourse, the announcement of Einstein's theory of relativity, its dissemination into academic and non-academic contexts, its direct influence on subsequent discoveries related to the outer space, and finally, its reverberations in non-science fiction American literature of the 1940s and 1950s, can be perceived as discourse series spreading from one major and several minor (discursive) events.

Whereas the will to truth should be perceived as an external system of exclusion that controls the spread of discourse, the notion of an event together with the phenomenon of chance, constitutes an internal dimension of discourse that influences its dissemination patterns (Foucault 1981: 56). Also, as Foucault (1981: 67) proposes, the notion of the event, next to the concept of series, regularity, and possibility, should be regarded as one of 'the regulating principles' of discourse analysis. In foucauldian theory of communicative practices all of the aforementioned ideas are defined by opposition, and contrasted respectively with the concepts of creation, unity, originality, and signification (Foucault 1981: 67). For this reason it can be assumed that within the all-embracing foucauldian idea of discourse, nothing is self-explanatory or self-determined but, functioning in a complex net of interrelations, all the elements of communicative practices or phenomena related to them are constituted by the principles of interconnection and interdependence. This proves the dialogic nature of discourse, as none of its elements can function in isolation.

Discussing the notion of a (discursive) event Foucault (1981: 68) does not only set it in opposition to the act of creation, but also places it in a broader framework of 'archeological' analysis, problematizing it with reference to the questions of duration and cause-effect in the field of history:

> It is often entered to the credit of contemporary history that it removed the privileges once accorded to the singular event and revealed the structures of longer duration. (…) I am not sure that the work of these historians was exactly done in this direction. Or rather I do not think there is an inverse ratio between noticing the event and analyzing the long durations. (…) History as practised today does not turn away from events; on the contrary it is constantly enlarging their field, discovering new layers of them (…). It is constantly isolating new sets of them (…).

Commonly understood as a single occurrence of a relatively short duration period, the event can be symbolically viewed as a separate point on the time axis, important from the perspective of further developments, as it determines the direction of the timeline. The nodal character of the event perceived as a separate occurrence, of which the potential has been already exhausted, suggests a certain form of closure imposed on the phenomenon in focus. The event thus appears as an occurrence able to achieve a degree of fulfillment indicative of its significance amongst linearly ordered set of events. Once its internal dynamism has been depleted, the event reaches its fullness, appearing in its finite, absolute form.

However, Foucault offers a different outlook on the notion of event, which, approached simultaneously from the perspective of the theory of communicative practices and the point of view offered by foucauldian archeology, reveals greater depth and acquires a more equivocal internal structure. Within the framework of foucauldian theory of discursive practices the concept of an event transforms into a vibrant structure of an almost infinite potential, able to exert stable influence of variable intensity on the phenomena external to it. For this reason, the precise identification of an event's duration appears as problematic since it is simultaneously of a momentary and long-lasting presence. The aforementioned internal contradiction emerges from the event's apparent self-fulfillment which, however does not necessarily imply its closure. At approaching the self-fulfillment stage, the event reaches its final state of completeness that does not entail the phenomenon's ceasing, but rather equips the event with an almost infinite potential of influencing both the phenomena already present in its context, and those which are yet to appear. And perhaps it is the variable internal character of a (discursive) event that stems from its inconclusiveness that acts as the driving force behind its ability to exert influence and control over the reality embraced by or stated in communicative practices. In "The order of discourse" Foucault (1981: 69) emphasizes the internal capacity of the event to preserve its dynamic form. Far from achieving the state of permanence or stagnation a (discursive) event draws its potential from internal tensions resulting from its indeterminate nature:

> Naturally the event is neither substance nor accident, neither quality nor process; the event is not of the order of bodies. And yet it is not something immaterial either; it is always at the level of materiality that it takes effect, that it is effect; it has its locus and it consists in the relation, the coexistence, the dispersion, the overlapping, the accumulation,

> and the selection of material elements. It is not the act or the property of a body; it is produced as an effect of, and within, a dispersion of matter. (Foucault 1981: 69)

In the above quoted fragment Foucault clearly implies that the borders of a (discursive) event cannot be clearly established, since it functions as a phenomenon in a constant process of becoming. Suspended between the material reality discourse attempts to control, and its immaterial, linguistic or extralinguistic reflection in communicative practices, the event occupies the position between the palpable and the abstract. This borderline space embraced by a discursive event is saturated with a considerable semantic load. The accumulated meaning constitutes the internal capital of the event, thanks to which exercising control becomes possible. This, in turn, allows for the rise of power-knowledge relations based on the aggregation of information, its juxtaposition, overlapping and mutual interaction between particular knowledge components disciplined according to the unwritten laws of a given discourse.

Foucauldian perspective on a (discursive) event entails a presumption of a close correlation between the notion of the event and the concept of discursive series. Traditional historical perspective on the event allows to reveal only a small fraction of powers that influence the rise and the shape of the event. Also, within the conventional historical framework, the event appears as an effect of the combination of resultant forces of external origin. Foucauldian theory of discursive practices in turn goes a step further restoring the event its agency by engaging it in a meaningful process of *dispersal*. As a result, the event appears not only in the categories of an effect resulting from the previously existing processes and actions that, reaching their momentum, find their full realization in the event, but also as a phenomenon that becomes simultaneously the end and the beginning of certain discursive processes and actions undertaken by the (speaking) subjects. In "The order of discourse" Foucault (1981: 68) suggests the inseparability of the event from historical positioning, at the same time contextualizing his theory of discursive practices within a broader scope of archeological analysis:

> [H]istory does not consider an event without defining the series of which it is a part, without specifying the mode of analysis from which that series derives, without seeking to find out the regularity of phenomena and the limits of probability of their emergence, without enquiring into variations, bends and angles of the graph, without wanting to determine the conditions on which they depend.

The event becomes both the nodal point and the nucleus, a space-time in which discursive actions and processes find their culminating point, undergo transfiguration, or arise from the aggregated load of knowledge to be dispersed in a form of discourse series subjected to various forms of institutional control. Nevertheless, it is not only the institutional dimension within which discourse and discourse series are realized and controlled. The close inter-linkage between discourse, discourse series and a (discursive) event indicates a significant dependence of discursive series from the aspect of time. The introduction of the notion of a (discursive) event as a concept inseparably related to discourse series, indicates that there is always a historical dimension to discourse that cannot be neglected in discourse analysis.

This allows to conclude that within Foucauldian theory of communicative practices discourse series function as institutionally controlled streams of knowledge with a wave-like internal structure; the varying concentration of the semantic load carried by discourse creates expansion and compression moments within the wave, determined by the inconstant intensity of knowledge release and dispersal. The aforementioned fluctuation within the information load transferred by means of discursive practices corresponds with the alternating intensity of the impact discourse exercises on reality, directly translating into the formation and intensity of power-knowledge relations. Whether the internal tensions within the structure of discourse series would be represented symbolically in the form of wave motion amplitude or a scheme illustrating the variable density of the dispersed portions of knowledge the distribution of discourse series is based on the linearity of dissemination. This is partially due to the reciprocal dependence of discourse series on the phenomenon of a (discursive) event, which makes the series subject to the conditions of time. In foucauldian discourse analysis time should be thus perceived in the categories of a variable which determines the linearity of discourse series dissemination at the same time influencing the intensification of knowledge-power relations. The net of mutual interconnections between the event, discourse series and time allows for deciphering the internal order of discourse, or for the general projection of discourse series further spread.

Chapter 2: Context: Einstein and the two waves of popular science craze in America of the 1920s and 1940s-1950s.

2.1. Scientific breakthrough of 1905 and the following discoveries

When in March 1905 editors of *Annalen der Physic* received a paper "On a heuristic point of view concerning the production and transformation of light" written by a 26 year old patent clerk from the Swiss Patent Office, little did anyone know that the article would mark the beginning of the miracle year in the field of science. The patent clerk was Albert Einstein, the paper was the famous "Photoelectric Effect" article explaining the theory of the quantum nature of light for which the physicist obtained a Nobel Prize sixteen years later (Calaprice 2005: 25), and the year 1905 was only the beginning of more than a century old quest for the truth about the reality we live in.

Einstein's discoveries on the nature of light discussed in his first article were followed by other revolutionary observations on space, time, and the atomic character of matter, presented by the scientist in a number of subsequent publications in 1905, which include the "Brownian motion" paper, the "Special Relativity Theory" paper, the "Energy-mass equivalence" paper and the "Molecular Dimensions" paper (Stefan 2005: 57-58). These papers essentially revolutionized "our physical picture of the world" (Penrose 1998: vii), a set of relatively stable concepts, meanings, and assumptions influencing our cognitive processes, constituting a dependable scheme through which the material reality along with the abstract dimension of time should be perceived. The new picture of the world extracted from the revolutionary content of Einstein's papers turned out substantially different from its former counterpart. The world, which emerged from Einstein's annus mirabilis publication is the one "in which particles behave like waves

and waves like particles, where our normal physical descriptions become subject to essential uncertainties, and where individual objects can manifest themselves in several places at the same time" (Penrose 1998: vii). Einstein's findings largely subverted the pre-existing Newtonian order of thinking about the world, forcing parallel changes in the construction of the discursive vision of both the material reality and space with its more abstract dimensions of time, gravity, and interactions between the particles of matter.

Such was the commotion caused by the new discoveries, that Einstein's ideas soon permeated from purely scientific context to both social and cultural life, evoking great public interest amongst non-physicists. As a result, the miracle year in the field of physics started an ongoing development of popular science, which experienced an unprecedented upswing in 1919 – the year of the famous solar eclipse expedition. Since the measurements conducted by Eddington and Dyson during "the most important eclipse in history" (Kennefick 2019: 4) confirmed the accuracy of the Theory of Relativity, Einstein became the most widely acknowledged scientist of the time, acquiring the status of a celebrity figure. In this view, 1919, apart from 1921 – the year of Einstein winning a Nobel Prize, should be regarded as a milestone in Einstein's scientific career, which started to develop along two parallel axes, both within and outside of a purely scientific context, giving rise to discursive series revolving around or stemming from the same thematic core of time and space relativity.

2.1.1. Not only Einstein: the acquisition of Relativity Theory discourse by other (academic) subjects

"The French ignored it as if it had never appeared. The British took some time to react to it, and then they misunderstood and reinterpreted it (…). The Americans also ignored it for a while, but then most physicists reacted strongly against it for not being practical" recounts Crelinsten (2006: 5) providing a brief summary of national scientific communities' reaction to Einstein's relativity paper of 1905. And indeed, the year of 1905 was elevated to the stature of *annus mirabilis* only later, once Einstein's theory received closer attention.

The groundbreaking observations of a 26 year old clerk from a Swiss patent office published in an influential but at the same time elitist *Annalen der Physic*, attracted the attention of one of the biggest names in science of the time – Max Planck, supposedly the first person who read Einstein's relativity paper of 1905 (Crelinsten 2006: 5). Two years later, a lecture entitled "Das Relativitätsprinzip" ("The principle of relativity") given by Minkowski at the meeting of Göttingen Mathematical Society, helped to popularize Einstein's concept of space-time now understood as a single entity. Although the access to the academic circle was in some respects restricted, as these were mainly professors, docents, and students advanced in research who were allowed to attend the meetings, the Göttingen Mathematical Society provided a conducive environment for thought exchange, and thus played a vital role in the popularization of the new scientific findings (Georgiadou 2004: 25). The society's lectures became "a stage for free and intense scientific exchange", with Göttingen acquiring a status of a scientific melting pot for students not only from Germany but also from other European countries (Georgiadou 2004: 25). Amongst the attracted were also academics from America, India and Japan, who eagerly visited Göttingen in the expectation of "coming into contact with major celebrities" in the field of science (Georgiadou 2004: 25). Minkowski's was by far one of them.

Eight years later, the lecture delivered by the one of the leading mathematicians and physicists of the early twentieth century yielded an article released in the same journal, which accepted Einstein's revolutionary paper. Published posthumously in 1915, Minkowski's article on relativity was edited by a German theoretical physicist specializing particularly in quantum mechanics, Arnold Sommerfeld (Weinstein 2017: 556). Sommerfeld introduced several adjustments in Minkowski's original manuscript:

> Sommerfeld was unable to resist rewriting Minkowski's judgement of Einstein's formulation of the principle of relativity. He introduced a clause inappropriately praising Einstein for having used the Michelson experiment to demonstrate that the concept of absolute space did not express a property of phenomena. Sommerfeld also suppressed Minkowski's conclusion, where Einstein was portrayed as a clarifier, but as no means as the principal expositor, of the principle of relativity. (Pyenson 1977: 82)

Sommerfeld's modifications to Minkowski's relativity paper seem to be of little relevance from a substantial point of view, but are particularly interesting when approached from the perspective of foucauldian discourse analysis. The interference in the content

of Minkowski's original text made by Sommerfeld was by no means radical at the level of scientific accuracy, but appears as such in the context of discursive practices, since it may be perceived as an example of an attempt to acquire control over the discourse series in focus. The 'true discourse of science' is no longer free neither form desire nor from power; the more subjects are institutionally allowed to take part in its dissemination, the more the Relativity Theory discourse is exposed to tensions resulting from power-knowledge relations. Taken over by various subjects, the original discourse line on Relativity Theory started by Einstein in 1905 expands into series constantly in the process of becoming, undergoing frequent appropriations under the influence of the speaking subjects actively involved in their dissemination and control.

A discourse series may consist not only of a linearly structured sequence of individual attempts to take control over the major discourse line by subjects exhibiting institutionally required features or occupying (institutional) positions entitling them to influence the general shape and dissemination of discourse. A series can also result from a dialogic interaction between two or more subjects exerting alternate control over discourse; the proportion of power retained and knowledge spread in such an arrangement remains variable. An example of Relativity Theory discourse series, ritualized according to the academic rules of knowledge exchange and subordinated to the principle of the division of power between subjects taking part in discourse (series) spread, are Bohr-Einstein debates. Started in the 1920s, frequently referred to as "great" or "epochal", the long-term dispute between the two scientists transposes the Relativity Theory discourse onto the ground of the philosophy of science. The new dimension added to the major discourse line on Einstein's discoveries extends its scope far beyond its original discipline, opening new spheres of influence, creating favorable conditions for the rise of a more inclusive discursive society, that would allow for the involvement of other speaking subjects in discourse development and spread. Bohr's 1924 paper treating on the quantum mechanics of the electromagnetic field written collaboratively with Hendrik Kramers and John C. Slater can be perceived as an example of a dialogic inclusion of various speaking subjects into the discourse series once ascribed mainly to one person – Einstein (Peacock 2008:43).

The debate is gaining momentum in the 1930s, when the exchange of knowledge, assumptions, and opinions between Bohr and Einstein becomes particularly dynamic. The scientific discussion on quantum mechanics or, more specifically, on the

nature of quanta, lead by the recognized authorities in the field of physics, provokes broader, more universal, but at the same time a lot more abstract questions on the true nature of the material reality we live within. Viewed from the perspective of foucauldian analysis of communicative practices and discursive mechanisms for knowledge spread, the Bohr-Einstein debate, with its expanding thematic and temporal scope, public character, and a considerable degree of inclusiveness, manifests features of a far-reaching discourse series characterized by a high level of complexity due to its numerous minor branches, nodal or decline points, and intersections.

Despite the fact that its major axis is constituted by the Bohr-Einstein dialogue, the openness of the debate to the voices from outside of the major channel of exchange exemplifies the general tendency of a gradual democratization of Relativity Theory discourse in the 1930s, that allows for discourse takeovers by various subjects. "(…) the Bohr-Einstein debate may be said to have outlived the scientists themselves" states Whitaker (2006: 11) emphasizing the validity of an almost century-old dispute in contemporary science and philosophy, as there are still some unresolved issues to the discussion which boost its spread. This, in turn, shows the internal power of discourse to disseminate beyond the control of the speaking subjects, and the institutional framework which once delineated its scope of coverage. The Bohr-Einstein debates can be therefore perceived as an example of a discourse series so strongly invested in foucauldian *will to truth* and *desire*, that it is no longer governed by "the order of laws", and cannot be "disarmed" by the order-imposing power of institution, as it permanently evades its controlling influence (Foucault 1981: 52). Interestingly enough, over the years the discourse series revolving around the original Bohr-Einstein debates develops an internal mechanism of exclusion which works as a reverse formula for its former democratic openness. According to Whitaker (2006: 11) its current shape "must have played a large part in driving the most lauded scientists for 300 years practically into scientific exile". The subjects either formerly allowed into the discourse series, or embraced by its scope, are now excluded from the series as those whose speech is no longer compliant with the rules of the new ritual.

Although in the late 1920s and during the 1930s the speaking entities involved in Bohr-Einstein dispute still meet the institutional requirements of the academia, the liminal character of the debate suspended between science and philosophy fosters less supervised and less ordered spread of Relativity Theory discourse, leading to the disper-

sion of its major line into a polyphonic, tree-like discursive structure. This of course leads to gradual diffusion of both knowledge and power, which are no longer retained within a narrow sphere of an academic discipline monitored by institutionally appointed subjects. The above discussed process of Relativity Theory discourse democratization and its progressive dispersal into new contexts and areas of influence intensifies in the 1940s and in the subsequent decade. Consequently, Einstein's theories are no longer bound to the discipline but become subject to further takeovers, (re)interpretation, creative transfigurations, and spread in the areas not directly related to physics and science as such.

2.1.2. Against the major discourse line: counter-relativity discourse as a part of relativity discourse series

The dynamism of discourse series on Einstein's new findings in the field of physics stems not only from the internal thematic complexity of the discursive series on Relativity Theory and related scientific research, but also from the tensions between the major discourse series and several minor counter-discourses. Frequently emotive, not devoid of the evaluative character, the counter-relativity discourse can be analyzed within Foucauldian framework of power-knowledge relations. Embedded in the institutional context of academia the counter-discourses have their source in the general mood of scepticism regarding Einstein's revolutionary theories that dramatically disrupted the relatively firm bedrock of scientific knowledge on space, time, and matter.

According to Kaku (2004: 118) the major counter-discourse was disseminated in and by the *New York Times*. Basing on the fundamental unintelligibility of Einstein's academic discourse, impenetrable for the vast majority of the readers, the newspaper's editors manipulated the public opinion, treating the physicist's findings in the categories of a largely falsifiable hypothesis with a considerably low level of scientific provableness (Kaku 2004: 118). The internal complexity of the theories, along with the highly particularized academic discourse that combined both the broad repository of field-specific terms and the elements of mathematic language in which Einstein's discoveries were formulated, contributed to a heightened social apprehension regarding the credibility of the Relativity Theory premises (Kaku 2004: 118). The growing network of re-

search on Einstein's new findings followed by the appearance of the new scientific discourse series only made the field more inaccessible for those beyond the context of academia. This is perhaps best illustrated by the anecdote quoted by Collier (2017: 213) regarding a situation that reportedly took place during the 1919 joint London meeting of the Royal Society and the Royal Astronomical Society:

> [A]s he was leaving, Eddington was (allegedly) asked whether it was true that only three people in the world understood the theory of general relativity. When Eddington refrained from answering, his questioner said, 'Don't be modest Eddington.' Eddington replied, 'Not at all. I was wondering who the third one might be.'

Both the question asked and Eddington's unanticipated answer ironically prove the hermetic character of the research conducted and the already published findings. The incomprehensibility of general and special Relativity Theory, additionally complicated by parallel studies revolving around similar theoretical axis, provoked an attitude of distrust – a natural social mechanism of the public distancing itself from the debatable cognisability of the Einstein's findings.

The veracity of the new theories was questioned not only in the popular press. The counter-relativity discourse soon started to spread in the scientific context, forming a corresponding series within the institutional framework of academia. According to Kaku (2004: 118), it was mainly Charles Lane Poor, a professor at Columbia University, due to whom the general climate of distrust towards Einstein's new discoveries was sanctioned from the perspective of the respected scientific community. A brief analysis of an online bibliography proposed by *The General Science Journal* (2021) embracing the most important articles published by Poor between 1921 and 1930, allows to conclude that the vast majority of the scientist's academic papers written in the years following Eddington's 1919 solar eclipse experiment, address the issues either directly or indirectly related to the Theory of Relativity. With papers such as "Planetary motions and the Einstein theories: A possible alternative to the relativity doctrines that would save the Newtonian law" (1921) or "A test of light deflections observed at eclipses" (1924) Poor develops a consistent discourse series stemming from the same discursive event as the series it directly opposes.

Nevertheless, it is not only the institutional framework of academia in which Poor's counter-relativity discourse spreads over time. The researcher's uncompromising narration undermining the veracity of Relativity Theory was rapidly taken over by

press. Although initially the readers of *The New York Times* were presented with sensational articles emphasizing the unprecedented nature of Einstein's discoveries, one of the most influential American newspapers soon became the major channel for the spread of counter-relativity discourse. A series of early 1920s *New York Times* articles, either written by Poor himself or addressing on the scientist's most recent observations, helped to give rise to a new discourse series parallel to the one started by Poor in the academic environment. "Poor says Einstein fails in evidence: Columbia professor declares discordance of planets does not prove theory advanced" reports *The New York Times* on February 8, 1921. Two years later Poor's observations are quoted in November 20 issue, under the headline "Einstein theory assailed. Many relativity "sins" laid to it by dr. Charles L. Poor". January 6, 1924 issue of the same newspaper features an article written by Poor himself. Providing a comprehensive explanation on why "there is nothing new in the idea that light may be bent or deflected from its straight course by the action of bodies", Columbia University professor combines the elements of both academic and popular science discourse, at the same time remaining the major subject controlling the spread of the series until the late 1920s.

2.1.3. The true discourse of science: Relativity Theory discourse (series) as controlled from the perspective of academia

Whereas *The New York Times* largely follows the discourse series developed by Poor as a direct response to the famous solar eclipse experiment of May 1919, *The London Times* invites Einstein as early as in November of the same year to write an article for the newspaper. The text itself, apart from bringing both the idea of relativity and its author closer to the general public, becomes for Einstein yet another invitation to spread the science-oriented discourse beyond the purely scientific context. "I gladly accede to the request of your colleague to write something for *The Times* on relativity" writes Einstein (1954: 227-228) in the opening lines of his letter to the newspaper, only to turn to addressing the British scientists' contribution to the success of the relativity:

> I welcome this opportunity of expressing my feelings of joy and gratitude toward the astronomers and physicists of England. It is thoroughly in keeping with the great and proud traditions of scientific work in your country that eminent scientists should have spent much time and trouble, and your scientific institutions have spared no expense, to test the

> implications of a theory which was perfected and published during the war in the land of your enemies. Even though, in the investigation of the influence of the gravitational field of the sun on light rays is a purely objective matter, I cannot forebear to express my personal thanks to my English colleagues for their work; for without it I could hardly have lived to see the most important implication of my theory tested.

The opening paragraph of Einstein's 1919 letter to *The Times* quoted in its entirety clearly shows the institutional anchorage of discourse on relativity and relevant scientific discoveries. It is the institution of academia with both its human and financial resources that acts as a primary subject in the process of discourse spread and control. Whilst recognizing the dominant role of academia in discourse dissemination, it is useful to link the previously discussed mechanisms to Foucault's (1981: 55) notion of ritual and the category of truth as discussed in "The order of discourse". Beyond the obvious connection of the processes of information spread and confirmation invoked by Einstein in the above quoted fragment to power-knowledge relations, there is also the aspect of the will to truth that actively influences the dissemination of the discourse on Relativity Theory, both within and beyond the institutional context of university.

According to Foucault (1981: 55) the will to truth depends largely on "a support and institutional distribution" and is thus linked to mechanisms of exclusion, as it "tends to exert a sort of pressure and something like a power of constraint (…) on other discourses". The dissemination of the 'true' discourse of science, as encapsulated within the rigid framework of the verifiable and the reliable, entails devising appropriate regulatory mechanisms either restricting or expanding discourse series circulation and, thereby, their impact range. The process of scientific discourse dissemination is therefore largely dependent on ritual understood as a set of rules governing discourse creation and dissemination as well as requirements put on the subjects willing to participate in discourse circulation (Foucault 1981: 62). These refer not only to the predetermined principles of behavior that the subject is obliged to follow, but also include specific qualifications the subject is supposed to possess or the position the speaking entity should occupy. The conditions for discourse spread determined by ritual reach beyond the subject and its expected institutional and personal attributes; it is also the linguistic structure of the discourse itself that remains under the regulatory power of ritual (Foucault 1981: 62).

Initially, the discourse on the Theory of Relativity and related discoveries circulates within the institutionalized context of academia and its distribution is controlled by

subjects occupying positions authorizing them to regulate its dissemination, decide on the shape and reach of the series, and supervise the mechanisms of exclusion either by empowering other subjects to take part in the dissemination of the series or by disallowing them from active participation in discourse spread. The major discourse line on Relativity Theory in the early 1920s available for non-academics is either created or controlled by subjects whose scientific authority is recognized through the prism of and legitimized by the position occupied in the academic society. Even the branches or Relativity Theory discourse series spread in press in the early 1920s after the solar eclipse experiment of 1919 are directly subordinated to and controlled from the institutional perspective of the academia, with leading scientist such as Einstein or Eddington authorizing knowledge transmission. Correspondingly, the power-knowledge relations generated as a result of Relativity Theory discourse spread are particularly strong in the first half of the 1920s due to discourse series' intensified dialogue with the original academic context from which it emerged, and which boosted both its development and dissemination in the period directly following the empirical confirmation of Einstein's theory.

Nevertheless, these somewhat hermetic boundaries of discipline defining the major orientation and scope of the ritualized actions of subjects entitled to manage knowledge dissemination, undergo a gradual process of effacing. Since the Relativity Theory discourse quickly evolves into complex discourse series with multiple speaking subjects involved in its creation, the foucauldian (Foucault 1981: 58,59) notion of author and authorship viewed in the categories of coherence-building powers endowing discourse with its own, unique identity, are forced to give way to the laws of discipline. According to Foucault (1981: 59) the discipline viewed as an organizational structure of knowledge formation and spread stands in direct opposition to the 'principle of the author', and to the 'principle of commentary that "limits the chance-element in discourse by the play of an identity". Although both the author and discipline may be embraced by the controlling mechanisms of institution, it is discipline which is subject to stricter formal regulations and organizational requirements of the institution:

> [A] discipline is defined by a domain of objects, a set of methods, a corpus of propositions considered to be true, a play of rules and definitions, of techniques and instruments: all these constitutes a sort of anonymous system at the disposal of anyone who wants to or is able to use it, without their meaning or validity being linked to the one who happened to be their inventor. (Foucault 1981: 59)

In foucauldian discourse analysis discipline constitutes a well-organized, internally structured field characterized by universal accessibility for subjects willing to perform discursive actions within its framework. Although high level of accessibility does not mean that the speaking subjects are exempt from meeting the requirements put on them either by ritual or by institution, such (limited) openness makes discipline operate according to a democratic principle of inclusiveness and acceptance of diversified subjects. This in turn means that discipline functions as a public sphere, allowing for discursive multiperspectivity and the polyphony of voices due to the variety of the speaking subjects embraced by its boundaries.

The presence of a large number of variegated speaking subjects, accepted to the discipline on the basis of a democratic principle of openness translates into the discipline's discursive potential. According to Foucault (1981: 59) its power lies not in the knowledge already discovered and gathered within its boundaries but in the existing future possibilities of new knowledge creation and spread:

> [I]n a discipline (...) what is supposed at the outset is not a meaning which has to be rediscovered, nor an identity which has to be repeated, but the requisites for the construction of new statements. For there to be discipline, there must be the possibility of formulating new propositions, ad infinitum.

The meanings discovered and those which are yet to be constructed and disseminated can be perceived as the discipline's capital and decide about its discourse creation capacity. The greater the potential of a discipline to produce and spread new statements, the more dynamic the power-knowledge relations arising from the new meanings and the way they are managed by the speaking subjects. In the light of the above discussed, it can be assumed that the central focus of a discipline is discourse and the meaning it carries. For that reason, the issues related to author and authorship, such as the exceptional linkage between discourse and its author, the principle of commentary, and the responsibility of discourse creator for its internal coherence and cohesion are relegated to the background. This of course is not tantamount to a complete eradication of the author figure or a refusal to recognize authorship; within a discipline, the issues related to authorship undergo a process of re-evaluation, giving way to a democratic principle of multi-subjectivity in discourse creation and spread.

Foucault's theoretical formula for a discipline and its working mechanisms allows for a better understanding of the influence of the discipline on the shaping and the

dissemination of Relativity Theory discourse series. Although Einstein's popularity both within and beyond the academic community makes his original authorship of Relativity Theory discourse undeniable, the series has more than one author due to discourse popularization and spread. Foucault's (1981: 58) genealogical analysis of the role of the author clearly shows the gradual 'erosion' of the medieval value of authorship in scientific discourse, as a result of which the author in contemporary scientific discourse "functions only to give a name to a theorem, an effect, an example, a syndrome". The process started in the 17th century however, relates exclusively to the discourses of science, as literary discourses indicate an inverted trend, with the figure of an author growing in importance. Subsequent takeovers of Relativity Theory discourse leads to the rise of a series which belongs primarily to the discipline of physics, and only then to individual speaking subjects. In the light of foucauldian discourse analysis, Einstein should by all means be perceived as the primary author of the Relativity Theory discourse, but it is the series itself, which remains in the major focus of the study.

The new knowledge discovered and worked out within the boundaries of the discipline is not only a clear measure of its discourse creation capacity, an ability to formulate new statements, scientific theses and hypotheses, but also translates into knowledge-power relations. With scientist such as Planck, Haber, Nernst, Warburg, Freundlich or Rubens (Goenner and Castagnetti 2020: 2) involved the Relativity Theory discourse formulation and spread, the Berlin academic community accumulates a considerable discursive potential, becoming one of the most influential scientific societies in the world. "The call of Einstein to Berlin (...) must be seen in the context of institutional as well as purely scientific interests" (Goenner and Castagnetti 2020: 1) and these in turn, in the light of foucauldian discourse analysis, should be viewed through the prism of power-knowledge relations.

Within the institutionalized context of academia Einstein creates a discourse, which undergoes subsequent takeovers by scientists, not only from Berlin academic society, but from various scientific institutions and research facilities all over the world. The allowance of various speaking subjects to Relativity Theory discourse creation and spread results in its high mutability, increased absorbency of new contents as well as broader scope of influence. Acquired, re-communicated, supplemented with new knowledge, or totally transformed, the discourse on the Theory of Relativity and related scientific discoveries gradually eludes the controlling influence of institution, and can

no longer be 'disarmed' by its "order of laws" (Foucault 1981: 51). The institution is now overpowered by desire, which boosts discourse spread into formerly unexpected directions, in new, constantly changing forms. Its dispersal beyond the academic context, although observed from the perspective of the discipline by Einstein and other scientists, can no longer be effectively supervised or regulated.

With the popular press claiming the right to Relativity Theory discourse acquisition and dissemination, exercising institutional control over the rapidly growing and constantly transfiguring series becomes difficult if not impossible. "What, then, is so perilous in the fact that people speak, and that their discourse proliferates to infinity? Where is the danger in that?" asks Foucault (1981: 52). The discourse initially "controlled, selected, organised and redistributed" (Foucault 1981: 52), shaped by the power of ritual and filtered through the institutionalized structures of the discipline soaks through its arbitrary boundaries entering the disorderly "space of wild exteriority" (Foucault 1981: 61) where it can be acquired by a any subject, distributed without restrictions, and interpreted freely.

In general, it can be concluded that the 1920s popularization of science leads to a new fusion between both scientific and non-scientific elements coming from variegated contexts, and, therefore, giving rise to phenomena from the borderland of various disciplines. These would, perhaps, be best described by the use of an analogy to Dick Higgins's model of Intermedia.

2.1.4. Beyond discipline: diffusion of Relativity Theory discourse into popular culture

The growing demand for explanations of Einstein's and other scientists' revolutionary discoveries of the time made most of the papers published in prestigious scientific journals find their counterparts in popular press (Hoffmann 2013: 40). A brief analysis of the press coverage of the transformations in science after Eddington's successful confirmation of Einstein's Theory of Relativity has been presented by Kaku (116). Exploring the influence of Einsteinian physics on the perception of time and space Kaku (2004: 116) conducts a comprehensive research on the reception of Einstein's findings,

a considerable part of which has been devoted to tracing the history of the scientist's theories:

> So suddenly did this story burst on the world media that many newspapers were caught off guard, scrambling to find anyone with a knowledge of physics. *The New York Times* hurriedly sent its golf expert, Henry Crouch, to cover this fast-breaking story, adding numerous errors in the process. *The Manchester Guardian* sent its music critic to cover the story. Later, *the Times* of London asked Einstein to elaborate on his new theory in an article. (...) Soon, hundreds of newspapers were clamoring for an exclusive interview with this certified genius (...).

The above quoted fragment, apart from sketching the beginnings of the (popular) science craze resulting from the rapid development of science as well as the sensational character of Einstein's discoveries, reveals the mechanisms of discourse spread beyond the context of academia. What can be observed is a series of rapid takeovers of Relativity Theory discourse by subjects neither associated with the academic society nor meeting the institutional requirements of the discipline, necessary for being allowed to take part in the formation of the 'true discourse' of science. Acquired by the speaking subjects not related to its original discipline, but usurping the right to its further dissemination outside of the academia, the Relativity Theory discourse undergoes various transfigurations. These remain beyond the control of the entities entitled to impose "the rules of a discursive 'policing'" on the series, as the mechanisms controlling the 'true' scientific discourse belong to and work effectively within the institutional context of a discipline (Foucault 1981: 61).

Interestingly, such uncontrolled distribution of the Relativity Theory discourse during the 1920s and in the subsequent decade contributes to the growing public interest in the figure of its primary author. This can be perhaps linked to the still strong institutional embedding of the Relativity Theory which, combined with the fledging popular science discourse, draws the public attention to Einstein:

> Einstein resembled ancient prophets and saints who could understand what others could not, and tell them about it. He gave them something to believe in, and these new things were not the way they used to be. Time was no longer exact; space was curved and warped; light had weight; and stars were not where they were supposed to be. (Lang 2018: 46)

The unintelligibility of Einstein's theories, the novelty of the discoveries, the complexity of the new scientific paradigm – all these, especially in the early phase of Relativity

Theory discourse creation and spread put Einstein under the spotlight. Invited for interviews in popular press, Einstein manages to control the dissemination of the series, yet only to a limited extent. The series further dissemination, followed by a progressive widening of the group of subjects involved in discourse development and spread initiated in popular press, makes Relativity Theory discourse series acquire a autonomy at the same time distancing it from its author.

However, it was not only the extensive press coverage that contributed to Einstein's growing popularity in the early 1920s. Having become "science's first 'popstar'", besides his regular courses taught at the University of Berlin, answering the demand of the public for a more straightforward explanation of complex scientific theories, Einstein conducted a series of popular science talks and lectures, which caused an "unleashed and unprecedented invasion" of people attending the meetings rather for the reason of the speaker than for the content discussed (Hoffmann 2013: 40). That Einstein became a celebrity figure, to whom popular press devoted sustained, almost obsessive attention, is perhaps most visible in his letter to *The London Times* from November 28, 1919. The scientist's brief explanation of the Relativity Theory, preceded by the expression of gratitude towards English physicists and astronomers, who confirmed his theory in the famous solar eclipse experiment, concludes with the following note:

> Some of the statements in your paper concerning my life and person owe their origin to the lively imagination of the writer. Here is yet another application of the principle of relativity for the delectation of the reader: today I am described in Germany as a "German savant," and in England as a "Swiss Jew." Should it ever be my fate to be represented as a *bête noire*, I should, on the contrary, become a "Swiss Jew" for the Germans and a "German savant" for the English. (Einstein, *The Times*, London)

In the above-quoted fragment Einstein concisely outlines the essence of his popularity in the 1920s; as a prominent figure of widespread recognition the scientist experiences all the aspects of celebrity life, where the adoration fuses with aversion and facts with misrepresentation. However, the popular science fever in America of the 1920s, although definitely centers around Einstein's figure, involves into popular science discourse also other researchers, such as Edwin Hubble, Arthur Eddington, Marie Curie, John Haldane or Julian Huxley, to list just a few (Clark 2016: 482, Dronamraju 2017: 237). Discussing their findings in popular press, attending meetings with audience form the outside of the academic society, as well as publishing popular science books, which,

as Eddington's *Time, space and gravitation*, Hubble's later *In the realm of nebulae* or Haldane's *Possible worlds and other essays*, quickly became bestsellers, the scientists of the time make their findings enter completely new contexts and start formerly unexpected discussions. Science popularization in the 1920s, thus, opens an ongoing dialogue between rigorous scientific thought and more abstract humanist attempts to explore and circumscribe reality.

The influence however is not one directional; it rather appears as a multi-vector, continuous movement of thoughts and ideas that lose their original bond to the discipline form which they emerge, and start to travel freely across various spheres of academic activity, offering new combinations of concepts from the borderland of diversified fields of study. As Gregory and Miller (1998: 29) notice, scientists in the 1920s owe their worldwide fame not only to the popularization of their findings inscribed in their respective fields of study, but also to their explicit interest and activity in the areas other than science in the purest sense. As a result, they become recognizable for opinions and statements on issues remaining beyond their respective fields of specialization: "Einstein for his support for the Zionist cause; mathematician and philosopher Bertrand Russell for his writings on moral issues; and physicist Robert Millikan for his articles on religion" (Gregory and Miller 1998: 29).

The multifocality of the scientist's discursive practices which gives rise to variegated discourse series would be perhaps best explained by the combination of foucauldian theoretical framework for discourse analysis and Dick Higgins' model of Intermedia. The socio-political mood and cultural changes of the 1920s create favorable conditions for an autonomous movement of ideas allowing them to circulate freely, crossing the boundaries of the fields from which they come from. The unrestrained circulation of thoughts on a micro level, and the dialogic interaction between diversified media at the macro level are possible due to the discursive character of the exchange. The dynamism of communicative practices and the large number of interactions between various media in the 1920s fosters progressive fusion of thoughts leading to temporary or permanent "contamination" of one discourse with the elements of the other.

2.2. Science, war, and popular culture: the second wave of popular science craze in America of the 1940s and 1950s

While discussing the internal structure of a discipline with all the mechanisms controlling discourse creation and dissemination within its boundaries, Foucault does not neglect the analysis of its external context. In foucauldian discourse analysis a discipline, although understood as a well-structured institutionalized field governed by mechanisms of exclusion and control, cannot be viewed as an entirely hermetic field with little to no interaction with its outsides. A discipline in foucauldian sense should be rather perceived as a highly ordered institutionalized space allowing for a formation of discourses according to a set of pre-determined, relatively stable rules, but at the same time permitting discursive dispersal of knowledge beyond its boundaries, while preserving the unequal ratio between the output and input:

> Within its own limits, each discipline recognizes true and false propositions; but it pushes back a whole teratology of knowledge beyond its margins. The exterior of science is both more and less populated than is often believed: there is of course immediate experience, the imaginary themes which endlessly carry and renew immemorial beliefs; but perhaps there are no errors, in the strict sense, for error can only arise and be decided inside a definite practice; on the other hand there are monsters on the prowl whose form changes the history of knowledge. (Foucault 1981: 60)

What happens beyond the margins of Einstein's Theory of Relativity? Can the new series on the topic be ascribed to the only one true discourse? What is the category of error, truth and false in popular science, if there is any? What or who are the monsters of pseudo-, semi-, or proto- scientific discourse spread beyond the legitimized context academia? Foucault's description of the space beyond the well-grounded area of a scientific discipline brings into focus the half-mythological, half-magical dimension of the sphere so internally complex that its constantly changing character can neither be fully grasped nor described. Interestingly, theoretical formula for a discipline in foucauldian discourse analysis does not account for the borderland space, a space in between of the institutionally controlled true discourse of science and the ungoverned space which remains beyond the laws of institution. When leaving the boundaries of the discipline, discourse is almost immediately exposed to the influence of a carnivalistic, disorderly space, in which it can be acquired, transformed, and disseminated freely by any subject. Institutional attempts to control it, as in the case of the formerly discussed Relativity

Theory discourse takeovers beyond the discipline of physics in the 1920s usually turn out ineffective when confronted with the desire invested in discourse.

The ongoing vibrant dialogue between science, social life and culture originated in 1920s coincides with a progressive technicization of life, intensified by the weaponization during the Second World War and the years immediately preceding it. The subsequent arms race, especially with reference to nuclear weapons caused by the Cold War fosters the linkage between science and technology, that both remain one of the major areas of public interest, permeating social life and popular culture in late 1940s and during the following decade. According to Thurs (2007: 129), America of the 1950s experiences intensification of activities aimed at science popularization analogical to these, which caused the popular science craze in 1920s. Thurs (2007: 129) attributes the revival of popular science in America of the 1950s mainly to the central role of science in the development of military technology during the Second World War and the Cold War, emphasizing the activity of scientists, government agencies, publishers as well as professional societies to "make a push during the 1950s to improve the 'public understanding of science'", identified by the author with the society's appreciation and the recognition of the importance of scientific discoveries.

A special role in the process of science popularization in America of the 1940s and 1950s is played by popular science magazines. Developing in parallel with publications related to science fiction and fantasy such as "Weird tales", "Amazing stories", "Wonder stories", or "Astounding", popular science magazines became an easily accessible medium offering a comprehensive insight into the new scientific findings and technological solutions. Embedded in the sociology of literature, a brief analysis of the American publishing market between the early 1920s and the late 1940s presented by Chotkowski LaFollette (2009) allows to conclude that the trend started in the 1920s, develops rapidly during the next decade due to an unprecedented intensification of academic research and incremental technological progress, undergoes the necessary transformations forced by the changing socio-political climate in the 1940s, to achieve a certain form of maturity in the post-war decade. According to Chotkowski LaFollette (2009: 246) "a burst of popular interest in science" from the 1950s should be linked to the "expanding knowledge production" which "created the demand for new outlets of diffusion". This demand fosters the development of non-academic publications in the field of science. As a result, the rapidly spreading popular science discourse series find

relatively stable channels for diffusion created by popular science magazines such as "Popular science", "Popular mechanics" or "Scientific American". Along with the growing popularity of periodical publications on popular science, an increased interest in full-length books from the same subject area can be observed in America of the 1930s and 1940s (Chotkowski LaFollette 2009: 253).

Apart from the recognition of the role of press in the process of science popularization, it is also necessary to mention the importance television – a relatively new medium, growing in popularity in America of the 1940s and 1950s. According to Thurs (2007:129) it is *The search*, a popular science show of the early 1950s that serves best as an example visualizing the boosted demand for scientific information presented in an intelligible way and via publicly accessible medium. A more recent study on the topic has been conducted by Chotkowski LaFollette (2013), whose *Science on American television: A history* constitutes a exhaustive exploration on American television offer related to (popular) science and science fiction. The author places special emphasis on the decade of the 1940s and 1950s as a period of intensified activity of both the scientists and officials, aimed at increasing public awareness of recent scientific developments and technological progress, reducing misinformation and familiarizing citizens with the new findings. Since science had become a powerful weapon in warfare, the intensified interest in new technological solutions, physics in general and nuclear energy in particular in America of the 1940s boosts science popularization efforts (Chotkowski LaFollette 2013: 77). Apart from the release of programs such as *You and the atom*, *Your world tomorrow* or *The John Hopkins science review* the public throughout the 1940s and 1950s cherished the availability of science fiction productions including *Tales of tomorrow* and Disney's *Tomorrowland* (Chotkowski LaFollette 2013).

The complex infrastructure for the translation of the academic scientific discourse into popular-science discourse series created in America in the first half of the twentieth century, and operating highly efficiently in the 1940s and 1950s is anchored in the academic context. Amongst the changes in the organizational structures and mechanisms governing the academic work that fostered the dissemination of knowledge and increased its accessibility for the public is the growing popularity of cooperative publishing practice, the rise of university presses and their cooperation with non-academic subjects and institutions, as well as individual scientists releasing the outcomes of their research in commercial presses and via non-profit publishers (Chotkows-

ki LaFollette 2009: 239- 246). Observed in the America of the 1940s and 1950s, the progressive diffusion of knowledge beyond the boundaries of particular disciplines creates new opportunities for discourse series creation and spread. This leads to a gradual dilution of power-knowledge relations which are no longer concentrated within the boundaries of a discipline, but have to be shared between the (speaking) subjects allowed or invited to participate in discourse (series) creation and spread.

2.2.1. The 1950s: the renaissance of Relativity Theory

Science creates a particularly interesting context in the 1950s, not only due to the progressive technicization of life or the increased public interest in new scientific achievements or technological solutions, but also because of the great revival of the Theory of Relativity. "Of the people who towered over the American landscape at the beginning of the decade" states Schwartz (2003: 45) "perhaps physicist Albert Einstein reflected the social, political, and intellectual currents of the time most fully", consolidating his position of a (popular) science celebrity. Einstein, "the most popular and the least understood figure" of the time becomes the epitome of the socio-political spirit of the decade; despite identifying himself as a pacifist, the scientist participates in a discussion on nuclear weapon, at the same time remaining under FBI observation due his left-wing political sympathies and alleged past relations with communism (Schwartz 2003: 45-46).

Moreover, the 1950s mark the fiftieth anniversary of the announcement of Einstein's special theory of relativity of 1905, which again brought into focus the issue of the nature of both time and space and their interconnection. Discussing the trajectory of the development of Einstein's ideas, Gutfreund and Renn (2017: 50-51) identify the 1950s as the "renaissance of general relativity" that entails the revival of related theories on collapsing stars, gravitational field, and those linked to the Big Bang Model and the outer space in general. Einstein's death before the planned conference meeting in Bern in 1955, organized to celebrate the fiftieth anniversary of the special relativity theory, did not divert the attention of both the general public and the scientific world away from Einstein's discoveries from the past half century. On the contrary, Bern conference made scientist realize the responsibility for Einstein's groundbreaking legacy, leading to

the organization of an annual meeting devoted to further analysis and exploration of the nature of space, time, and matter, approached from the perspective of Einsteinian physics (Gutfreund and Renn 2017: 157). As a result, heightened interest in both general and special relativity theory, as well as other related findings, together with intensification of activities aimed at science popularization set against the background of rapid technicization of life and war, make the American culture of the 1940s and 1950s appear as immersed into purely scientific and technological context.

2.3. Between science and literature: philosophical anchorage of Einsteinian thought

"The reciprocal relationship of epistemology and science is of a noteworthy kind. They are dependent upon each other. Epistemology without contact with science becomes an empty scheme. Science without epistemology is – insofar as it is thinkable at all – primitive and muddled" states Einstein (1970b: 684) in the "Reply to criticism" part of Volume VII of *The library of living philosophers*, a collection of critical essays on the scientist's achievements in the field of physics.

With the contribution to the volume done by authors such as Arnold Sommerfeld, Max Born, or Niels Bohr who present their scientific remarks next to Kurt Gödel, Filmer S.C. Northrop, and Gaston Bachelard to mention just a few, the publication constitutes a compelling fusion of science and philosophy. This, in turn situates both the entire volume and particular papers included in the collective work in a liminal position between rigidly structured scientific thought and more abstract conceptual scheme aimed at pursuing the truth about reality. As a result, the critical reflections on Einstein's discoveries in the field of physics undertaken by the leading thinkers of the first half of the twentieth century can be viewed as shared effort of to establish the most favorable cognitive perspective on the Universe.

Since the deliberations on Einsteinian thought go beyond science to provoke the exploration of universal questions concerning the newly discovered nature of the macrocosm, Einstein, adequately to the character of the argument brought to the discussion by his predecessors, suspends his answer between physics and philosophy. Taking the perspective from the border of two different approaches towards knowledge creation,

acquisition, and spread, not only does Einstein admit the simultaneous coexistence of two different discursive viewpoints on the Theory of Relativity within the same contextual framework, but also allows for their progressive fusion into one, internally heterogeneous discursive flow of knowledge.

Addressing the epistemic quality of the new research in physics while answering the observations brought into focus by his contemporaries in the field of science and philosophy, Einstein opens a more inclusive discursive perspective on the Theory of Relativity and the accompanying discoveries. Deliberately juxtaposing science and philosophy in the discussion on relativity and quanta, Einstein allows for the relaxation of the purely formalistic dimension of Relativity Theory discourse in favor of adopting a more universal outlook on the essence of the new scientific findings. This in turn leads to the unveiling of the common roots of science and philosophy, which are to be found in the insatiable quest for the cognition of what, in the context of the above-discussed, would be perhaps best described by means of the Plotinian notion of "The One", understood as a transcendental, all-permeating and all-embracing power and at the same time the ultimate underlying cause of the existence of the Universe.

Although aware of the quixotic character of the pursuit for the absolute cognition, Einstein considers the epistemic quality of his research essential. In fact, the merger of science and philosophy materializes in Einsteinian thought long before the scientist acknowledges the explicit Relativity Theory discourse takeover by philosophers, best exemplified in the previously mentioned volume originally published in 1949. In a letter to Max Born from December 4, 1926, revealing his concerns regarding the plausibility of the reasoning behind quantum mechanics, Einstein (1971: 91) writes:

> Quantum mechanics is certainly imposing. But an inner voice tells me that it is not yet the real thing. The theory says a lot, but does not really bring us any closer to the secret of the 'old one'. I, at any rate, am convinced that *He* is not playing at dice.

Although frequently analyzed with reference to Einstein's vision of God, the above-quoted fragment can be considered as much more than just a telling glimpse into the scientist's religious beliefs. Making a smooth transition from quantum theory to the epistemic uncertainty which accompanies the new discoveries, Einstein deliberately carries the scientific discourse beyond the systematized and secured by formalism sphere of the discipline to steer it towards a highly abstract realm of the unknown that

stretches behind the verifiable structure of the world. The pronoun *He* most often interpreted as a noncommittal formula for expressing the divine loosely anchored in the Judeo-Christian tradition, neighboring the notion of the 'old one', which in simplified terms can be reduced to the previously mentioned Plotinian concept of "The One", acquires greater metaphysical depth, but at the same time becomes more semantically obscure.

In Einstein's letter to Born, the discourse of science flows into and becomes absorbed by the theologically contaminated discourse of philosophy and philosophically marked discourse of religion. The bold fusion of two or even three at first sight divergent orders appears as a conscious and intentional discursive action undertaken by Einstein to emphasize the cross-discipline network of interconnections, which, however vague and inexplicable, rises to the surface of all scientific considerations, becoming especially visible when the scientific thought reaches the frontiers of human knowledge or goes beyond the borders of cognition. The spirit of revolution and radical novelty dwelling in Einstein's theories undermines the formerly existing and taken-for-granted Newtonian order of the world forcing the search for the new modes of perception, that would appear as more adequate in the face of the changes. This in turn would not be possible without referring to and verifying the already existing philosophical systems.

2.3.1 "Pure thought can grasp reality"[1]: (not only) Kantian roots of Einstein's philosophy of science

The metaphysical anchorage of Einstein's scientific thought is commonly known due to the scientist's open references to the philosophical oeuvre of Kant, whose perspective on reality, construed partially in tension to the Newtonian vision of the world can be viewed as an abstract starting point in Einstein's pursuit for the truth on the Universe. For Einstein the works of Kant become a breeding ground for re-thinking the concepts of space and time, at the same time bringing into focus the discussion on the nature of cognition with reference to the epistemological dimension of knowledge origin, creation and acquisition. According to Smith (2003: 15) it is Kant's *Critique of pure reason*,

[1] Einstein, Albert. 2004 [1934]. "On the method of theoretical physics", in: Albert Einstein, *Essays in science.* New York : Barnes & Noble Books, 12-21.

which, along with Alexander von Humboldt's *Kosmos*, Ludwig Büchner's *Force and matter*, and Aaron Bernstein's *Popular books on natural science*, shaped Einstein's perspective on reality as early as in the scientist's teen years.

Einstein's first philosophical and scientific explorations thus appear as multi-directional and heterogeneous. Nevertheless, it is Kantian enlightenment approach towards the (verifiable) reality that, exercising a long-lasting influence on the physicist's scientific thought, becomes a permanent axis for Einstein's own philosophy of science. Kant's discussion on the nature of human cognition, perception and experience places the considerations on subject-object epistemic relations in a broader context of the (im)palpable and the material, undermining seemingly "unchallengeable absolutes on Newtonian physics", namely – space and time (Smith 2003: 15). These can no longer be viewed as "universal realities" but under the light of Kantian philosophy transform for Einstein into "variable concepts" (Smith 2003: 15). And although Kant's philosophical system displays some inconsistencies regarding the treatment of the concepts of absolute space and time, it is the very fact of impugning the seemingly stable and universal Newtonian concepts circumscribing the basic dimensions of reality that opens a new perspective on the world. This in turn manages to preserve its revolutionary character over almost two centuries, becoming a major point of reference for Einstein in his creation of the scientific image of the world.

The impact of Kant on Einstein's philosophical beliefs should not be viewed merely in terms of a brief, intense stimulus provoking a radical break with the Newtonian status quo in addressing the physical world with all the interactions and forces within it. Einstein's fascination with Kantian thought appears rather as a long-term, processual influence which evolves over time in parallel to the continuous development of Einsteinian new physics, especially the Theory of Relativity and quantum mechanics. More than half a century after the scientist's first encounter with Kantian *Critique of pure reason*, Einstein still structures the philosophical context to his research around and with reference to the ideas of the enlightenment philosopher. Addressing Non-Positivists in his "Reply to criticism" Einstein (1970b: 678) writes:

> Do you not have to admit that, in your sense of the word, no "meaning" can be attributed to the individual concepts and assertions of a physical theory at all, and to the entire system only insofar as it makes what is given in experience "intelligible?" (…) It seems to me, moreover, that you have not at all done justice to the really significant philosophical achievement of Kant. From Hume Kant had learned that there are concepts (…), which

> play a dominating role in our thinking, and which, nevertheless, cannot be deduced by means of a logical process from the empirically given (…).

In the closing text to the previously mentioned collection of essays, the otherwise essentially scientific discussion on the formal dimension of Einstein's theories, the self-controlled discourse of science flows smoothly into the discourse of philosophy. Engaging in an internally heterogeneous polemic with some of the major thinkers and scientist of his era, Einstein does not reject the rigid mathematical language of physics, but complements it with abstract, metaphysical elements extracted from another discursive field. Borrowing from Kant, Einstein manages to build a capacious and highly malleable discursive-conceptual framework on which to base the epistemic dimension of his theories. Furthermore, from the macro-perspective, such a setting to Einsteinian new physics emphasizes the importance of philosophical embedding of scientific discourse. Without it science would appear as uprooted and devoid of its essence, that could be perhaps most accurately expressed by means of reference to the conceptual base of Foucauldian philosophical system and the notion of the will to truth.

It is also important to mention that Kantian thought is not the sole set of ideals that offers a cognitive framework for Einstein's theories, at the same time becoming one of the most important pillars the physicist's own philosophy of science. The above quoted fragment of Einstein's "Reply to criticism" clearly shows that for the scientist Kant's school of thought is indissolubly linked to the philosophical system proposed by Hume. Additionally, in his larger-than-science perspective on the world Einstein frequently leans on Mach's achievements as well. The influence of both philosopher's on Einstein is perhaps best described by the scientist himself. In his "Notes for an autobiography", discussing the failure of classical mechanics to provide "firm and final foundation for all physics", Einstein (1949:11) notices that "it was Ernst Mach, who, in his 'History of Mechanics' shook this dogmatic faith", not only in science in general, but also in the young Einstein's mind in particular. Additionally, as Einstein (1949: 12) reveals, both Mach's and Hume's works contributed to the developing of "the type of critical reasoning", that helped him formulate a plausible explanation for the phenomenon of the observer's paradox.

Nevertheless, it is not only the "phenomenological and empiricist approach of Mach and Hume" as briefly conceptualized by Beller (2000: 96), Kantian skepticism towards Newtonian notions of absolute space and time or Russell's conflict between

"the aristocratic illusion [of] the unlimited penetrative power of thought" and the "plebeian illusion of naïve realism" (Einstein 1946: 281) that, among other philosophical ideas, influenced Einstein in his scientific quest for the perfect theory which would mathematically reflect the structure of the Universe and its inner workings. Although the general conceptual framework extracted from the philosophical works by various authors provided a meaningful skeleton for Einstein's revolutionary theories, the influence of philosophy on Einsteinian new physics is far more complex and manifests itself not only in the primary methodological apparatus behind Einstein's way of reasoning or in a system of terms defining and organizing the phenomena constituting both the verifiable and non-verifiable dimensions of reality.

"There can be as little doubt as philosophy stretched his personality as that his philosophical knowledge played no direct role in his major creative efforts" states boldly Pais (2005:13) emphasizing the dual role philosophy played in Einstein's life. The analysis of its impact on the scientist and his work therefore requires adopting a broader, multidimensional view which takes into consideration the all-embracing character of the influence. Accordingly, the rhetorical dimension of Kant's, Hume's or Mach's thought to mention just a few philosophers whose ideas absorbed Einstein, cannot be neglected while analyzing the factors which shaped Relativity Theory discourse

A brief analysis of Einstein's collected writings published under the title *The world as I see it* (2010) allows to conclude that Einstein does not treat the philosophical concepts as raw objects that, once excised from the dense tissue of the original philosophical discourse to which they innately belong, are transposed on a new discursive field, where they function in a continuous displacement. Einstein's approach towards various schools of thought is rather based on a fully conscious, deliberate immersion in the philosophical discourse, always treated holistically as an internally complex, but at the same time coherent whole. Discussing the issues related to the mutual interconnection of science and religion, involving in more universal deliberations on the individual's power to shape the reality or analyzing the role and meaning of education in modern society, Einstein does not so much refer to the discourse of philosophy as lets himself be fully carried away by it. As a result, by dressing the raw skeleton of concepts, ideas, and methodological tools serving the exploration of reality in both its physical and abstract dimension in discourse, Einstein consciously shifts the balance point of

his research from rigid scientific accuracy to philosophical indeterminacy resulting from the rhetorical fluidity of thought.

Interestingly enough, although the trespassing of the boundary of physics to address the issues belonging to the sphere of humanities entails an indispensable conversion from one discourse to another, the transgression is not tantamount to a complete repudiation or even to a temporary suspension of the discourse of science. The language of philosophy and the language of science in Einstein's texts are not mutually exclusive but coexist to create a dynamic fusion of discourses able to carry and express manifold meanings. Although they can function in isolation, it is, as Einstein notices in the previously quoted "Reply to criticism", their mutual dependence and interpenetration that makes them a more functional, more meaning-absorbent and more effective tool assisting the researcher in the search for truth.

With its firm anchorage in various philosophical systems, amongst which the ones created by Kant, Hume, and Mach proved the most influential, Relativity Theory discourse should be by no means viewed as linguistically sterile and hermetic. Since its peculiar contamination with elements from the outside takes place even before its spread beyond the boundaries of the discipline, the language of Einsteinian physics can be considered as a superstructure secondary to the core framework provided by the philosophical discourse. At bottom, Einsteinian new physics is speaking the language of philosophy, without which it would be devoid of its innermost essence. Relativity Theory discourse should be therefore viewed as primarily immersed in the discourse of pure epistemology with which it shares a common denominator of the will to truth.

2.4. The language of science, the language of art: the echoes of relativity in art and literature

The reverberations of the fundamental paradigm shift in science reached not only popular, but also high culture, awaking new sensitivity to the perception, treatment and representation of time, space, and the material reality. "This new artistic 'language' has nothing in common with the Theory of Relativity" states Einstein in a reply to Paul M. Laporte written in 1945 (1966: 246), denying, by the use of purely scientific explana-

tion, the existence of any links between Picasso's extraordinary painterly technique and the groundbreaking achievements in the area of physics, that revolutionized the way in which we think about both space and time. Does it mean that Laporte's observations should be viewed as a misinterpretation or an excessive extension of the scope of Einstein theory to areas that stand in opposition to the field from which both General and Special Relativity emerge? Einstein's negation of the existence of any reasonable linkage between Picasso's painterly technique or, by analogy, various forms of artistic expression driven by abstract rules of creativity, aesthetics and emotions on one side, and pure science governed by a strict regulatory framework of reasonable thought, mathematical precision and verifiability of assumptions on the other, is based on an unassailable logic of scientific argumentation.

Irrespective of how unfalsifiable Einstein's commentary on the issue in focus is, the premises of Theory of Relativity create a peculiar "butterfly effect" in American culture, starting to live their own life outside of the field of their origin, heading previously unexpected directions. Their consistent, but at the same time somewhat chaotic movement towards new spheres of influence makes them undergo a series of transfigurations. As a result, on entering new, non-scientific contexts, Einstein's Theory of Relativity loses the rigid and objective scientific framework that sets its scope, in favor of adopting a more inclusive, imaginative scheme. The Theory becomes both the subject to interpretation and, at the same time, a new interpretational tool that offers new perspectives on reality. Blended with more abstract, humanist attempts to explore, circumscribe and cognize the world, Einstein's Theory of Relativity gets involved in an ongoing, dynamic process of ascribing new meanings to both material and non-material reality. While its more or less explicit application in various spheres of artistic creation can no longer be supported by empirical evidence from the field of science, it does not mean that the meanings obtained as a result of a unique fusion of two opposing ways of reasoning and cognition are far from truth. "There is no one thing that is true. It is all true" states Hemingway in *For whom the bell tolls* (1940), expressing the spirit of an epoch that rejected the traditional Renaissance perspective on the world, in favor of a more multifocal vision, multiplicity of diversified, but equivalent voices and the originality of subjective approaches (Hemingway 1995: 467).

From various forms of artistic expression literature is perhaps the one, which remains closest to different aspects of life, frequently acting as a barometer of social

change. Since most of the research effort in the first half of the twentieth century oscillated around the exploration of the outer space, the themes of alternative realities and new worlds become building blocks of science fiction – a rapidly developing genre that flourished in America of the 1940s and 1950s (Roberts 2006: 195). These two decades are commonly identified as The Golden Age of science fiction. With "fantasies of technowonders and of superheroes" (Franklin 1998: 165) the decade marked by the Second World War, and the subsequent one with the Cold War and Vietnam War in the background, create a breeding ground for the development and the crystallization of a genre that feeds almost exclusively on the achievements of science and technology, tinged with a great dose of narrative imagination.

2.4.1. Relativity Theory as a part of literary theory discourse: Bakhtinian perspective

The success of Relativity Theory discourse in broadly understood art and culture contributes to its progressive spread and transfiguration. Einsteinian new physics with its revolutionary premises on the nature of space, time, and moving bodies offers a new, broad repository of methodological or, in broader terms, epistemological tools for the exploration and description of the external world.

Regardless of the perspective taken and the affiliation of the researcher, the groundbreaking theory in the field of science still offers an interesting theoretical framework through which to view the reality. The universality of Einsteinian optics becomes one of the major features determining its subsequent takeovers by various speaking subjects; when detached from its purely empirical and, correspondingly, verifiable dimension supported by precise mathematical data, the theoretical formula behind Einsteinian new physics becomes a highly malleable philosophical scheme offering a new outlook on seemingly stable, objective phenomena of space, time, matter, and the dynamics of motion. As such, Relativity Theory offers a compelling response to the modernist quest for the novel approach towards the world which, shattered by war and irreversibly changed by the new scientific discoveries and technological solutions, needs to be re-approached, re-explored and re-assessed.

Further acquisition of the fundamental premises of Einsteinian new physics in the area of literature can be discerned in Bakhtin's 1937 essay "Forms of time and chronotope in the novel: Notes toward a historical poetics", where the author openly refers to Einstein and the conceptual framework underlying the Theory of Relativity:

> We will give the name chronotope (literally, 'time space') to the intrinsic connectedness of temporal and spatial relationships that are artistically expressed in literature. This term [space-time] is employed in mathematics, and was introduced as part of Einstein's Theory of Relativity. (Bakhtin 1981:84)

Bakhtinian theory of space and time in the novel has its firm anchorage point in the concept of space-time understood as a fusion of the spatial and temporal aspects of the verifiable reality into a four-dimensional manifold. This explicit borrowing allows Bakhtin for a complete reformulation of the commonly shared beliefs modelling the perception of the material reality and time. Einsteinian notion of space-time becomes thus a point of departure for the development of a new concept map that re-defines the spatio-temporal relationships in literature. Nevertheless, it should be emphasized that the translocation of the theoretical framework behind Einsteinian new physics onto the ground of literary theory is entirely founded on the principle of intersubjectivity, with the major foundations of the Relativity Theory being considered as a loose, highly malleable, and abstract formula that best describes the new outlook on the interconnectedness of space and time:

> The special meaning it [space-time] has in relativity theory is not important for our purposes; we are borrowing it for literary criticism almost as a metaphor (almost, but not entirely). What counts for us is the fact that it expresses the inseparability of space and time (time as the fourth dimension of space). (Bakhtin 1981: 84)

Repositioning the notion of space-time into the context of literary criticism Bakhtin intentionally abandons its rigorously mathematical dimension. This allows for a reduction of a complex, strictly scientific theory to a universal conceptual framework which can serve as a form of a generic filter through which to view the external reality, and its reflexion or (re)construction in a literary work. As a result, in Bakhtinian theory of literature, Einsteinian notion of relativity functions as a highly generalized matrix on the basis of which Bakhtin develops his methodological approach towards the analysis of the phenomena of space and time in the novel.

Of particular importance for Bakhtin is not so much the centrality of space and time in the novel's represented world, but rather their interlinkage into a single, multi-dimensional concept of a *chronotope.* In this way, the Theory of Relativity borrowed from the area of science, reduced to its core semantic minimum, and transplanted onto the field of literary theory, offers a new optics through which to view the represented world in literature:

> We understand the chronotope as a formally constitutive category of literature (...). In the literary artistic chronotope, spatial and temporal indicators are fused into one carefully thought-out, concrete whole. Time, as it were, thickens, takes on flesh, becomes artistically visible; likewise, space becomes charged and responsive to the movements of time, plot and history. This intersection of axes and fusion of indictors characterizes the artistic chronotope. (Bakhtin 1981: 84)

For Bakhtin time becomes an immediate measure, an *indicator* of a wide array of changes that affect space. Weaving together time and space into a single concept of a chronotope Bakhtin does not only explicitly refer to the achievements of Einsteinian physics, but also postulates a systemic revision of the perceptual perspective on space and time in literature. This happens by the redirection of literary theory discourse towards the discourse of science as well as through the immediate fusion of two contradictory modes of describing reality; juxtaposing the graphic language of science and mathematics (*intersection*, *axes*, *indicators*), with the figurative language of artistic expression (*thickens*, *takes on flesh*), Bakhtin blurs the distinction between the literary and the scientific. As a result, Bakhtin's attempt to create a peculiar merger between science and literary theory, based on an explicit borrowing of the conceptual framework underlying the notion of relativity, while at the same time detaching it from its core scientific accuracy allows for the rise of a hybrid metadiscourse on literature, of which the essence is to be found in its inhomogeneity. The methodological field with the concept of chronotope as the focal point becomes thus broader to incorporate and utilize the elements of discourse formerly extraneous to literary theory.

In the view of the above discussed, Bakhtin's "Forms of time and chronotope in the novel: Notes toward a historical poetics" can be considered as yet another example of an explicit takeover of Relativity Theory discourse. The ramifications of such a resolute interception of Einsteinian scientific discourse however seem to extend well beyond the common consequences of discourse series creation and spread. "The 'chronotope'

was another way of stating that the work of art is a unified spatial-temporal construct, just as any other object of experience" states Antonova (2010: 24) emphasizing the new perspective on a literary work brought into focus with the introduction of space-time as an epistemological category used in the studies on literature. Bakhtin's deliberate redirection of literary theory discourse towards the conceptual framework stemming from the new theories in physics brings into focus the perceptual dimension of the reception of a literary work.

In consequence, Bakhtinian chronotope can be viewed as something more than just a formal category serving the description of space-time constructs in literature. Apart from constituting a vivid response to the changing perspective on reality and its possible dimensions, chronotope implies the need for a profound change in the modes of perceiving space-time imagery in literature, placing a literary text in the position of a complex spatio-temporal phenomenon to be felt and experienced.

2.4.2. Fiction and Relativity Theory: the connection explored. Literature review

The influence of new scientific discoveries and technological solutions that defined the 1940s and 1950s, creating a vibrant net of mutual interconnections, is therefore obvious and has been widely discussed in various sources, such as Lambourne's *Close encounters? Science and science fiction* (1990), Booker's *Monsters, mushroom clouds, and the Cold War: American science fiction and the roots of postmodernism, 1946-1964* (2001), or works exploring the bi-directional relationship between science and science fiction, such as Brake and Hook's *Different engines: How science drives fiction and fiction drives science* (2008), or a more recent publication by Loukkala entitled *Exploring science through science fiction* (2014), to enumerate just a few.

The influence of the groundbreaking scientific discoveries and cutting-edge technological solutions from the first half of the twentieth century has also been traced in some modernist works of fiction; nonetheless, major emphasis was placed on the core period of the movement that spans between the end of the Great War and the beginning of World War II. Albright's *Quantum poetics: Yeats, Pound, Eliot, and the science of Modernism* (1997), Whitworth's *Einstein's wake: Relativity, metaphor and modernist literature* (2001), or Morrisson's *Modernism, science and technology* (2017) constitute

an example of publications aimed at determining the significance of changing scientific paradigms and robustly developing technology, both within and outside of a military context, in the making of a new cultural and literary epoch.

However, the context of science and technology in late modernist American non-science fiction literature of the 1940s, and especially of the 1950s appears to be neglected in the works of literary criticism dealing with texts created during the Second World War and in the post-war period. The 1940s, which brought previously unimaginable technicization of war on a macro scale, and the mechanization of individual soldier's fight on a micro scale, along with the 1950s, a decade marked by the great revival of one of the most crucial scientific theories of the twentieth century – Einstein's Theory of Relativity, create a variegated network of cross-harmonies between science, technology, and literature. The linkage between science and literature is therefore by no means exclusive and does not limit itself to a one-, or in some cases bi-directional relationship with science followed by technology on one side, and science fiction on the other. Hence, it would be valuable to develop a new methodological, analytical, and, perhaps most importantly, interpretative perspective on the classical works of literature of well-established and popular authors of the 1940s and 1950s, taking into special consideration the formerly neglected interpretative and analytical aspects of these works.

2.4.3. Beyond science fiction: an outline of the influence of Relativity Theory and related scientific findings on American non-science fiction prose of the 1940s and 1950s

The evidence from various prose texts created in 1940s and in the subsequent decade clearly shows, that the extraordinary dialogue between science and literature is more multifocal, and, apart from its self-evident, vibrant exchange with science fiction texts, involves into relationship also those works of literature, which are far from being classified as belonging to science fiction genre. Both novels and short stories by the most recognizable American authors dominating the literary scene of 1940s and 1950s, such as Ernest Hemingway, James Jones, Irwin Shaw, Vladimir Nabokov, Thomas Berger, Norman Mailer, Flannery O'Connor, James A. Michener or John Hersey are thoroughly immersed in the spirit of the time, and therefore echo the pronounced vibrations of the

socio-cultural transformations provoked by the change of scientific paradigms and the accompanying technicization of life and war. The context of technology and science, with particular consideration of the renewed interest in Einstein's Relativity Theory and the revolutionary discoveries concerning the outer space, apart from providing literature with a variegated network of themes and motifs from which to build new narrations, influences non science fiction literature of the 1940s and 1950s at a deeper level. A brief analysis based on close reading of several texts by the above mentioned authors, written within the time span 1940-1960 proves that the influence of the previously discussed socio-cultural and scientific factors on the non science fiction literature of the time manifests itself most vividly at the level of literary space-time imagery creation.

Tracing the evidence of the influence of science, with a special focus on the premises of relativity in 1940s and 1950s non science fiction prose, brings into light the undiscussed context of new space-times that open up as a result of a rapid development of science in the 1940s and 1950s, casting into shadow the objective notion of time and the classical renaissance perspective on space, no longer viewed as a coherent and relatively stable phenomenon, that tan can be easily embraced by human thought, explored and circumscribed. A top-down analysis of literary space time imagery in selected American prose texts from the 1940s and 1950s first brings into focus more general themes of space, material reality, time, and human body. These, in turn, in a more comprehensive interpretative approach, can be dissolved into smaller thematic units, which create a compound network consisting of variegated motifs that arise with reference to space-time imagery discussion. Among others, the most pronounced aspects of literary space-time imagery in American prose texts of 1940s and 1950s include the question of possible dimensions of space, subjective vs. objective space-time perception, objects in space and their causative power, the relationship between time relativity and time subjectivity, time as a nonhomogeneous phenomenon, the issue of dimensions within a dimension, namely, memory, past, and imagination viewed as dimensions of time, and, last but not least, a complex theme of human body as a microcosm immersed in space-time. The list, by no means exhaustive, enumerates some of the major aspects of space-time imagery creation in American literature of the 1940s and 1950s, proving that the influence of science and technology on American prose of the time, although not as explicit and pronounced as in the case of science fiction works, is still palpable in the delicate tissue of the text.

A particularly interesting approach towards the treatment of the narration's internal time appears in Jones's novels. "Stein looked at his watch, and its little face stared back at him with an intensity it had never had before. 6.45; a quarter to seven in the morning. Back home he would be just – Stein realized he had never really seen his watch" writes Jones (1991: 165) in *The thin red line*, building a somewhat surreal vision of reality, where the notion of objective time collapses, becoming only a matter of cultural or mathematical construct with no connection to the real perception of time by an individual. In *Some came running* (1958), telling the story of a war veteran coming back to his home town several years after the armistice, Jones appears to be playing with the notion of simultaneity. In an attempt to create several parallel lines of storytelling, the author pushes the narration forwards and then, suddenly, backwards, frequently changing the perspective from which the story is told. From the technical point of view, although the multiplication of perspectives makes the author achieve the effect of simultaneity, the story's internal timeline undergoes a peculiar form of stratification, cleaving into several minor timelines ascribed to particular characters, whose fates interweave. This causes not only a profound but, most probably, intentional distortion to time linearity in the novel, but also brings into focus the characters' subjective perception of time. A less appreciated novel by Jones, *The pistol*, not only constitutes an attempt to delve into an uncanny, obsessive relationship between an individual and an object, but also explores an alternative dimension of time – imagined memories of events that have never occurred, or are expected to happen, becoming so profoundly palpable, that they start to interfuse with the real and the verifiable.

The motif of imagined past can be also traced in Mailer's *Barbary shore* (1951). "Probably I was in the war. There is the mark of a wound behind my ear, an oblong of unfertile flesh where no hair grows" states the major protagonist in the opening lines of the story (Mailer 2013: 5). Being an amnesiac, the major character struggles with his uncertain, blurred past that keeps reoccurring in a form of unexpected flashes unrelated to any of both the internal and external stimuli. Correspondingly, the shattered crumbles of obscure recollections form the war that interrupt the flow of the narration cannot be situated anywhere on the time axis and, thus, appear to dwell somewhere beyond time. Struggling with the uncanny experience of not being able to organize his past into a coherent, linear stream of events that flow smoothly from the bygone into the recent, and the present ones, Lovett makes an attempt to create his own, imagined past, and

therefore, regain at least part of his missed identity. The theme of imagined memories and the character's strong belief in their veracity, results in adding a new, alternative dimension to the real time spectrum, at the same time calling into question the customary perspective on time.

However, it is not only the dimension of time that Mailer challenges in *Barbary shore*. Introducing Lannie, a tragic figure, whose mental disorder followed by alcohol and drug addiction make her perceive reality in a distorted, almost surreal way, Mailer opens up a new perspective on both space and time. Treating pieces of furniture and cracks on the wall as living things, Lannie develops a disturbing relationship with the world of objects around her. Finally, on the verge of emotional and mental breakdown, Lannie kills an uncanny Christ figure that kept invading her room in the form of a mouse using a hole in the wall. Subsequently, in the act of desperation Lannie takes an allegedly successful attempt to paint the hole over with an aim to keep her private space once and for all safe from the unknown, evil powers. As in the case of Hemingway's *nada*, these appear to loom somewhere 'out there' in space, constituting its metaphysical dimension that cannot be fully grasped or defined, but is as palpable as smell and sound in space could be. Similar distrust towards space viewed as a collection of objects and places that seem to safeguard their dark secrets, always ready to use their causative power against an individual can be also discerned in O' Connors prose of the time. As a result an objective, material, and thus entirely cognizable and examinable world ceases to exist. Instead, reality appears as a collection of not fully explicable phenomena, that reveal their abstract dimension, making the world become an uncanny, hostile, unfamiliar space, which resembles the unexplored cosmic spaces. The cosmic, otherworldly imagery in literary space-time creation evinces itself also in Berger's *Crazy in Berlin* (1958), or Hersey's *Hiroshima* (1946), a non-fiction account of Hiroshima nuclear attack. In both of the books the debris, remnants of a bygone era, create cosmic, infertile landscapes, where the present appears to be thoroughly immersed in the foregone past.

The technicization of life and war in the 1940s and 1950s brought into focus the theme of material objects and their dynamism in space as well. The development of Einstein's Relativity Theory and its popularization among non-physicists were closely linked to the idea of motion of men-made machines, such as planes or trains, frequently used in popular science explanations to visualize Einstein's discoveries in a more accessible manner. In this respect Einstein's achievements in the field of quantum physics

not only redefined the notion of space-time dimensions but also exercised a considerable impact on the perception of objects' movement within and against space (Berman 2005: 255-262). Correspondingly, it was not only motion dynamics that was reapproached from an entirely different perspective, but also the moving object itself. As Berman (2005: 47) observes "Einstein contributed a new imagery", since "mechanical objects moving at high speed in literature share some of the meaning they had for science". Wartime machines, especially when placed in or against the context of natural world of exotic islands, such as Guadalcanal in Jones's *The thin red line* (1962), Hawaii in *From here to eternity* (1951) or a number of Pacific Isles in Michener's *Tales of the South Pacific* (1947), acquire features which make them go far beyond Marx's powerful metaphor of the machine in the garden. In Michener's *The bridges at toko-ri* (1953) the accumulation of mechanical objects of non-organic, carefully designed shapes not only invades the natural world, but also pushes it to the level of a non-significant background of events. Always in motion, the planes, the aircraft carrier and the smaller ships that accompany it, create a peculiar techno-system, that stands in opposition to the ecosystems created by nature and the natural space they function within. As a result, the aircraft carrier becomes a dynamic, geometrized galaxy of technical tools, a moveable centre of the world for hundreds of soldiers,

However, a complex network of war machinery does not only constitute a separate techno-system functioning within a larger, natural space, but also, in some cases, starts to create their own, independent space-times, fundamentally different from the one constituted by the natural space. In works such as Shaw's *Young lions* (1948), Jones's *From here to eternity* (1951), or Michener's *Tales of the South Pacific* (1947) the novels' internal space-time undergoes a stratification into several layers – coexisting, juxtaposed space-times that do not fully blend into one. The life on the plantation, the moments of rest after the fight, the natural life on the desert with animals curiously looking at soldier's actions appear to occupy a reality different than that of the war.

The abovementioned delamination of objective space-time into multiple smaller realities governed by their own laws, is perhaps most visible in Michener's *Tales of the South Pacific* (1947), a collection of short stories. The titular "tales" are loosely connected by some of the characters' figures and the unifying theme of war, which, depending on the tale, becomes the major thematic axis around which a particular story's narration is constructed, or remains in the background, setting the scene for the intro-

duction of themes and motifs central to the representation of the genuine character of a particular island, both in terms of its natural life, and the life of the community that inhabits it. The mosaic structure of the text seems to correspond with the character of the isles scattered throughout the South Pacific, making each tale appear to the reader as encapsulated within a particular island's individual space-time, governed by its own laws, which do not comply with objective time perception. In this view, crossing the island's borders means opening new space-times and new lines of narration.

A discussion on the influence of science, Theory of Relativity, scientific exploration of the outer space and technicization of both life and culture on American non science fiction literature of the 1940s and 1950 would not be perhaps complete without addressing the theme of human body within and with relation to space-time. Some interesting observations on body and space perception have been presented by Marleau-Ponty in *Phenomenology of perception* (1945). Despite the philosopher's explicit critique of Einstein's perspective on time and the notion of simultaneity, Marleau-Ponty was aware of the fundamental difference between a rigid and precise physical reasoning and more abstract philosophical thought (Bourgeois 2002: 355). Although the influence of Einstein's General and Special Relativity Theory on Marleau-Ponty's *Phenomenology of perception* was indirect and should rather be perceived in the categories of an incentive for Marleau-Ponty's deeper philosophical inquiry on the Self, body, and the world, the philosopher's observations inscribe into the general spirit of the time, becoming a manifesto of the profound change in both space and time perception, that prepares a new ground for discussion on the particularity, but at the same time genuineness of an individual's experience. Conceivably, one of the most vivid examples of subjectivity of space-time perception in American literature of the 1950s is constituted by Nabokov's *Pnin* (1957), with the titular protagonist projecting his highly personalized experience on space-time, obtaining a somewhat surreal vision of the world.

The focus on the role of the body in the building of space-time appearance is perhaps most evident in war novels of James Jones. However, it is not only the relationship between the body and the outside space with an added dimension of time, that Jones explores in works like *The thin red line* or *From here to eternity*. It is also the relationship of an individual and the body that Jones brings into major focus, frequently blurring the distinction between the subject (a living character) and the object (a dead soldier) or showing how both death and war wounds open an uncanny microcosm of

human body. Once the delicate tissue of the body is opened by war wounds, the body ceases to be a secure shelter, turning into an uncanny space, that starts to invade the outside in a form of an expanding galaxy of unknown elements, threatening its bearer and disturbing the soldier's vision of the world. As for the role of the body in space perception an interesting viewpoint can also be found in Hemingway's *True at first light* (1999) or *Islands in the stream* (1970), where the author introduces the perspective of wild animals on the world they live in.

Although the evidence of the influence of new scientific discoveries on American non science fiction mainstream literature of the time is not explicitly pronounced, the revolutionary paradigm shift in the field of physics still reverberates the delicate structure of the represented worlds in prose texts by Jones, Hemingway, Shaw, Nabokov, Berger, Mailer, O'Connor, Michener or Hersey. The vibrating echo of the change injects a profound distrust in the existence of objective space-time, giving voice to multiplicity of individualized perspectives, and, thus refocusing the discussion on space-time on the subjectivity of an individual's experience. This, in turn, gives rise to a profoundly altered, relative vision of space, time, the intricate world of objects immersed in space, and, last but not least, human body. As the objective frame of reference becomes a conventional, easily transformable tool, both time and space unveil their internal incoherence, appearing as highly unstable phenomena in a continuous process of transfiguration. As a result, the decay of the clear-cut and well ordered Newtonian vision of the world creates a need for the de-construction of the notion of both time and space in literature, leading to the rise of cosmic-like represented worlds, uncanny galaxies of things invading space, mirages simultaneously in and beyond time where "a thing is true at first light and a lie by noon" (Hemingway 1999: 189).

The above sketched network of literary themes discussed with reference to the new scientific discoveries, technicization of life and war, and the general cultural spirit of America of the 1940s and 1950s constitutes only a brief overview of the topic which will be explored in the next chapters. It is also crucial to emphasize that this section and contains references to literary works which will not be discussed in the thesis, but are worth mentioning in order to provide a broader contextual background to the texts to be analyzed in this study.

Chapter 3: Space (-time) imagery

3.1. Literary representations of space

The notion of space-time, understood as a single concept expressing the indissoluble linkage between the spatial and the temporal aspect of the formerly three dimensional reality, constitutes the major conceptual axis which overgrows with the dense tissue of Relativity Theory discourse series. And despite the strict formalism characterizing Einsteinian discourse on the newly discovered quality of the universe, opposing the relaxed and far less rigorous treatment and usage of Relativity Theory discourse by various speaking subjects from beyond the field of academia, the notion of space-time remains the least variable semantic component of the discourse series in focus.

Rejecting the mathematical precision, which delineates the boundaries and scope of Einstein's theory and its particular composing parts, the speaking subjects who take over the Relativity Theory discourse either filter it through the specifics of their own fields of expertise, or contaminate it in the process of dissemination with their subjective experience stemming from individual perception of both space and time. This places Relativity Theory and its semantic capacity under continuing tensions resulting from a significant lapse between scientific accuracy, and the generative potential of Relativity discourse able to multiply new meanings when placed within a new context. Nevertheless, regardless of the degree of changes introduced and the type of implemented modifications the conceptual basis of the discourse (series) in focus remains relatively stable, with the notion of space-time constituting the nucleus of the series' semantic layer.

With Naum Gabo publishing a manifesto on art in the face of the rebirth of space and time, Edward Steichen's photograph entitled "Time-Space Continuum", André Breton postulating "to resolve the previously contradictory conditions of dream and reality" in order to create "an absolute reality, a super – reality" (1924), Marinetti boldly announcing that "the world in which we live is a four-dimensional space-time continuum", and finally Gertrude Stein (1969: 50) claiming that "the twentieth century is a century which sees the earth as no one has ever seen it", both modernist art and literature build a pronounced link with the most recent scientific discoveries. According to Henderson (2007: 397), the notion of space-time understood as a four-dimensional continuum became "the essence of modernism and modern life as a whole". Modernist artistic perception of reality is therefore largely grounded on the one provided by science and frequently draws from the conceptual repository constituting the semantic layer of Relativity Theory discourse series. Regardless of the (re)interpretations Einsteinian concept of space-time is subjected to and the transfigurations or distortions the concept undergoes, it still remains at the core of the semantic dimension of Relativity Theory discourse series.

In the light of the above-discussed, the idea of space-time appears as an indissoluble unit structuring the thinking on reality according to firm basic principles of the interlinkage of the spatial and temporal dimensions of the (observable) world. Nevertheless, for the organizational purposes of the study in focus, the discussion on space-time imagery in the proposed selection of American late modernist literary works from the 1940s and 1950s, will be divided into three separate chapters. This however is not tantamount to the disjunction of the notion of space-time into three isolated semantic units, but rather assumes an alternating shift of research focus from space imagery, to time as a fourth dimension of reality, and the role of the material and the palpable in literary spatio-temporal constructions. The analysis of the aforementioned aspects of literary space-time imagery will be thus carried with respect to the principle of the interlinkage of the temporal, spatial, and material aspects of reality.

3.1.1. Trying to capture the dimensions of space: Hemingway's "The Land, Sea, and Air Book"

"Have stuff for wonderful book (…) Want to write novel – not war book. It should have the sea and the air and the ground in it." – states Hemingway (1981: 574) in a letter to Maxwell Perkins from 15th October 1944, informing his book editor and a friend about the most recent plans concerning his literary work. Four years after the publication of *For whom the bell tolls*, which received high critical acclaim, Hemingway struggles with personal turmoil and a writer's block. Unable to recover the afflatus, that accompanied him in the late 1930s, overwrought by the neurotic relationship with Martha Gellhorn that ended in divorce only a year later, the writer is searching for the new, invigorating impressions in war-torn Europe. Motivated by personal rivalry with his third wife, reassured by the experience in journalism gained on the Italian front during the First World War, Hemingway contacts Collier's editor to arrange an assignment as a frontline correspondent. Despite his relatively late arrival in May 1944, Papa manages to take full advantage of his stay, placing himself either in the center or at the edge of the most dangerous military operations, including the Normandy Landings, the liberation of Paris, the Battle of Hürtgen Forest, and the Battle of the Bulge.

The material gathered during Hemingway's roughly one-year long stay in Europe at the end of the Second World War was indeed impressive, but the writer's plans for the sea-air-land book described briefly in the letter to Perkins were rather wishful in the mid-1940s. The observations from the European front, first used in a number of by-lines for Collier's magazine, were not translated into a full-length narrative until the early 1950s. Falling within the period of the author's intensified creative efforts, the beginning of the new decade does not reward the writer's endeavors with a literary success. Released in 1950 under the title *Across the River and into the trees*, "The Land Book", originally meant to constitute the first part of the previously mentioned larger literary project, reveals Hemingway's self-doubt and inner dilemmas ripping through the story of Colonel Richard Cantwell, now commonly regarded as Hemingway's alter ego. Either perceived as "the saddest novel in the world about the saddest city, (…) the best and most honest work that Hemingway has done" (Williams 2009: 57), or a book that "between a solid beginning" and "a solid end" forces the reader to "meander through a spongy middle of prolonged conversation" *Across the River and into the trees*

(Halliday 1952: 217), provokes discussions on the writer's mediocre artistic and personal condition.

Offended by mostly unfavorable reviews of his latest work, annoyed with the speculations on his allegedly poor health condition, Hemingway bitterly realizes that his grand literary project would not emulate the success of *For whom the bell tolls*. Despite a relative advancement in the work on the new text done in 1951, the writer shifts his attention to the fourth part of the "The Sea Book", with an intention to publish it as an autonomous story. The text, known as *The old man and the sea* brings Hemingway the Pulitzer Price in May 1953, temporarily re-establishing the author's reputation weakened by prolonged periods of inactivity alternated with relatively uninspired publications.

The sea-air-land novel however, is still a nudging literary project Hemingway keeps returning to. In a letter form 13 June 1951 to general E.E. Dorman-O'Gowan, most probably referring to "The Sea Book" Papa writes:

> I had to write a long part of the book that I hoped I would never need to write and which I dreaded to writing. But I wrote it, liveing in it, and I hope you will like it because there is one good fight (I think as valid as the Sordo fight on the hill in the Spanish book) (…). (Hemingway 1981: 730)

Whether it was the book's structure, with respect to which Hemingway had many doubts, the intricate network of themes, at times too complex and rather dense for the fragmented narrative stretched over several autonomous parts of the story, or the aggregation of autobiographical elements interwoven in the plot that made the sea novel "dreadful" to write, remains unclear. Regardless of the causes of the author's reluctance towards the unfinished text, the novel becomes so dilemmatic for Hemingway that to the end of July of the same year in a letter to Charles Scribner the writer, driven by persistent fatigue and overwork, ironically considers a posthumous publication of the book:

> The reason that I wrote you that you could always publish the last three parts separately is because I know you can in any case through accidental death or any sort of death I should not be able to get the first part in proper shape to publish. That is the way the book works. (…) My chances of living to complete the book are excellent according to my doctor. However, I have worked so hard in the last six months that I know I need a rest and a change of climate. (Hemingway 1981: 731)

Struggling with depression and a deepening alcohol addiction, troubled by numerous health issues and personal problems regarding his closest family and friends, Hemingway desperately tries to avoid stagnation in writing. Back in March 1951 the writer designates the fall of the following year as a projected date for the release of the novel (Hemingway 1981: 720). The plan however proved unattainable and, although "The Book of the Sea" seems almost complete in the early October of 1952 (Hemingway 1981: 738-739), it does not appear in print until 1970, nine years after Hemingway, overwhelmed with writer's block, growing health concerns, and progressive decline in cognitive ability, commits suicide at his home in Ketchum, Idaho.

3.1.1.1. (Not only) "The Sea Book": the complexity of space and the layers of reality in Hemingway's *Islands in the stream*

From the gathering of the materials in 1944 to the posthumous publication in 1970, the history of Hemingway's sea-air-land literary project stretches over some twenty-six years. Released on the initiative of Hemingway's last wife assisted by Charles Scribner Junior, the sea part of Hemingway's original three-volume work, finally entitled by the editors *Islands in the stream,* still manages to embrace the dimensions of space Hemingway previously attempted to explore in the aforementioned three separate parts of "The Sea Trilogy". In the note to the first edition, the author's fourth wife, Mary Welsh Hemingway (1970) writes:

> Beyond the routine chores of correcting spelling and punctuation, we made some cuts in the manuscript. I feeling that Ernest would surely made them himself. The book is all Ernest's. We have added nothing to it.

Behind a narrative saturated with a deep sense of tragedy, a narrative that "is all Ernest's" in the full meaning of these words, stretches a space-time so brisk and internally complex, that its role should not be reduced to a mere background to the events. The world (re)created by Hemingway in *Islands in the stream* is something more than a just a meticulously designed, well-structured setting. Originally divided into four parts, with the final section published independently in 1952 as *The old man and the sea*, *Islands in the stream* consist of three autonomous, largely self-contained stories entitled subse-

quently “Bimini”, “Cuba”, and “At sea”. The three loosely connected sections offer a brilliant insight not only in the mature writer’s personal experience, inviting the reader to trace subtle autobiographical allusions, but also in the changed sensitivities of space-time perception. These crystallize in the 1950s and are correlated with the fiftieth anniversary of Einstein’s Relativity Theory, contributing to the (re)shaping of the writer’s perception of space-time represented in the novel as a complex, diversified but, above all, highly ambiguous phenomenon.

The original bisection of the represented world into the land and the sea should be rather perceived as an initial stage of a progressive segmentation of space(-time) in the novel. The aforementioned two basic spheres within which the plot unfolds, undergo further stratification into the land, the undersea, and the sea surface. Each of them constitutes an extension, and at the same time a contrast to the two remaining spatial constructions, preserving its autonomy while simultaneously involving in a vibrant dialogue with other spatio-temporal units.

“It is the book about the Sea, but there is no sense in arbitrarily labeling it as such” – states Hemingway (1981: 730) in a 1951 letter to Charles Scribner. And indeed, *Islands in the stream*, with the plot revolving around and within the sea-dominated space, do not limit themselves to marine space-time imagery. Structuring the composition mainly on and with reference to water, Hemingway does not lose sight of other possible dimensions of space. Later the same year, in another letter to Charles Scribner Hemingway (1981: 738) writes:

> This is the prose that I have been working for all my life that should read easily and simply and seem short and yet have all the dimensions of the visible world and the world of a man’s spirit. It is as good prose as I can write as for now.

Although the above quoted fragment concerns *The old man and the sea*, a story originally intended to constitute the fourth and final part of “The Sea Book”, it can as well be applied to its three remaining parts. By following simple, but strict rules of the Iceberg Theory, Hemingway manages to accumulate a vast body of hidden meanings that unfold beneath the surface structure of the text. The “dignity of the movement of an iceberg” is however not only due to “one-eighth of it being above water”, it is also due to the (re)creation of the dimensions of the observable reality (Hemingway 1955: 192).

With his formative Paris years spent amongst some of the most prominent modernist artists, many of whom paved the new ways of seeing reality, Hemingway acquires enhanced awareness of the importance of spatio-temporal constructs in broadly understood work of art. Inspired by painters such as, Picasso, Matisse, Miró, Masson and, above all, Cézanne, the writer shapes his space perception with reference to the freshly established rules governing visual arts. Many of them are directly inspired by the newly discovered spatio-temporal qualities of the universe that subverted the seemingly inviolable renaissance perspective on reality. The collapse of the relatively stable system coordinating the perception of space and time according to the universal rules of space predictability and the linearity of time redirects the focus from the substance of reality and its composing parts to its frequently non-observable structural qualities. Additionally, the overturning of the classical renaissance outlook on the world stimulates a greater interest in a subjective space-time perception, fostering individual ways of seeing, subject-dependent understanding of reality, and alternative approaches towards its interpretation and possible (re)construction in a work of art.

While in Paris and under the influence of the dazzling atmosphere of Gertrude Stein's artistic salon, only a year before the publication of his first two novels, *The torrents of spring* and *The sun also rises*, Hemingway (1981: 153) reveals to his father:

> You see, I'm trying in all my stories to get the feeling of the actual life across – not to just depict life – or criticize it – but to actually make it alive. (…) It's only by showing both sides – 3 dimensions and if possible 4 that you can write the way I want to.

Almost three decades later, working on "The Sea Book", Hemingway still adheres to the principle of multidimensionality. With the main compositional structure of the novel based on the clear, minimalistic division of the text into three sub-tales, the narrative focus in the text explicitly shifts from one of the islands comprising Bimini, the westernmost district of Bahamas, through the main protagonist's Cuban *finca* near Havana, to finally stop at the open sea, and on the nearshore coastal waters of the Jardines del Rey Archipelago. Although the titles of particular sections correspond with a simple land-sea dichotomy, the literary space-time construction of the novel in focus is far more complex and goes beyond the aforementioned basic division.

In the process of manipulating the novel's setting, Hemingway deconstructs (literary) space-time, subjecting it to a peculiar form of both vertical and horizontal strati-

fication. This cleaving of reality into three different dimensions, which coexist but never fully blend into one, becomes a departure point for space (de)construction, transformation and remodeling. Although it manifests itself in each of the novel's composing parts, literary space-time stratification is perhaps most pronounced in the final sections of the novel's opening part – "Bimini". It is where the process of space-time delamination crystallizes to reach a peculiar form of coda; with the horizontal division of the text's internal spatio-temporal construction into two layers: the land, and the sea, (dis)joined by the "the long and perfect perspective of the blankness ahead" (Hemingway 1970: 196) – a peripheral, obscure space in between the two basic spatial units, the landscape acquires multidimensional depth resulting from a consistent observation of the minimalist division lines separating particular space-time zones.

The whole narration at the micro level of particular stories, and the macro level of the novel is therefore subjected to the principles governing literary space-time organization. With the shifting play of the dynamics of motion largely controlled by spatio-temporal interdependencies, irregularities, and distortions, the cartographical details of the plot's setting projected on the novel's three-act compositional framework, and the thematic layer of the book dominated by space-related motifs, *Islands in the stream* become something more than just an uncompromising narrative saturated with the "sense of tragedy and the ritual of the fight" characteristic for Hemingway's fiction (Hemingway 1955: 9). It is also, or perhaps primarily, a story about space, a narrative on its perceptual ambiguity, its non-obvious dimensions, and variable temporalities.

3.1.1.2. The symmetry of distortion, the distortion of symmetry: literary geometry of the represented world in *Islands in the stream*

Opening the first section of *Islands in the stream* with a two-paragraph long, minimalist sketch designating the dimensions of space brought into the book by the use of clear, austere lines, Hemingway instantaneously emphasizes the importance of space-time imagery in the text:

> The house was built on the highest part of the narrow tongue of land between the harbor and the open sea. It had lasted through three hurricanes and it was built solid as a ship. It was shaded by tall coconut palms that were bent by the trade wind and the ocean side you

> could walk out of the door and down the buff across the white sand and into the Gulf Stream. (Hemingway 1970: 3)

Dividing space into objects and sections, determining the major vertical and horizontal planes, the preliminary delineation of the novel's internal space-time constitutes an expressive narrative gesture which initiates the process of space opening that runs parallel to its uncompromising division into minor spatio-temporal or material units. Seemingly unambiguous and highly transparent, the rough sketch of one of the novel's settings resembles the line drawings of Picasso. The narrow promontory elevated over the ocean produces an impression of the scarcity of land against the overabundance of water. This effect is emphasized by the comparison of the house to a solidly build ship, whose construction, suitable for the harsh weather conditions of the coastal area, expresses the subordination of the land to the rules dictated by the ocean.

The imbalance between the firm ground and its attributes such as the palm trees, or the building, and the ocean water dominating the composition with its oppressive heaviness, is moderated by careful distribution of the landscape's elements. Along with the smooth horizontal and vertical lines of the sea surface, the land strip, and the path leading from the house to the water, the minimalist architecture of the "Bimini's" main setting acquires the equilibrium similar to the one characterizing the movement of Hemingway's iceberg. Nevertheless, the simple, at first sight well-proportioned composition undergoes a profound disturbance once the description reaches the theme of the Gulf Stream:

> The water of the stream was usually a dark blue when you looked out at it when there was no wind. But when you walked out into it there was just the green light of the water over that floury white sand and you could see the shadow of any big fish a long time before he could ever come in close to the beach. (Hemingway 1970: 3)

Not only does the introduction of the Gulf Stream disturb the largely static image of Thomas Hudson's house and its closest surroundings, but also makes the provisionally sketched space-time acquire the dynamics of motion inherently inscribed in the natural mechanisms governing the circulation of the ocean water. The impression of movement and incessant changeability is enhanced by the change of the water's hue depending on the perspective taken by the observer. Accordingly, the kaleidoscopic variability of the scene does not constitute an autonomous feature of the landscape sketched. It is rather

the quiet, but attentive presence of the observer that actuates the capacity of space to reshape itself. Each shift of the onlooker's perspective is followed by a respective modification in the realization of space-time. This alternating rhythm of perspective shifts and space-time transformations results in a peculiar undulation of space-time; with its equivocality and inconstancy the spatio-temporal construct opened by Hemingway in the very first lines of *Islands in the stream* resembles a wave propagating at variable frequency.

The nonobviousness of the underwater space however, does not stem exclusively from the tonal changes of the ocean water color. It is also the potential presence of a fish, which could be deduced from a play of light and shadow on the sea bed, that adds depth and complexity to the subaquatic. Moreover, the temporal discrepancy between the appearance of the fish' shadow and the moment it comes into sight, can be read as a subtle allusion to the laws of physics explaining the dispersion and refraction of light in the water. The phenomenon in focus, largely dependent on the perspective taken by the spectator, evokes the imagery of the observer inscribed in many of Einstein's hypotheses and theories. Deconstructing the idea of absolute space and time, Einstein exchanges the notion of the 'classical observer', who played the role of an implied subject in Newtonian physics, for the new concept of the "relativistic" observer (Peacocke 1980: 77). Firmly anchored in the scientific disbelief towards the "apparently objective 'primary' qualities of mass, length, time, velocity" of external objects, Einsteinian model of observation implies that the abovementioned qualities are largely dependent on the physical interrelationship between the spectator and the thing observed (Peacocke 1980: 77).

The introduction of a similar dependency between the image of the fish and its observer in the opening paragraphs of *Islands in the Stream* disturbs the seemingly static construction of the underwater space-time with an inalienable relativistic quality. Additionally, the reliance of the actual shape of space-time on the presence of the observer suggests that the creation of space-time is possible only through a constant dialogue between the observer and the observed. Consequently, the seemingly verifiable reality can no longer be recognized as an objective, fully independent phenomenon. With the observer acting both as an initiator, and as a filter of space-time transmutations, the four-dimensional space constitutes an amalgam of the absolute and the subjective. Nevertheless, space-time relativity in Hemingway's novel cannot be reduced to the idiosyncratic cognition of reality by particular subjects. Both the spatial and the temporal as-

pects of the observable world acquire relativity at the interface between the objectively existing and the subjectively perceived.

The reverberations of the new perceptual approach towards the observable and the non-verifiable aspects of reality shaped by Relativity Theory discourse series manifest themselves perhaps most vividly in the novel's fishing episodes. All the preparations for the main fishing trip evolve into a rule-governed, highly redundant sequence of actions and gestures repeated according to a regular rhythm of ritual performance. This gradation concerns not only the immersion into the activity of fish catching, and the exploration of the new space-time of the underwater world. It also affects the plot which, constantly oscillating between the land and the sea, takes the wave-like, sinusoidal form consisting of a balanced combination of alternate crests and troughs – periods of tension and release. The back-and-forth structure of narration, unfolding within the amplitude determined by the moments at sea and the returns to the mainland, constitutes the central axis of the plot. The same pattern of a tidal movement between the deep sea, and the land constitutes the general compositional framework unifying the novel's three parts. As a result, Hemingway's *Islands in the stream* realize the original idea of a larger literary project – the "The Land, Sea, and Air Book", expanding into all possible dimensions mentioned by Hemingway in the previously quoted 1927 letter to his father.

The long and complex fishing expedition from part IX of "Bimini" follows the sinusoidal structure of a cadenced series of departures and returns. This rhythmical wave-like motion from the mainland to the sea, and from the sea to the mainland entails a constant shift of the composition's centre of gravity. The fluctuating point of focus does not allow for the formation of any stable perspective which would organize the novel's represented world according to clear and predictable geometric-composition rules. Instead, the literary space-time construction acquires the dynamism and fluidity that preclude any permanent distribution of proportions. As a consequence, the represented world of *Islands in the stream* has no stable dimensions. Its varying extent stems from a constant complementation of one space-time with the other, followed by a consistent avoidance of the adoption of any invariant point of reference that would conclusively determine the general outlook on space.

3.1.1.3. Between a nebulae of plankton and the sharks phosphorescent wakes: the sea as an inverted formula of the cosmic space

Preceded by a sleepless night caused by the full moon, the scene of proceeding to the sea for marlin fishing is located on the intersection of the planetary and the (sub)marine. The osmotic presence of the moon and its instinctively felt ambiguous influence gives rise for a new, potential dimension of space-time. The already familiar and well known suddenly crosses its boundaries to stretch into the vague and the esoteric. The evocation of a distant realization of space-time, not fully available to cognition, ungraspable and untranslatable into ordinary experience and, thus, falling outside of the scope of human perception, signals further space expansion into new, unexplored dimensions.

The cosmic space suddenly brought into the protagonists' and the reader's consciousness by a brief mention of one of the lunar phases is reflected in the (sub)marine. As a counterpart of the distant, unexplored cosmic space influencing the protagonists' performance from afar, the underwater sphere exhibits similar qualities of inscrutability and ontological indeterminacy. Its strangeness, frequently evolving into pronounced extraneousness, allows for developing an analogy between the immeasurability and related incomprehensibility of the cosmic space, and the unintelligible character of the underwater life. As the boat heads the Gulf Stream water the sea suddenly opens into a formerly unpronounced depth, becoming a new added dimension of space, an inverted formula for both the recognition and the representation of the macrocosm:

> Thomas Hudson was steering on the topside and he headed her out over the bar and ran straight out toward where he could see the dark line of the Gulf. The water was so calm and so very clear that they could see the bottom clearly in thirty fathoms, see that sea fans bent with the tide current, still see it, but cloudily, at forty fathoms, and then it deepened and was dark and they were out in the dark water of the stream. (Hemingway 1970: 106)

The process of space unfolding is reversely proportional to the distance covered by the ship; the depth of the sea, abruptly opened beyond the boat to unveil the corals undulating in the current gradually obstructs as the proportion of light able to permeate the water diminishes. The description of water transparency is subjected to a methodical approach based on a disciplined, exploratory analysis of the space beyond the surface of the ocean. Examining the quality of light at various depths, Hemingway divides the underwater space into several segments, each of which is treated as a separate sample.

Saturated to varying extent with light, subsequent portions of the underwater world are outlined in a scientific manner and exhibited in an ordered sequence. The samples labeled with technical details evoke the imagery of a scrupulous laboratory work, where (subjective) sensual perception interfuses with non-negotiable objective data.

The above-quoted fragment constitutes an interesting example of Hemingway's literary exploration of the possible dimensions and realizations of space-time, not only due to the subordination of literary space-time construction to the axes of navigation across and through the (under)water, which altogether contribute to a creation of an impression of a dynamic, fluent movement, but also because of the structural and stylistic arrangement of the fragment's sound layer. The tonal organization of literary expression in the excerpted fragment is characterized by a prosody subtly different from the irregular rhythm and rather non-distinctive, ordinary melody of speech of the adjacent text. Dense concentration of fricative consonant sounds interwoven with voiced and voiceless alveolar stops allows for building an acoustic environment onomatopoeically imitating the sound qualities unique to the ocean. Audible during the fishing trip, the soft and steady swoosh of water caused by the boat cutting horizontally its surface, the air rustle indispensable for the ship's movement, the sounds of the whistling wind, and the hum of the waves are reduced to their essential physical qualities and expressed by the use of the smallest sound units. The phonemes, sharing similar sound properties with the already listed acoustic phenomena usually associated with the seaside, reflect the physical properties of the represented world.

The gradual expansion of space-time into its underwater dimensions decelerates in inverse proportion to the distance covered by the ship. The ontological barrier signalized in the above-quoted fragment by the sudden substitution of smooth, fricative sounds with a short series of rhotic consonants, that closes the excerpt with an impression of gravity, finally inhibits further exploration of the world stretching beyond the surface of the ocean. Unanticipated disruption of the step-by-step rhythmical immersion into the underwater sphere finally suppresses the cognitive capacity of the observed, limiting the perspective on the newly opened dimension of reality. Unreachable by available means, inaccessible to the physical senses, the underwater sphere unfolding beneath the boundary of visibility resembles the cosmic space brought into focus at the beginning of the fishing expedition organized by Thomas Hudson for his sons.

Gradually evolving into an impenetrable depth, too extensive and too unfamiliar to be embraced by sensual experience, the underwater space-time can be primarily defined by incomprehensibility. This, however, is not only a resultant of the unfamiliar, almost exotic character of the sea life, and the physical qualities of the underwater world substantially different from the ones organizing life on the dry land. Apart from the quality of differences between the underwater sphere and the land, it is also the tempo of change that affects these two realizations of space-time. Transforming at fast pace, the ocean appears as an internally brisk and varied environment, consisting of phenomena that often defy simple categorization, and thus, appear as only partially conceivable. This mesmerizing inconstancy of underwater space finds its expression in the alternation of water transparency due its transforming physical qualities. The varying level of water saturation with light is followed by a pronounced change in its color:

> "It looks almost blue in there as it is out here. What makes the Gulf water so blue?"
> "It's a different density of water. It's an altogether different type of water."
> "The depth makes it darker, though."
> "Only when you look down into it. Sometimes the plankton in it make it almost purple."
> "Why?"
> "Because they add red to the blue I think.(…)" (Hemingway 1970: 106-107)

Although Thomas Hudson's explanations regarding the phenomenon of the changing water hue appear reasonable, logical and almost scientifically grounded, they are tinged with a noticeable lack of certainty. The space beyond the ocean surface, incompatible to its above-water counterpart due to its bizarre wildlife, greater density, and different dynamics of motion fueled by currents, appears as an intrinsically ambiguous space-time unit that frequently escapes cognition and overpowers all possible attempts of clear, unequivocal description. As a result, Hemingway's construction of the layer of reality stretching beyond the surface of the ocean pursues the principle of the world's (un)intelligibility as formulated by Einstein (1936) in "Physics and Reality". "The eternal mystery of the world" states Einstein "is its comprehensibility" (1936: 320). Grounding his epistemological observations firmly on Kantian thought Einstein emphasizes the duality of both human cognition and the world which, in case of Hemingway's lite-

rary space-time construction in *Islands in the stream*, manifests itself in the new, added underwater dimension of reality.[2]

[2] An interesting context for the discussion undertaken in this subchapter is the scientific activity of Auguste Piccard. "If one sought to picture a stereotypical scientist and inventor" state Bramwell and Tinsley (2018: 66), "Swiss-born Auguste Piccard would more than likely be the result". And indeed, Piccard's work constitutes an illustrative example of the mutual dependence of science and technology which complement one another in the vast majority of research projects undertaken by the scientist. Piccard was particularly active as a scientist and as an inventor in the 1930s. This decade in his scientific work was marked by major efforts to construct a vehicle that would allow the Piccard to collect data on cosmic radiation in the upper parts of the atmosphere. A spherical gondola made of aluminium was the crowning of Piccard's a year and a half work on the technological solution that would enable finding empirical evidence for Einstein's scientific theories, while at the same time providing opportunities for the exploration of the stratosphere. Piccard's interest in Einstein's work however, started significantly earlier. In the spring of 1924 Einstein discussed with Piccard the most problematic aspects of his field theory (Vizgin 2011: 195). Of particular importance for Einstein at that time was to find a proper way to measure magnetic fields of cosmological origin, which would supply experimental evidence for the theory (Vizgin 2011: 195). Although Piccard involved in research on the phenomena discussed with Einstein, his experiments from the middle of the 1920s proved inaccurate and did not contribute to any significant advancement in the studies on magnetic fields (Vizgin 2011: 195). Yet, with the capsule being completed in the spring of 1931, Piccard was finally able to push forward his research on cosmic rays. The expedition into the higher parts of the atmosphere took place on May 27, 1931. Auguste Piccard and Paul Kipfer were the first people to successfully reach the stratosphere. Their experiment, considered to be an early spaceflight, caused a great interest not only in academic circles in both Europe, where it was conducted, and America, but also amongst ordinary people. Therefore, the event received extensive press coverage in various magazines and newspapers on both continents. The reports varied from purely sensational, through popular scientific, to academic. Regardless of their character, the numerous press accounts of the experiment contributed to the proliferation of knowledge on cosmic rays and space, providing a breeding ground for the spread of Relativity Theory-related discourse series. "A huge yellow balloon soared skyward, a few weeks ago, from Augsberg, Germany. Instead of a basket, it trailed an air-tight black-and-silver aluminium ball" describes August 1931 issue of *Popular Science* (23). The brief, concise article from the magazine is accompanied by graphics complementing the information revealed in the text and presents the scientific as well as organizational details of the expedition that "surpasses fiction" (1931: 23). Whereas the account of the expedition published in *Popular Science* with a two-month delay (concerning the date of the flight) focuses on the substantive part of Piccard's scientific undertaking, Guido Enderis' special cable for *The New York Times* from May 28, 1931 (1) is far more sensational and reveals more behind-the-scenes information about the expedition, describing the dangers the scientists were exposed to, and some serious unexpected difficulties that appeared during the flight. According to Enderis (1931: 1), Piccard's unsuccessful attempt to descend the gondola and land safely is "one of the mysteries which is stimulating the fear among aeronautical observers". This, along with the coverage the pioneering flight to the stratosphere obtained in the press proves a wide interest of the public in Piccard's both scientific and technological endeavors. Piccard's venture into the unexplored boosts not only scientists, but also ordinary people's interest in distant spaces, significantly different from the directly observable reality. According to a report from *The Omaha Bee-News* (1932: 1) of another experimental flight performed by Piccard in August of 1932 "villagers who flocked to the scene for a glimpse of the balloon and its occupants were driven back by Italian troops, hastily summoned to prevent the gas bag and the delicate scientific instruments in the spherical laboratory from suffering damage". Of course, apart from the interest the experiment evokes, of particular importance for the press is to gain information on the newly explored space. The physical characteristics of the stratosphere are discussed by Auguste Piccard's twin brother, Jean Felix Piccard, in 1934 February issue of *The Rotarian*. Stratosphere is described there as "a realm of glamorous possibilities" that can be viewed as "the super-air-highway of the future through which aid-conditioned airplanes, unretarded by excessive atmospheric pressure, will glide at such speeds that Europe and America will be put a few hours apart" (Piccard 1934: 21). On the next pages Piccard (1934: 23) asks "will man someday skyrocket even above the stratosphere?". And despite rather cautious forecasts ("it may be possible"), the vision appears more than promising and is accompanied by proper visualization and explanation of the presented future possibilities (Piccard 1934: 23). The research con-

tinues allowing Piccard brothers to gather a considerable amount of data on the upper parts of the atmosphere. But Auguste Piccard's deep interest in inaccessible spaces is not confined only to the exploration of the stratosphere. The technological solutions developed during the work on the balloon and the pressurized aluminium gondola, along with the scientist's experience and knowledge gathered in the course of his long-term studies appeared useful in the exploration of the deep sea. Early 1930s were already marked by pioneering attempts to reach the underwater spaces beyond the levels accessible to the divers. A relevant experiment was conducted by Beebe and Barton who in 1930 reached the depth of 435 meters using The Bathysphere (Thomas 2020: 281). Their expedition was reported (inter alia) in a series of photographs with proper captions in *The Illustrated London News* from July 19, 1930 (113). *The New York Times* issue from 23 September 1932 calls another experiment by Beebe "a weird ride in Bathysphere" (Beebe 1932: 1). An article in *Popular Mechanics* (1930: 579) praises "explorer Beebe's submarine adventures" for "doing much to give the world authentic information about the ocean depths". Additionally, it is worth to mention, that the 1932 descent of Bathysphere was broadcasted on the radio and turned out a great success, becoming one of "the most pivotal radio events of 1932" (Kroll 2008: 80). The operation was repeated once again after four years since the first expedition, and the initial record was improved by additional 488 meters (Thomas 2020: 281). Nevertheless, it was Piccard who exceeded Beebe and Barton's achievement. Piccard's initial trials aimed at constructing another gondola, this time not to fly into the stratosphere, but to dive in the unstudied underwater zones, fall in mid 1930s. To the end of the decade the project absorbed the scientist's full attention, but unfortunately the work on the new vessel was interrupted by the outbreak of the Second World War. After the armistice, Piccard revisits the idea of constructing the submarine vessel. Named bathyscaphe, the vehicle is ready for use in 1945, and allows Piccard to descent to an even greater depth than the one reached by Beebe in Bathysphere. Both Beebe's and Piccard's efforts to explore the deep layers of the ocean prove fruitful for science and technology, but it is not only the development of the fields of marine biology and physics, or the technological improvement that resulted from the scientists' long-term research projects. Their expeditions, followed with great interest by the public, offer an unprecedented insight into the previously unknown or even unthought-of spaces. For the very first time the public was able to get a glimpse of the worlds so remote and bizarre, that they could be categorized metaphorically as "cosmic". Since they fall outside of the framework of the ordinary, everyday life experience of reality, the pool of concepts offered by common language proves insufficient for the description of the strange and the unfamiliar. Especially the exploration of the deep sea contributes to the spread of sensational images of the underwater wildlife. The previously mentioned article from October 1930 issue of *Popular Mechanics* is accompanied by a number of illustrations presenting deep sea creatures such as "an Underwater Torch Bearer", a fish carrying a peculiar lamp on its head, "a sea anemone waving its tentacles and lying in wait of unwary fish", "an illuminated white fish found at depths of one mile", "sea 'lettuce'", sponges and molluscs, "the 'Eater of the Stars," a black fish of voracious appetite, pursuing its luminous on the surface of the ocean at night", "a silver hatchet fish with violet lights that point downward while its eyes look upward", an unidentified, mysterious fish "that has swallowed another almost as large as itself, and a number of "curious little creatures" which, "dragged up in nets from great depths", "fought and devoured each other until the very last and were aglow with white, yellow and pink lights" (578, 580-584). All of the organisms listed above are categorized in "Three hundred fathoms beneath the sea" as "odd specimens of life" (1930: 584). The conditions of the world they live in resemble the ones of the cosmic space: "the extreme depths are cold, absolutely dark, and the pressures there are enormous" (1930: 581). Moreover, the studies conducted in the 1930s and 1940s proved the direct effect of ioninzin radiation of cosmic origin on mutations observed in living organisms on Earth (1975, 2: 708). The exploration of the underwater, which continues in the next two decades, contributing to a great proliferation of knowledge about marine life and physical properties of the great depths, coincides with the exploration of the cosmic space. The space accessible to human exploration thus suddenly enlarges to embrace new worlds. With the nebulae of strange, sometimes uncanny sea creatures, so different from the ones observed at shallower depths, the newly explored underwater reality becomes an added dimension of space, that keeps expanding every time the scientist manage to decipher more of its mysteries. Published in the 1950s, Piccard's *Between earth and sky*, *In balloon and bathyscaphe* or *Earth, sky, and sea* provide a first-hand insight into the newly explored spaces, boosting imagination, reshaping the way space-time is perceived, and to some extent deconstructing the conventional vision of reality. Moreover, after numerous improvements to the bathyscaphe and many successful descents of the capsule resulting in the collection of valuable data on the flora and fauna of marine ecosystems located at different depths, Piccard's submarine expeditions are linked to their sky equivalents.

The effect of unfamiliarity and multivocality reaches its peak once a huge marlin caught by Thomas Hudson's son, David, slowly starts approaching the boat after a long and exhausting fight. The fish, coming from the unknown, from "the dark and the cold" (Hemingway 1970: 132), represents the Other, becoming an epitome of the obscure and incomprehensible. The foreign and the strange invades the outside and mixes with the common and well-known once the marlin disrupts the conventional barrier between the water and the air with a breathtaking leap:

> Then, astern the boat and off to starboard, the calm of the ocean broke open and the great fish rose out of it, rising, shining dark blue and silver, seeming to come endlessly out of the water, unbelievable as his length and bulk rose out of the sea into the air and seemed to hang there until he fell with a splash that drove the water up high and white. (Hemingway 1970: 121)

The dynamic, upward movement of the marlin, culminated in its dramatic but graceful jump can be viewed as the fish' dive into another spatio-temporal unit. The dimensions, once set and stable get profoundly disturbed; the space-time units are sucked into each other creating a nonhomogeneous fusion, whereas a sudden distortion of the formerly established order leads to the repositioning of the center of gravity of literary space-time composition.

The marlin's peculiar invasion into the above-water zone does not only dismantle the stable, to a large extent transparent structure of the protagonists' world in its material embodiment. It is also the temporal dimension of reality that becomes radically disrupted once the fish violates the thin barrier between the two layers of space-time. With the crossing of the boundary dividing the below- and above-surface zones, the marlin's dynamics of motion undergoes a substantial change induced by the two environments' divergent densities and the related resistance to motion. These in turn affect acceleration, a vector quantity defined by velocity and time. Since the temporalities ascribed to motion vary in the aforementioned spheres, it can be assumed that the objective time as measured by the use of "a big brass clock on the cabin wall" (Hemingway

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The readers of February 1958 (26) issue of *All Hands* can learn that "the bathyscaphe, the creation of Professor Auguste Piccard, is the underwater equivalent of a lighter-than-air craft such as a blimp". Calling Piccard in the title of her book the "captain of space, admiral of the abyss" Field (1969) was therefore more than right. The act of ascending in the stratosphere in a aluminium gondola with a balloon attached to the metal construction is symbolically reflected in the act of descending into the ocean's depths in a steel vessel. And although the direction and the space explored differ, both types of experiment make the public realize that the reality has more "cosmic" dimensions than it was formerly assumed.

1970: 128) is only an illusion. And indeed, the already apparent discrepancy between subjective time perception in part IX of "Bimini", and its rational conceptualization appearing in the form of explicit commentaries encapsulating the periods of Dave's struggle with the fish within specific time units delineated by firm numbers becomes even more accentuated once the huge fish jumps out of the water. Although the marlin's intrusion into the layer of reality to which it remains distinctly foreign lasts just fractions of a second, its notorious presence has the universal power to change the protagonist's perspective on reality. This does not apply solely to Dave's peculiar fall from innocence to experience ("But there is a time boys have to do things if they are ever going to be men" [Hemingway 1970: 131]), but also to the character's general approach towards reality and its structure. Observing his son struggling to reel the fish in, Hudson spontaneously reflects on the nature of the underwater world:

> Thomas Hudson tried to picture how it would be down where the swordfish was swimming. It was dark of course but probably the fish could see as a horse can see. It would be very cold. He wondered if the fish was alone or if there could be another fish swimming with him. They had seen no other fish but that did not prove this fish was alone. There might be another with him in the dark and the cold. (Hemingway 1971: 132)

Thomas Hudson's picture of the subaquatic resulting from the combination of the known and the assumed appears incomplete despite the protagonist's pursuit to broaden his limited cognitive perspective by attempting to take the marlin's viewpoint on reality. The suppositions on the fish's perceptual range are, however, non-conclusive; instead of taming the foreign and the strange, they enhance the sense of otherness that determines both the fish and the environment it lives in. In this context, Hudson's endeavors to create a mental image of the underwater world resemble a careful probing of a new space, so utterly unfamiliar that its conceptualization lies beyond the repository of experience and the capacity of human reason. The aforementioned incomprehensibility along with the darkness and coldness of the underwater world become its defining qualities. These, in turn, act as a common denominator of the subaquatic and the cosmic, positioning the two layers of reality relative to an axis that serves as a line of reflection. As a consequence of such distribution, the cosmic and the underwater start to function as infinity mirrors reflecting each other's qualities in a series of redundant images, appearing alternately on both sides of the plane of symmetry.

The above discussed impression of proportion and correspondence between the underwater and the cosmic becomes even more pronounced with the comparison of the marlin to a plane:

> Thomas Hudson wondered why the fish had stopped when he had gone so deep the last time. Did the fish reach its maximum possible depth the way a plane reached its ceiling? Or had the pulling against the bend of the rod, the heavy drag on the line, and the resistance of its friction in the water discouraged him (…)? (Hemingway 1970: 132)

The usage of aviation related imagery while creating the figure of the fish swimming in the dark and cold water of the sea, especially when combined with the above-discussed parallelism between the subaquatic and the cosmic, signalizes the immersion of Hemingway's literary space-time construction in the scientific discourse of physics. Especially the references to the physical qualities of the underwater environment such as friction and resistance of the fishing line, or the density of water influencing the onlooker's perception of its hue, prove a firm anchorage of the author's narrative strategy of literary space-time development in the science-governed perception of reality shaped by the second wave of popular science craze in America.

Since the increased interest in the achievements of science and technology observed in the 1950s emerges from the Renaissance of Relativity Theory, Hemingway's *Islands in the stream* speak either directly or obliquely the discourse of Relativity Theory. Its osmotic presence in the construction of literary space-time of Hemingway's narrative manifests itself not only in the already discussed manipulation with time, but also in the relative nature of the allegedly stable dimensions of the material world. Once the subaquatic enters a dialogic relationship with the cosmic realizing itself in a series of ectypal images, the material proportions of reality undergo significant distortion:

> Thomas Hudson swung down from the flying bridge into the cockpit and took the wheel and the controls there (…). It was strange to be on the same level as the action after having looked down on it for so many hours, he thought. It was like moving down for a box seat onto the stage or to the ringside or close against the railing of the track. Everyone looked bigger and closer and they were all taller and not foreshortened. (Hemingway 1970: 136)

Thomas Hudson experiences distortions in the visual perception of people and objects only after having changed the perspective from which he watches the fishing scene. His misinterpretation of the actual dimensions of reality results from both movement and

the change of the viewpoint taken. As a result, the way reality appears is made conditional on subjective sensual perception of its composing phenomena, the observer's dynamism of motion, and the point in space time they occupy.

Similar dependency between movement and perception provides a compositional skeleton for the climactic scene of fish hauling. When the marlin finally becomes visible deep in the ocean water astern the boat, it looks "tiny and foreshortened" (Hemingway 1970: 137). Its proportions, however, increase in inverse ratio to the distance covered, and the dynamism of these changes is inextricably connected with the dynamism of the fish's underwater movement. To illustrate the marlin's pattern of motion Hemingway once again resorts to aviation-related imagery, translating the submarine into the aerial, while at the same time emphasizing the constancy characterizing the distance-dependent change of the value of the visual angle ("It was not as rapidly as the plane grows as it comes in toward you but it was steady" [Hemingway 1970: 137]).

Nevertheless, the stability and internal harmony of the well ordered mathematical structures behind the discussed phenomena do not guarantee that the space-time appears coherent, integral, and stable. Consistently building the picture of the underwater as an inverse function of the cosmic, Hemingway employs the same technique of manipulation with the proportions of the material world in the fragment depicting the moment of the fish loss:

> It was no good. The great fish hung there in the depth of water where he was like a huge dark purple bird and then settled slowly. They all watched him go down, getting smaller and smaller until he was out of sight. (Hemingway 1970: 139)

Paradoxically, the narrative distortion of the fish's size and image results from a logical sequence of physical and mathematical relations between motion, distance, and the size of the field-of-view angle. Additionally, filtering the represented world through Thomas Hudson's eyes, Hemingway once again transfers the responsibility for the way reality appears in narration on the perceiving subject whose role resembles the one of Einstein's "relativistic observer". Deformation thus grows from symmetry, balance, and correspondence which, if interwoven with an individual's subjective perception, result in internally contradictory impressions.

3.1.1.4. *Islands in the stream* and the immigrant discourse of Relativity Theory: the discursive basis for space-time imagery in Hemingway's novel

Although the direct influence of Einstein's scientific thought on Hemingway's approach towards literary space-time construction cannot be proven, *Islands in the stream* still reverberate with the echo of Relativity Theory. Its osmotic infiltration of the text, manifesting itself mainly at the level of narrative space-time construction, should rather be viewed as the composite result of the text's immersion in the discursive environment dominated by Relativity Theory discourse series. Einstein's pronounced presence not only in the scientific but, equally importantly, in the socio-cultural landscape of 1940s and 1950s America, finds its reflection in the very beginning of "At sea", the third part of *Islands in the Stream*:

> "Take three men in and have a look, " he said. "(…) Remember you're scientists."
>
> When they were scientists no weapons showed and they wore machetes and wide straw hats such as Bahaman spongers wear. These the crew referred to as "sombreros científicos." The larger they were the more scientific they were considered.
>
> "Someone has stolen my scientific hat," a heavy-shouldered Basque with thick eyebrows that came together over his nose said. "Give me a bag of frags for science's sake."
>
> "Take my scientific hat," another Basque said. "It's twice as scientific as yours."
>
> "What a scientific hat, " the widest of the Basques said. "I feel like Einstein in this one. Thomas, can we take specimens?" (Hemingway 1970: 332)

Saturated with a sense of irony characteristic for Hemingway's dialogues, the above-quoted excerpt reveals more than just the protagonists' bitterly sarcastic attitude towards the blind used to confuse the survivors of a sunken Nazi U-boat that had been penetrating the coast of the Cuban Jardines del Rey Archipelago. Mocking the way marine biologists start the research process by collecting specimens in the coastal waters, the group of irregulars led by Hudson demonstrates their immersion in the general (pop)scientific culture of the time. Obviously, by its very nature the juxtaposition of the image of oceanographers with the figure of Einstein constitutes a vivid example of a fusion of two divergent scientific orders. Nevertheless, this seemingly internally incoherent pair of associations remains in a dialogic relationship with the external socio-cultural context to *Islands in the Stream.*

Einsteinian post-relativistic physics, to some extent putting into question the long-recognized achievements of Newton, offers an outlook on the world far different

from the well-structured renaissance vision. Casting doubt both upon Newtonian mechanics, and on the seemingly obvious phenomenon of simultaneity, the optics proposed by Einstein is the one of ambiguity and distortion. The sudden, unexpected entanglement of one of the most widely recognized scientist of the twentieth century in the opening scene of the last part of *Islands in the stream* allows Relativity Theory discourse series to speak through Hemingway's narrative. In the light of the above-quoted fragment, the previously discussed stratification of reality into layers, along with the recreation of the cosmic in the subaquatic can be viewed as an expression of the new perceptual approach towards the material reality. The internal dynamism of the novel's represented world, the nonobviousness of the space-time's dimensions, the inevitable curving of both time and space under the eye of the observer altogether contribute to a firm anchorage of Hemingway's narrative spatio-temporal construct in the post-relativistic outlook on the world.

Governed by distinct physical laws, immersed in the temporalities far different from the classical time perception, inhabited by The Other, the sea in Hemingway's *Islands in the Stream* becomes a new, redundant dimension of reality, that stratifies into several layers characterized by distinct physical and temporal qualities. The underwater motion of the fish, compared a bird and a plane, the seemingly infinite depth of the ocean, the nebular density of plankton, the bizarre wavy movement of the sea fans, altogether evoke the imagery related to the cosmic space. As a result, the depth opening beyond the surface of the ocean discloses a new universe – the unfathomable cosmos of water, which speaks to the reader "by itself in an anonymous murmur" (Foucault 1998,2: 141), indicating the underlying presence of an influential discourse extraneous to the text.

The abovementioned silent but powerful discourse interweaving with narration in the form of foreign undertones coming from outside of the text can be viewed as the "technical" discourse of science (Foucault 1998,2: 140). Although the speech resonating at the back of *Islands in the stream* diverges from Foucault's original idea of the scientific discourse as defined in "Behind the fable" (1998, 2: 140), it still demonstrates some of its core characteristics, such as exteriority, non-attributability, and a considerable degree of autonomy stemming from its vague origin, and/or lack of association to any specific, easily identifiable speaking subject. Additionally, the foreign discourse articulating itself in between the lines of Hemingway's novel operates in the narrative accord-

ing to the same mechanisms of intrusion and inhabitation of a literary work as the "technical" discourse does. Defined by Foucault (1998:, 2: 140) as "pure irruption", the process of diffusion and settlement of the scientific discourse in a literary text assumes a dynamic and, therefore, to some extent unmanageable interference resulting in a lasting impact the novel's represented world.

In *Islands in the stream*, the peculiar contamination of the novel's own discourse with an "anonymous language" of inconclusive belonging is realized according to a pattern somewhat different from the one discussed by Foucault (1998,2: 140). Instead of intruding the text in the form of figures, tables, or other mathematically structured systems of *automatic information*, Relativity Theory discourse series invade narration at the structural level of space-time imagery construction, promoting a new way of perceiving by imposing on the subjects the optics of distortion. Yet, the foreign discourse of science penetrating Hemingway's novel still draws from the common core of all the technical discourses. According to Foucault (1998,2: 140), their primary source is to be found in the "moraines of knowledge" all of which "remain at the external border of the narrative". This peripheral area exerts a continuous pressure on the text, forces its way to the literary discourse, and speaks in it in a voice that "comes from elsewhere" giving rise to a peculiar fusion of the definite and the indeterminate, the dependent and the autonomous (Foucault 1998, 2: 141).

While *Islands in the stream* certainly cannot be classified within the same category as Verne's scientific novels discussed by Foucault in the abovementioned brief study, the philosopher's general considerations concerning the nature of the "technical" discourse and the possible ways in which it can inhabit a literary text are still applicable to Hemingway's novel. Dividing literary space-time into layers, distorting its relatively stable dimensions, ascribing to the underwater world a temporality significantly divergent from the one organizing the life on land, and, finally, manifolding the cosmic in the subaquatic, Hemingway allows Relativity Theory discourse series to speak through his text. The form in which the series appears in narration fits into Foucauldian notion of (1998,2: 140) "immigrant discourse", an "anonymous language" rising up from an indeterminate space outside the novel.

And indeed, despite the fact that the discourse of Relativity Theory is generally ascribed to the field of physics, or, more precisely to Albert Einstein, the shape in which it reaches Hemingway's novel is only a distorted echo of its original form. Taken over

by various speaking subjects unrelated to academia, filtered through the lens of popular science, adjusted to and used in the areas other than physics, Relativity Theory discourse reaches Hemingway's novel in an essentially simplified, internally distorted, and largely contaminated form. As such, it appears as a largely autonomous, partially anonymous, and to some extent uprooted voice from the outside, nevertheless largely influencing the internal spatio-temporal construct in the novel.

With the phenomena unfolding beneath the surface of the water, the whole macrocosm of the new, uncanny, and the strange that can be viewed as an inverted formula for the perception and representation of the outer space, *Islands in the stream* manage to realize, at least partially, the original idea of Hemingway's trilogy. Thought of as a component of a larger literary project with narration organized primarily within the schemes provided by the three major spatio-temporal constructs (the land, sea, and air), the novel in focus still uses space-time imagery as the main compositional framework, The represented world of *Islands in the Stream* however does not only provide a certain *space* within which the story can unfold. Told in and speaking with the exterior, "immigrant" discourse of Relativity Theory, the spatio-temporal construct of the novel narrates its own story – a story about space-time's dynamics: its unity which does not exclude stratification, its distortion emerging from the beauty of mathematically proven symmetry, and the ability to expand into new dimensions despite its apparent stability. All of the above mentioned find its expression in Hemingway's unique construction of the subaquatic – the unfathomable cosmos of water.

3.1.2. The cosmic Pacific theater of World War II: James Jones' *The thin red line* in the light of American collective imagination the Guadalcanal campaign[3]

"When I was a young boy we always played cowboys and Indians, and when I landed on Guadalcanal that's what I felt like – I was still playing a game, it was not real. Even

[3] The discussion presented in this subchapter constitutes a revised and extended version of an unpublished conference paper entitled "(De)mythologizing Guadalcanal – cultural, social, and political aspects of literary space representation in James Jones' *The thin red line*" presented at 6th International Online Conference "New Dimensions of Philology - Languages, Literature, Linguistics, Culture", held in April 22-28, 2020, organised by The Faculty of Humanities and Social Sciences of The Mazovian State University in Płock.

though I knew it was real, it was still unreal" – states Lewis J. Fields (as quoted in Cameron 2002: 98), a United States Marine Corps officer, who participated in Guadalcanal campaign. The sense of the unreal enveloping many of the soldiers' memories from the wartime period is perhaps one of the common denominators underlying the traumatic experience of all those who took part in military actions or witnessed the atrocities. And although the psychological mechanisms of denial, derealization, depersonalization, and/or detachment have been widely researched in various fields, including literary studies[4], and are frequently discussed with reference to war and trauma related topics, it is particularly interesting to see how the aforementioned phenomena resonate with the changed perception of space(-time) induced by the spread of Relativity Theory discourse series and the technicization of both life and war, pronounced in America during the 1940s and in the following decade.

The surreality of the new, exotic space-time of the Solomon Islands dominating American collective imagery of remote military locations on the Pacific Ocean, was largely shaped by popular press coverage, television and cinema of the time. Especially American cinematic productions created after Japanese attack on Pearl Harbor in December 1941, such as *Submarine Raider* (1942), *Manila Calling* (1942), *Somewhere I'll Find You* (1942) or *Wake Island* (1942), had a considerable impact on framing American public opinion on the U.S army's military actions, at the same time largely influencing American collective perception and imagination of distant and unfamiliar strategic military locations and the enemy. According to Cameron (2002: 97) "the realities of battle (…) were so far removed from the American public, both spatially and conceptually, that they remained little more than abstractions". Consequently the film industry, of which the major aim was to familiarize the viewers with the reasons behind the U.S military operations on the Pacific, became the major source of American public preconceptions about the unknown space of Pacific islands "whose names few people could even pronounce" (McLaughlin and Parry 2006: 68). In *Whistle* (1978), a book that took

[4] Amongst the publications exploring variegated aspects of broadly understood war-related trauma in literature, special attention deserves Pearl James' *The new death: American modernism and World War I*. Other works discussing similar topics include: *Modernism, war, and violence* (2017) by Marina MacKay, Julie Goodspeed-Chadwick's *Modernist Women writers and war: Trauma and the female body in Djuna Barnes, H.D., Gertrude Stein* (2011), and *Great war modernism: Artistic response in the context of war, 1914-1918* (2016) a collective work edited by Nanette Norris. The linkage between modernism and war-induced psychological distress is particularly strong. It is therefore evident that, shaping the poetics of variegated forms of artistic expression, wartime experience should be viewed as one of the major pillars of the period in general, and a defining element of many writers' literary identities in particular.

nearly three decades to grow mature and materialize on paper to finally close Jones's war trilogy, the writer unveils the bitter truth on the incompatibility of such productions with the real image of war:

> He went to a lousy war movie. In it some green young Navy kid, stranded in Bataan, kept letting the spoons fly off hand grenades and counting to three before he threw them, usually just across the coconut log where evil-looked Japanese were shooting point-blank at him. It was so outrageous that finally about halfway through he had to leave. (Jones 1999: 213)

Strange, one of the characters in the novel, a young war veteran, considers the vision of war presented in the movie more than incomprehensible. Unable to find his place outside of combat, the protagonist perceives both the civilian life and the outside perspective on the atrocities intrinsically naïve. The film constitutes for him nothing more but a sequence of highly tendentious images that altogether form a representation of war so distorted and untrue, that by no means should they be accepted by anyone who experienced the horrors Guadalcanal.

Similar disfigurement of the real face of war on the Pacific appears in the press. In the section entitled "Making known the 'unknown war'" of *The war beat, Pacific: The American media at war against Japan*, Casey (2021) discusses the mechanisms governing the dissemination of the news on the Guadalcanal campaign, paying attention to the role of press in the process of information processing and spread, whilst taking particular account of the stance of various newspapers towards censorship. As Casey (2021: 103) notices, very strict rules regulating in quantitative and qualitative terms the information from the front released to the press contributed to a significant narrowing of the real picture of the Pacific war; "(…) navy's communiqués" states Casey (2021: 103) "gave their readers little sense of the conditions on Guadalcanal". Extensive military and government-imposed censorship prevented the public from obtaining a deeper insight in the situation on the Solomon Islands. The way in which the news from the Pacific theater of World War II were processed, censored, and communicated to the readers, influenced the general conceptualization of not only the military campaign on the Pacific but also of the natural and geographical features of the region.

The empty or unclear spaces in the highly controlled, and at times radically incomplete newspaper coverage of the Pacific War, became an incentive for the public to fill in the gaps in the fragmented and blurred portrayal of the Solomon Islands with the

elements the imaginary and the assumed. As a result, American perception of Guadalcanal campaign and other military actions performed on the Pacific islands can be analyzed with reference to Said's (1979: 54) idea of imaginative geography understood as a phenomenon of ascribing "all kinds of suppositions, associations, and fictions" to the geographical areas constituting "the unfamiliar space outside one's own". Shaped by popular media and press, filtered by the camera eye in widely attended wartime movies, American collective imagery of detached islands on the Pacific Ocean represents characteristics of a myth; individual projections and ideas on the unknown space are supplemented with both visual and verbal media commentaries, making the real blend with the hypothetical and, as a result, (re)shaping American understanding and perception of the distant foreign space.

Although the notion of imaginative geography, especially when broadly understood, is a largely useful tool for the analysis of American perception of the Pacific Ocean theater during World War II and its reflection in literature, the theoretical approach borrowed from Said may prove insufficient if the exploration of the imagined imposed on the real is broadened to include in the frame of reference the development of science, especially the achievements of Einsteinian physics. The new perspective on space and time offered by the Theory of Relativity, along with the perpetually widened knowledge of the remote areas of the Cosmos, contribute to the rise of a changed perceptual sensitivity to the distant, foreign, and unknown. And inasmuch as Said's Orientalism explains the complexities of imaginative geographies in terms of their cultural anchorage, it does not provide any methodological apparatus that could be applied to the analysis of the perception and representation of the foreign in literature in the light of the expanding universe. Therefore, taking into consideration the influence of Relativity Theory discourse series in the discussion of the structure of the imagined, presupposed, or even fantasized in the depiction and construction of literary space-time imagery of the Asiatic-Pacific Theater opens additional research ventures and provides space for new readings of the novels featuring the aforementioned locations.

Discussing the objectively verifiable overwritten with the imagined in American perception of the Asia-Pacific War would be incomplete without referring to the political dimension of the mythical surrounding the Solomon Islands and the military campaign on the archipelago. Along with the new visual and verbal imagination of the distant military locations on the Pacific comes a new, symbolic meaning ascribed to these

territories. Although the U.S. Army's operations were performed in the whole Asiatic-Pacific Theater, an extensive military zone embracing six adjacent component areas, that altogether formed a large territory covering almost the entire Pacific with its numerous islands, and a considerable part of continental Asia, it is Guadalcanal that became an epitome of American World War II military operations in this part of the world.

Guadalcanal, the second largest island in the Solomon Archipelago, quickly started to function in the popular American perception of the Asia-Pacific war as "a symbolic rallying point" and appeared as such both for those who served in the U.S. marine corpses, and those who observed their military actions from the other side of the Ocean (Cameron 2002: 99). What is more, the island, of which the image was skillfully shaped by American government, wartime propaganda, and media, to finally make it achieve the status of the ultimate symbol of American military effort against Japan on the Pacific, starts to function in American collective imagery of the geography of the region as a location representative for a large number of smaller islands, barely known to an ordinary American. As a result, the semantic load ascribed to Guadalcanal undergoes a profound transfiguration. Taken out from the geographical discourse, the name of the island starts to circulate within other discourse series, acquiring new meanings and foreign semantic sediments. The new connotations ascribed to Guadalcanal by the government, media, society, and American army, make it become an internally complex, multidimensional concept suspended between its social, political, natural, and geographical binding. Additionally, treated as a representative element of the complex geographical and military landscape of the Solomon Island, Guadalcanal becomes a collective mental construct, a peculiar form of synecdoche used as a mental shortcut that can be applied to all the projections on the American forces' operations in the distant and unknown territories.

American government's attempts to manipulate the public opinion and shape the society's perception of the operations in the Asiatic-Pacific Theater is perhaps best exemplified by *Guadalcanal Diary* (1943). The movie, a Hollywood production, is based on a war memoir by Richard Tregaskis, a journalist and war correspondent who spent several weeks on Guadalcanal during the initial period of the U.S. Marine Corpses invasion of the island (Holsinger 1999: 268). With a considerable popularity of Tregaskis' book in the background, the cinematic production was used to influence large American

public which, watching the course of events from the other side of the Ocean, was supposed to form its opinion on the war under the influence of the proposed narration. The central axis of the movie is the psychological development of the character, a soldier from the United States Marine Corps who reaches spiritual maturity in the course of action. Presenting the protagonist's fall from innocence to experience as a moment of a breakthrough, a source of internal strength that makes the character lead the army to both moral and strategic victory, the movie meets the main objectives pursued by military and political propaganda. These focus largely on convincing the public that America's participation in the Second World War is not only politically motivated, but also has a deep ethical dimension dictated by the U.S. moral responsibility on the international scene (Holsinger 1999: 268).

The war on the Pacific was thus viewed as a war in the defense of higher values, a mission in which American soldiers were obliged to demonstrate their devotion to the noble cause, lend strong support to the case, and prove the superiority of the civilized world and its values over the barbaric world order imposed by force on the democratic societies by the enemy. For the reasons discussed above, in American wartime propaganda Guadalcanal serves not only as an example used to familiarize American society with the government's military decisions, the U.S army's actions, and the purpose behind American involvement in the actions undertaken in the Asiatic-Pacific Theater. It also, from the very beginning of the campaign, functions as a universal symbol of the state's noble effort, "an ideological struggle to preserve the American way of life and its underlying assumptions of racial and technological superiority" (Cameron 2002: 98).

Governed by its own laws dictated by its geographical location and natural conditions, an intrinsically foreign, remote space of Guadalcanal quickly acquires new, mythical dimension in American collective imagination. Adding the aspect of harsh conditions prevailing in the Solomon Islands to the overall picture of Guadalcanal in American collective imagery of the war in the Pacific complements the myth with the elements of the otherworldly. Due to its tropical climate characterized by exceptional humidity, high temperatures, and frequent rainfalls, the island appears as something more than just an inhospitable place. With its relatively stable but cumbersome weather pattern, muddy soil supporting mosquito breeding, and consequently, the spread of malaria amongst the soldiers, animal wildlife and exotic vegetation creating a dense, almost impenetrable jungle, Guadalcanal is nearly as incomprehensible as a distant cos-

mic space-time. In his *Shots fired with anger*, a memoir from the years 1942-1945 John B. George (1981: 172), a former U.S. Army Infantry Officer writes:

> I found myself taking an interest in the botanical aspects of my jungle surroundings. I had never become able to get thoroughly used to the marvels of Guadalcanal jungle. The huge, shadow casting, columnar tree trunks, with great buttressing roots spreading outwards from the trunk for three and four yards, were constantly awing to me. The exotic shaped, huge leafed plants on all sides kept my eyes fascinated. It took effort to get myself out of a wandering state of absent-mindedness. To me the jungle never became commonplace; in the early days of the war it seemed an especially interesting environment, constantly revealing fresh wonders.

A similar picture of the jungle viewed as a peculiarly hypnotic, yet deeply uncanny space guarding its secrets emerges from the memoirs of George Lince, a World War II veteran serving in the U.S. Marine Corps (1997: 56):

> As the ship approached, I saw the island. It was majestic and forbidding, larger than I had imagined. The misty jungle and dark beautiful mountains gave no hint that this would be the place to transform innocent, unsuspecting boys into warriors, to be filled with an all-consuming rage as dark and overwhelming as its mountains.

The view from the outside on the island is almost directly complemented with an inside perspective on Guadalcanal's terrifying beauty:

> Our bivouac area was located in the center of a sea of black mud, at the edge of a dark, forbidding jungle. Beyond the jungle, there were high craggy mountains and rolling hills, filled with dense vegetation. This is where the enemy hid. (…) Each day, we would fight our way into the jungles, through the entrapping vegetation, not knowing what lay in wait for us. It was impossible to know what was out there in the thick mist, and each time was a harrowing experience. (1997: 57)

In many respects biologically[5], militarily, strategically, and politically "cosmic" space(-time) of Guadalcanal speaks equally to the imagination of those, who personally expe-

[5] While discussing the way Guadalcanal was envisaged by an ordinary American citizen it is important to take into consideration other scientific discourses or entire discourse series that influenced American perception of the island, and at points crossed with Relativity Theory discourse series, complementing it by bringing a more detailed insight into selected aspects of reality. Amongst them of particular significance is the discourse of biology, of which the echoes can be obviously found in the descriptions of the jungle, which for Americans appeared mostly as the chaos of exotic vegetation and animal life. The perspective of American soldiers and all those who found themselves on Guadalcanal between August 1942 and February 1943 for various war- or army-related reasons, was skilfully depicted by Donald F. Crosby. In the book discussing the activity of catholic battlefield chaplains during the Second World War, the author pays particular research attention to a biologically, environmentally, and geographically accurate representation of the areas taken into consideration while exploring the topic. In the "Guadalcanal" section of the study, Crosby, basing on the relation of the U.S. Army soldiers and chaplains, (1994: 35)

rienced the uncanny character of the place, and those who explored the dense jungle of Guadalcanal via press coverage or cinematic productions. George's (1981: xiii) account of the service on Guadalcanal, completed two years after the end of the Second World War, but "written as it would have been written in 1943", hypnotizes the reader with a detailed, fairy-tale like descriptions of the jungle. Yet, despite being constantly explored with the senses and thought, the exotic flora and fauna of the island remain utterly foreign to the experience of both those who had an opportunity to directly experience its peculiarities, and those who can only imagine it on the basis of either a photographic representation or a narrative account. However precise, meticulous, or disciplined the attempts to subjugate Guadalcanal to language are, encapsulating even the smallest part of its tropical jungle within the semantic boundaries of the words proves problematic. Neither words, nor pictures can fully grasp its real character. With its otherworldliness stemming from unfamiliarity and incompatibility with any kind of space-related experience gathered by an ordinary American, Guadalcanal becomes an essentially foreign space-time, as distant and mystifying as the cosmos.

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writes: "The downpours and humidity produced a wild luxuriance of animal life that would have enraptured a zoologist–but not a fighting man. Spiders dropped silently from the trees to spread their nets inside the tents of soldiers, stringing thick webs across jungle trails, stinging the unwary, or ending up squashed "in gory clods beneath an unsuspecting hand," as one marine morosely put it. Ants occupied their own special place in the kingdom of Guadalcanal: one of them had a bite that felt like "a live cigarette against the flesh" (...). Of all the creatures living on Guadalcanal, however, the one that the men came to hate the most was the lowliest of all – the humble mosquito. Guadalcanal's numberless pools, pits, swamps bred some of the most voracious mosquitoes on the planet". Whereas the language of Crosby's description of the natural conditions on Guadalcanal is subjected to the rules of intelligibility and constitutes an attempt to reconstruct an ordinary person's perspective on the unfamiliar, it should be also mentioned that the discourse on the natural conditions on Guadalcanal takes a more professional form. A more structured, technical descriptions of the island and its physical and bioclimatic characterization is to be found in the field manuals for the U.S. Army released by the U.S. War Department (275). Since "training for warfare in the Pacific began with practical lessons in the ecology of tropical Asia, Malaysia, and Pacific islands" the brochures constituted an indispensable part of the soldier's preparation for the harsh combat conditions on the Solomon Islands (Sumner 2019: 275). Similar manuals, containing useful information on the islands' climate, geography, vegetation, and wildlife were released for the soldiers on the Japanese side as well. One of them was translated into English under the title "Read this alone and the war can be won" (Sumner 2019: 275). Although the brochure does not contain any separate section that would discuss the natural conditions on the islands, the information is scattered throughout the chapters providing the soldiers with practical solution to the problems to be potentially encountered in the jungles of the Pacific islands. The above discussed constitute only a sample of various discursive attempts to tame the unfamiliar natural environment with the semantic borders imposed on it by language. Yet, even the distant echoes of the biological or geographical discourse in various non-scientific texts on Guadalcanal constitute an important factor shaping the overall perception of the Solomon Islands during, and (given that the dissemination of discourse is taken into consideration) after the Second World War. The elements of the ecological, geographical, or biological in the discourse on Guadalcanal constitute, next to Relativity Theory discourse series, an essential source of influence on the overall space perception in the 1940s and 1950s.

According to Cameron, (2002: 92-93, 99) the exotic character of the island, combined with the representation of the enemy in the categories of madness and insanity that incited in the Japanese soldiers the animalistic thirst for bloodshed, awoke particular interest of American society, placing Guadalcanal with all its military "theatrical extravaganza" in the centre of public attention. It is worth to mention, that the fascination with the remote, in all respects foreign places on the Pacific Ocean precedes "the flurry of interest in space" which, according to Miller (2016: 74), became especially pronounced in America to the end of the 1940, and develops into one of the most prevailing trends in American popular culture in the 1950s and 1960s.

In 1905 space started to transfigure, increasingly eluding the control of perception, the all-organizing and all-domesticating power of the senses. In 1908, when Minkowski put forward the geometric model of a four-dimensional continuum, illustrating graphically the theoretical premises of Relativity Theory, the four spatial dimensions of reality became inseparably entwined with an additional dimension of time. The year 1919, with its "most important and exciting eclipse in scientific history" (Purcell 1973: 51) and "lights all askew in the heavens"[6], proved Einstein's findings in the field of general relativity. The year 1922 brought another revelation; the already drastically unstable perspective on the world was once again deconstructed to create grounds for a new image of the Universe – the expanding one. Hubble's further research in the topic prompted Einstein to prepare a paper on the cosmological problem (Gutfreund and Renn 2015: 153). In the text published on 16 April 1931 (Gutfreund and Renn 2015: 163) Einstein ultimately rejects the model of a static universe as invalid in the light of Hubble's findings. 1930s bring a considerable slowdown in the work on Relativity Theory-related scientific problems. This, however, does not mean a complete abandonment of addressing the unsolved issues from the field of Einsteinian new physics, as these are discussed throughout the entire decade in various scientific texts by mathematicians and physicists such as Eddington, de Sitter, Planck, Bohr, and of course Einstein, to list just a few.

The new scientific discoveries, and revolutionary theories proposed by the leading scientist of the first half of the twentieth century constitute one of the major sources of influence shaping both space and time perception. Although the outbreak of World

[6] The headline from the *New York Times* of 10 November 1919, informing the readers about the success of Eddington's expedition and, consequently, of Einstein's theory.

War II is commonly seen as a factor inhibiting the development of science, the socio-cultural changes it brought to American citizens already during the conflict only reinforced the new outlook on space, time, and the material dimension of reality. For many of American young men, who were drafted to the U.S. Army or enlisted as volunteers, especially those coming from agricultural areas, or small towns, the world suddenly expanded to include places of which the existence they were formerly unaware. As Johnson (2016: 159) notices, the Second World War contributed to similar increase in young male American citizens' mobility as the Great Depression did, but the scale of changes was even greater. Not only did the soldiers cross the boundaries of individual states, or left America for Europe, but were also sent to the most remote, culturally foreign, environmentally unfamiliar, in many respects thoroughly exotic areas (Johnson 2016: 159). As a result "rural American men were no longer 'rural' in any simple or obvious way" since "to be rural meant being isolated, immobile and generally ill-acquainted with the astounding diversity of the wider world" (Johnson 2016: 159).

The marked socio-cultural change Johnson pays special attention to can be read within a broader context of the quickly transforming perception of space. Without altered perceptual sensitivities getting "acquainted" with what Johnson calls "the wider world" would become impossible. And since the world is truly expanding in the first half of the twentieth century in every possible meaning of the word, neither the rural, nor the classical Renaissance perspective on reality appears tenable. The once stable and organized world of many Americans becomes more and more "cosmic" in the first half of the twentieth century, with the Second World War eventually only reinforcing the formerly induced by science changes concerning the perception of space, time, and matter.

So prevailing was the mythical dimension of the Guadalcanal campaign created by the American press, movie industry, and the radio, that both separating the objective from the exaggerated created by a complex network of American wartime propaganda and evaluating the real meaning of the Guadalcanal campaign within a broader context of American military actions performed on the Pacific, appeared as problematic. Moreover, it was not only the involvement of America in the Asia-Pacific war, and the locations the conflict embraced, that underwent hyperbolization when reenacted in a movie or translated into an article to be published in one of the popular newspapers of the time. As it was already briefly mentioned, certain uncanny or supernatural features were also

ascribed to the portrait of the enemy, with Japanese soldiers being frequently depicted as "vague and ominous 'Yellow Peril'", well adapted to the fight in a obstacle-laden terrain of the jungle (Cameron 2002: 90). Cunningness, superhuman strength, extraordinary endurance, and unprecedented resistance to exceptionally difficult conditions on the island, make the Japanese soldier appear as "an alien, implacable, and vicious enemy", who serves as an epitome of the entire "culturally twisted, obsessively suspicious" Japanese nation which "understands only force" (Cameron 2002: 92).

The animalistic image of the Japanese is compounded by the Imperial Army's style of fight. Although Japan signed the Geneva Convention of 1929, the Japanese government refused to ratify the agreement for various political reasons related to both foreign and domestic affairs (Corbett 2008: 112). As a result, the Japanese felt released from the obligation to follow the otherwise internationally accepted ethical guidelines and rules governing military actions. Instead, the Soldiers of the Sun were obliged to obey the code of honor oftentimes explicitly referring to the samurai tradition and modeled largely on Bushido. Japanese culture however, still remained inherently unintelligible for Americans, and the samurai heritage behind the their enemy's style of fight only strengthened the impression of the hazardous unfamiliarity and dangerous otherness of Japanese soldiers. In his *Into the valley: A skirmish of the Marines* John Hersey presents the essence of American perception of the enemy:

> I wish we were fighting against Germans. They are human beings, like us. Fighting against them must be like an athletic performance – matching your skill against someone you know is good. Germans are misled, but at least they react like men. But the Japs are like animals. Against them you have to learn a whole new set of physical reactions. You have to get used to their animal stubbornness and tenacity. They take to the jungle as if they had been bred here, and like some beasts you never see them until they are dead.

Although it remains debatable whether the actions of the Nazis shall be interpreted as more ethically appropriate in the face of international law, the above-quoted fragment clearly shows the mechanisms of mythologization applied to the foreign and the strange, which, fuelled by prejudice, fear, or war-related trauma, undergo intensification contributing to the production of substantially hyperbolic images. The representation of Japanese soldiers as villains, monstrous, or animalistic creatures possessing uncanny physical strength completes the picture of Guadalcanal – a foreign, hostile setting that hides unknown threats. As a result, in American collective imagery the island appears as an

obscure, uncanny, barbarian space, whereas its unbearability emphasizes the noble effort of American soldiers, who, taking the exotic territory away from the Japanese hands, contribute to an eventual victory of the civilized western world over the barbarian and incomprehensible East. All of these favor the proliferation of myths and exaggeration that accompany objective facts connected with the Guadalcanal campaign.

On the background of the above-discussed American war literature from the late 1940s and the following decade can be viewed as a source of particularly interesting images of the distant battlefronts of which the retrospective perception is overlaid with the elements of the imagery related to the cosmic space. The aim of the next subchapter is thus to trace the similarities in the perceptual pattern applied to envisaging the strange and foreign in the other part of the globe, and the incomprehensible in the distant realms of the universe on the example of the second part of James Jones's war trilogy – *The thin red line*.

3.1.2.1. Disharmony, conflict, and space(-time) deconstruction: introducing the narration of resistance

Within the already outlined frame of reference, the novel to be discussed in this section constitutes a particularly interesting example of a counter-discourse that seeks to infiltrate the myths around Guadalcanal to deconstruct them. Nevertheless, James Jones's purpose in writing *The thin red line* was by no means to discover or to restore the incontrovertible historical truth on this fragment of the Asia-Pacific war that unfolded on one of the Solomon Islands. The author "cheerfully" dedicates his book "to those greatest and most heroic human endeavors WAR and WARFARE" which "provide us with the heroes, the presidents and leaders, the monuments and museums which we erect to them in the name of PEACE" (Jones 1962). With the ironic tone of the dedication, the novel can be viewed as an attempt to demythologize not only American military effort during the Second World War, but also broader and more universal categories of the already mentioned "war and warfare". These are explicitly emphasized by the usage of capital letters and a close juxtaposition of the singled out language elements with the notion of peace distinguished graphically in the same manner.

The compositional skeleton behind the dedication goes beyond a simple contrast, or a peculiar literary contrapposto that allows to ascribe greater semantic weight to one element at the cost of another. Linking the ideas of war and warfare by means of perverse logic combined with bitter irony, Jones signalizes, as early as in the paratext, that the underlying compositional design behind the creation of the novel's internal space time will by no means be a re-, but rather a de-construction. This bold gesture of a deliberate break with the prevailing discourse on the Second World War suggests that the narration will be entangled in a net of historical, social, political, and cultural tensions. Moreover, the suspension of the story in between war and warfare on the one side, and peace on the other introduces a disturbing impression of disharmony, and locates the text on the titular thin red line – a risky, marginal position from which the novel involves in a series of conflicts with the commonly accepted historical, social, cultural, and political discourse on World War II.

To secure the radically reversed perspective on the myth of Guadalcanal the writer enhances the effect of disturbance obtained in the dedication with a brief remark preceding the main text:

> Anyone who has studied or served in the Guadalcanal campaign will immediately recognize that no such terrain as that described here exists on the island. "The Dancing Elephant," "The Giant Boiled Shrimp", the hills around "Boola Boola Village," as well as the village itself, are figments of fictional imagination, and so are the battles herein described as taking place on this terrain. The characters who take part in the actions of this book are also imaginary. (Jones 1962)

The idea of myth deconstruction inscribed in the novel, the main axis around which the narrative effort evolves producing images that profane the sacrosanct status of Guadalcanal in American history and culture, is based largely on the disruption of the setting to the events. These are however also fictionalized; the meticulously described battles from *The thin red line* follow the rules of verisimilitude and could in all probability take place at any point of the Guadalcanal campaign, or the Asia-Pacific war. Yet, as Jones (1962) boldly emphasizes "(…) any resemblance to *anything* anywhere is certainly not intended". Instead of presenting the plot as a literary variation on the war-related events, the author of *The thin red line* chooses to categorically break away from any assumptions that the story may be based on facts, or his combat experience from the Second World War, feature events or protagonists that could be more or less easily traced in the

subjective, personalized memoirs of the veterans or their objectified versions written by historians. Yet, just as Jones expects that the novel will not be read as (to some extent) historically accurate but a fictionalized account of the clipping of the Asia-Pacific-war, he does not fully uproot the narration from the specific historical and, thus, spatio-temporal context of the Guadalcanal campaign:

> It might have been possible to create a whole, entirely fictional island for the setting of this book. But what Guadalcanal stood for to Americans in 1942-3 was a very special thing. To have used a completely made up island would have been to lose all the special qualities which the name Guadalcanal evoked for my generation. Therefore I have taken the liberty of destroying the campaign and laying down smack in the middle of it a whole slab of nonexistent territory. (Jones 1962)

James Jones' *The thin red line* is therefore a narrative expedition against the "very special thing", a clichéd image of Guadalcanal, shaped by American government, and wartime propaganda, that dominated American perception and understanding of the U.S. Army's military actions on the Pacific during the Second World War. According to Cameron (2002: 99) "Guadalcanal was perhaps destined to be described as a military epic, rather than a spontaneous response to military events on the island (…)" in order to satisfy both the American Army's and the society's need to ascribe symbolic, abstract meanings, values, and emotions revolving around American struggle against Japan to a specific place and set of events. As such, Guadalcanal, a distant, almost unknown to a vast majority of American citizens island, offers a blank space that could be easily attributed with any cultural, historical, or political meanings dictated by the current situation on the Pacific front. Since the beginning of the military campaign on the Solomon Islands all the patriotic feelings, antipathy towards the enemy, and wartime moral code accumulated in the concept of Guadalcanal, providing American society with a stable, coherent, and meaningful frame of reference through the prism of which the citizens could organize their views on American military effort against Japan.

The distortion of Guadalcanal as a space-time in *The thin red line* by filling its actual framework with imaginary content, is followed by the distortion of all the myths that accompanied the campaign from 1942 onwards. As a result, Jones's novel casts a new light on the campaign, becomes an attempt to find a new perspective from which to observe the mythologized past, and calls for a new approach towards "WAR and WARFARE", this time viewed rather in the categories of "the most colossal, murder-

ous, mismanaged butchery" (Hemingway 1942: IV) than of an honorable fight for a noble cause.

The myth of Guadalcanal started to proliferate already in 1942 and continued to evolve for the following two decades when *The thin red line* appeared on the bookshelves. Nevertheless, it would be perhaps incorrect to treat the second part of Jones's war trilogy as a post factum reaction to the already largely formed legend of Guadalcanal. According to the author, the idea for the entire trilogy started to crystallize in his mind two years after the end of the Second World War. In a note to his last novel, and at the same time the third part of the World War II trilogy Jones ([1973] 1978: xix) writes:

> I first began actual work on *Whistle* in 1968, but the book goes back a much longer time than that. It was conceived as far back as 1947, when I was still first writing to Maxwell Perkins about (…) the book I wanted to write about World War II. When I was beginning *From Here to Eternity*, then still untitled, I meant for that book to carry its people from the peacetime Army on through Guadalcanal and New Georgia, to the return of the wounded to the United States. (…) But long before I reached the middle of it I realized such an ambitious scope of such dimension wasn't practicable. Neither the dramatic necessities of the novel itself, nor the amount of sheer space required would allow such a plan.

Three years after his discharge from the army, Jones starts to realize his dream of a literary career. And much like Hemingway (1996:26), whose "well of writing" in the early 1920s was almost entirely comprised of the author's still fresh, sharply silhouetted memories from the First World War with an admixture of journalist practice, Jones considers his military service between 1939-1944 a main source of literary inspiration. Interestingly, remembering back to his early steps in fiction writing Jones pays particular attention to both the spatial and the temporal aspects of his combat experience, locating his writing capital within a specified spatio-temporal framework that stretches between the Hawaiian Islands and Guadalcanal, and embraces the events that follow a simple symmetrical pattern of departure and return. The proportions of such narrative, to a considerable degree dictated by the spatio-temporal scope of the represented world and the real historical, political, and geographical reference frame behind the novel's setting, prove too large to be successfully embraced by a single text:

> The idea of trilogy occurred to me then. *Whistle,* still untitled and – as a novel – unconceived, was a part of it. So when I began *The thin red line* (some eleven years later) the plan for a trilogy was already there. (Jones [1973] 1978: xix)

In order to deconstruct the myth of Guadalcanal Jones chooses a narrative of epic proportions that stretches over three separate parts and covers numerous settings and a time span from 1941 to 1944, while largely relying on similar character patterns that reappear rhythmically throughout the trilogy under different names. The internal coherence of the compositional design behind the trilogy however, stems not only from a well thought out theme and the author's faithfulness to the original idea for the war novel(s) formulated as early as in 1947, but is also rooted in the consistency characterizing the narrative treatment of the chosen setting. And although in the note to *Whistle* Jones emphasizes that each of the trilogy's parts should be treated as a separate, autonomous text that can be read independently from the two remaining parts, it is worth to see *The thin red line* within a broader framework provided by the entire trilogy.

In the previously quoted author's note to the novel in focus Jones emphasizes the imaginary character of the topography of Guadalcanal, categorizing it, along with the characters and events from the second part of the trilogy, as "figments of fictional imagination". Similar formula was applied to the conceptualization of the setting in *From here to eternity*. In a special note to the his debut book Jones (1954) writes:

> The book is a work of fiction. The chapters are imaginary, and any resemblance to actual persons is accidental. However, certain of the Stockade scenes did happen. They did not happen at the Schofield Barracks Post Stockade but at a post within the United States (…), and they are true scenes (…)

While the events presented in the book are not entirely imaginary, the same cannot be said of the setting. Extracting the events from his own experience, Jones almost completely detaches them from the locale, resigning from the spatial aspects of the remembered to preserve only the temporal dimension of the bygone reality. The entire process revolves around the mechanism of a shift based on a superimposition of the real onto the imaginary. For Jones, pasting the fictional onto the real is inevitably linked with space de-construction, which becomes the predominant pattern of literary space-time imagery creation throughout the entire trilogy. *From here to eternity* features factual events transferred onto the ground of an imagined setting. The topographical representation of Guadalcanal in *The thin red line* has almost nothing in common with the real geographical features of the island. The plot of *Whistle* on the other hand takes place mainly in Luxor, an imagined town in the southeastern United States:

> Luxor in fact does not exist. There is no town of Luxor, Tennessee. There is no Luxor in the United States.
>
> Luxor is really Memphis. I spent eight months there in 1943 in Kennedy General Army Hospital. I was 22.
>
> But Luxor is also Nashville. (…) Nashville supplanted Memphis as our liberty town. Luxor has recognizable traces of both. (…)
>
> So I have called my city Luxor and used the Memphis that I remembered. Or imagined I remembered. People who know Memphis will find my city disturbingly familiar. And then suddenly and even more disturbingly, not familiar at all. They should not think of it as Memphis, but as Luxor. (Jones as quoted in Morris 1978 [1977]: xvi)

The town of Luxor chosen by James as a setting for the last part of his war trilogy is entangled in a complex net of tensions between the real and the imaginary. Bearing close resemblance to Nashville and Memphis, Luxor is at the same time both and neither of them. The imaginary place derives from the real locations only to distort them, inscribes the surreal into the objectively existing space, contaminates the verifiable with the elements of the subjective and/ or imaginary. What characterizes Jones' trilogy is therefore an overt narrative disdain for the well-ordered, transparent, easily controllable and, in fact, politically, socially, and culturally controlled space. All of the previously mentioned war novels by Jones feature attempts of uncompromising narrative decoding of the meanings imposed by (American) society, army, politics, and broadly understood culture on the places and spaces chosen by the author as the books' settings. In the view of the above discussed "Jas. Jones" becomes "Sole owner and Prop." of the all the (narrative) space-time constructs appearing in his war trilogy, a creator who "must also take full responsibility" for his hybrid realities that desecrate the great American myths.

The publication of *From here to eternity* in 1951 proves a successful, but at the same time relatively late literary debut of the author. With his early youth spent in the army, Jones did not have many opportunities for starting his literary career in the beginning of the 1940s. Nevertheless, the combat experience gathered during his service in Hawaii at Schofield Barracks, and then on Guadalcanal, became the most prolific source of literary inspiration from which the author drew for over thirty years. The same time span is the period during which his lifelong work – World War II trilogy grew mature and materialized on paper. First published in 1962 by Scribner, *The thin red line*, "a novel of major dimensions" (Styron 1989: xv) was actually actively occupying the author's attention from the beginning of June 1958 (Hendrick 1989: 262-263). The novel can be therefore viewed as a narrative rooted deeply in the 1950s, and osmotically acquiring the decade's sensitivities to space and place perception. These were to a consi-

derable degree influenced by a revived interest in Einstein's scientific achievements provoked by the fiftieth anniversary of Relativity Theory, preceded by the scientist's unexpected death in April of the same year. Both of the events initiated lively discussions on the already well-researched topics and the still unsolved problems from the field of the new physics.

Creating a perfectly plausible narrative on the Guadalcanal campaign, Jones ascribes *The thin red line* entirely to the realm of fiction, re-imagining historical truth, manipulating with the course of events, introducing fictional characters in the place of historical figures, and alternating the topography of the island. And although all of the above constitute an integral part of fiction writing, it is the paradox between the choice of the theme and the author's explicitly expressed narrative attitude towards it, that produces a sense of disharmony and an obvious situation of (discursive) conflict. Subjected to a series of radical transfigurations presented to the reader as early as in the paratexts preceding the main narrative, coherent with the narrative vision of space and place from the two remaining parts of the war trilogy, the novel's internal space-time inscribes into Grygiel's (2021) concept of the scene that acquires agency and turns into the drama; due to the additional dimension of time, the four-dimensional manifold can either encompass the events comprising the plot, or become an event itself. What Jones signalizes in the author's notes to both *The thin red line* and to the two other novels form the series, is that literary space time imagery in each or the trilogy's parts is something more than just a setting to the events. The complex processes of trans- or de-formation it undergoes, make it speak to the reader with a counter-discourse that seeks to deconstruct the long respected and well guarded myths on the U.S. Army, including the nearly two-decade-old myth of the Guadalcanal campaign.

3.1.2.2. The thin line between absolute and relative space: James Jones's narrative projection of the imaginary on the real and the (mis)representation of space(-time)

Applying Genette's idea of paratext, understood as a any form of text that places the major body of a literary work in a broader context (Bredehoft 2014: 7), it can be argued that the "Special note" acts as an inverted paratext, as it decontextualizes the novel. Explicitly depriving the war novel of its historical roots, Jones makes his text undergo a

peculiar process of dislocation, as it cannot be inscribed into the prevailing socio-cultural discourse used to circumscribe the historical context of the Guadalcanal campaign, but at the same time, paradoxically, requires from the reader at least a basic prior knowledge of what Guadalcanal meant in American history and in American understanding of World War II. And since it is mainly the name "Guadalcanal" that in American collective imagery evokes a chain of associations from the borderline of facts and myths, Jones uses the authentic geographical framework of the island, whose existence is verifiable and undeniable, in order to fill it with a purely fictional content – imaginary characters, performing fictive actions on a nonexistent terrain.

Although Jones informs the reader at the very beginning of the novel of its purely fictional character, the author devotes a considerable effort to creating a meticulously structured and almost cartographically representable topography of the island, that deserves the reader's credibility due to the mathematical precision of the author's literary space-time creation. Ascribing either numbers, or concrete names to particular forms of terrain, Jones creates a credible illusion of the real setting of the Guadalcanal campaign:

> Tactically, they were told, The Sea Slug was useless except as an outpost, and as a jumping off point for the major push against the next big hill mass: the Hills 250-51-52-and-53 area, now known in the Division Plans Bureau as "The Giant Boiled Shrimp". But the Division Commander and the general commanding wanted it because its open length, angling forward, was a perfect approach route to The Giant Boiled Shrimp hill mass. (Jones 1962: 385)

In the light of the "Special note", which precedes the major body of the novel, Jones's carefully structured literary topography of the island with all the people and actions performed by them within the island's borders, becomes a utopia – a nonexistent space time that invades American myth about Guadalcanal. The transfiguration that Guadalcanal's topography and landscape undergo in Jones's literary vision of the campaign, may paradoxically be treated as a formation of another, explicit myth used to deny the preceding ones in an act of dissociation of the island from its actual appearance and real events that took place within its borders. Therefore, paradoxically, in order to devoid Guadalcanal of its fabled dimension Jones mythologizes it one more time by ascribing to it the features it does not possess, creating landscapes which do not exist and using the whole semi-real, semi-imagined space-time as a locale for fictional events of high verisimilitude. In Jones's novel, the imagined reflects the real, and the real is invaded by

the imagined. An additional source explaining the author's treatment of the space-time of Guadalcanal at war can be the poem entitled "The hill they call the Horse". In the poem inspired directly by the writer's participation in the fight for a group of hills on Guadalcanal known as The Galloping Horse, as a result of which Jones suffered a head injury, the author depicts Guadalcanal as a space-time that escapes perception and the organizing power of cognition, splitting into two contradictory realities:

> I am standing, lonely in the writhing blood of dawn,
> Atop a hill – I know this hill.
> I have stood before – because far off the sea, (…)
> Yawns wide its maw to catch the bloody drippings of the dawn.
> I have stood before – because all about me,
> Over earth, on trees, into thirsty dust,
> (I can feel it on my hands ; it's sticky on my face).
> Dawn's jugular pours.
> And yet I am a stranger here; I don't know this place.
> I am of the tortured past (the so-conveniently forgotten past),
> And in this present of the future the past is out of place.
> This future present is of death, of silence, (…) (Jones 1989: 33)

As the space of the island bifurcates into the familiar and the unknown, so does the time – an additional dimension ascribed to the two contradictory realities explored by the persona. The contrasting attitudes, the clear and simple declaration "I know this hill" suddenly invalidated by a denial "I don't know this place" preceded by a confession "I am a stranger", constitutes a depiction of a processual disarticulation of the speaking subject that reflects the disintegration of the outside reality. The same scheme applies to the temporal aspect of the described spatial context; time splits into three separate dimensions – the past, present, and future. The conventionality and predictable order of this simple division is however strongly disturbed by the interfusion of all the realizations of time into one, incoherent temporal blend of the "present of the future" in which "the past is out of place". The construct is synonymous with the "future present" that belongs entirely to death. The process of space-time disintegration is enhanced by both the spatial and the temporal displacement of the speaking "I" who belongs neither to the island, nor to the peculiar amalgam of now with the upcoming that excludes the existence of the foregone.

If read within the biographical context of James Jones's wartime experience, the poem can be viewed as an important paratext to the *Thin red line*, a rudimentary literary attempt to translate the extralinguistic and the transgressional into the textual. With the

intensity of emotion, and the condensation of meanings in several striking poetic images relating to body, space, and time, Jones manages to capture and preserve the essence of his combat experience from Guadalcanal to later on develop it into a fully-fledged represented world of similar qualities, that both embraces and speaks in a multithreaded narrative that seeks to infiltrate the myth of the Asia-Pacific war in American history and culture.

Jones's (narrative) vision of Guadalcanal is therefore essentially characterized by an exceptional sensitivity to the spatio-temporal dimensions of his wartime experience. The represented world in *The thin red line*, apart from the meticulously constructed topographical (in)accuracy of the battlefields shows great responsiveness to motion and its dynamics, which is especially pronounced in the descriptions of the air raid. Compared to mosquitoes that "dipped and swirled and dived in a mad, whirling dance around the heavier stolid horseflies, who nevertheless kept serenely and sedately on" (Jones 1962: 39), the planes produce a hypnotizing spectacle that transfigures the formerly relatively stable and temporary safe area on the island into a space pulsating with inescapable dangers:

> Below on the beach the minutes, and then the seconds, continued to tick by. There were no cheers when a bomber fell. When the first one had fallen, another new company nearby to C-for-Charlie had made an attempt at a feeble cheer, in which a few men from C-for-Charlie had joined. But it soon died from lack of nourishment, and after that it was not again attempted. Everybody watched in silence, rapt, fascinated. (Jones 1962: 39)

In the scene of the first air raid experienced by the soldiers on Guadalcanal, time is irreversibly connected with space and motion. Its flow, however, seems too slow and too methodical for the events taking place both above the soldiers' heads and on the land. Moreover, these two realities, although interconnected by a cause and effect relationship, function within two separate frames of reference incompatible with each other; the perspective on the island from the planes remains unknown, while the battle in the air watched from the beach seems unreal, "weird and wacky and somehow insane", more of a "regular business venture" than a real military operation (Jones 1962: 40). The incomprehensible space-time of the battle can be however easily tamed by the scientific discourse, a fusion of the language of mathematics and statistics:

> It was as though a clerical, mathematical equation had been worked out, as a calculated risk: here were two large, expensive ships and, say, twenty-five large aircraft had been

> sent out after them. These had been given protection as long as possible by smaller aircraft, which were less expensive than they, and then sent on alone on the theory that all or part of twenty-five large aircraft was worth all or part of two large ships. (…) And that there were men in these expensive machines were contending with each other, was unimportant – except for the fact that they were needed to manipulate the machines. (Jones 1962: 40)

The cold, technicized space-time of war dominated by ruthless machines ordered hierarchically according to their material value, strategic significance, and the importance of the military task assigned, can be circumscribed only by the use of inflexible, emotionless discourse borrowed from science. The choice of rigid, detail-oriented, technical language for the construction of the represented world is not accidental. Written to the end of the 1950s, *The thin red line* derives from the atmosphere of the second wave of popular science craze and an increased interest in mechanics inspired by the latest technological advancements, many of which were a reply to the needs of the armed struggle during the Second World War. Especially the latter provides an important context for the novel, not only constituting a considerable part of the represented world, but also exemplifying the workings of science and technology-related discourse and discourse series within the narrative.

The space-time of Guadalcanal in Jones's *The thin red line* is subjected to a considerable deformation at two different levels. As it has been already discussed in the previous subchapter, the initial narrative deconstruction of Guadalcanal regards in particular American popular understanding of the Asia-Pacific war and aims at destroying the myth surrounding American military actions on the Solomon Islands. Further disfigurement concerns the novel's represented world, that undergoes frequent transformations, functioning more as a non-solid spatio-temporal structure than a stable frame of reference. Its internal instability manifests itself mainly in its high susceptibility to distortion that can embrace one, several, or all of its dimensions. The abrupt changes in its structure, sudden imbalances, and transfigurations are mainly motion-induced, whereas their magnitude is directly proportional to the degree of intensification of the military actions. These, in turn, are intrinsically linked to high velocity movement of military vehicles and various types of ammunition. The formerly referred to scene of the first air strike experienced by the soldiers shortly after the two troop carriers reached the shores of Guadalcanal constitutes an initial stage of space deconstruction, which takes place through the use of wartime machinery. The surface of the ocean suddenly explodes with

"geysers of water" that "began to pop up all over the sea around the first ship", the sky is torn by fiery blasts, and the air acquires "the gentle sighing noise" that, in the last phase of the explosion develops into a gust of wind that hits the trees making them rustle (Jones 1962: 40). From the moment of the first air assault onwards, the newly encountered space of the island will never appear to the soldiers as stable or reliable; both the state of war and its exotic, almost otherworldly character inscribe in it hidden danger of sudden transfiguration, decomposition or deformation.

Nevertheless, it is not only the material reality of the island that puzzles the soldiers with its deceptiveness. The peculiar relativity of space in *The thin red* line entails the relativity of time. When the C-for-Charlie company withdraws from the front line to take a week's rest away from the combat zone, the soldiers experience cognitive dissonance:

> The march back, over that terrain where they had lain so long in such fear and trembling the last two days, and which now was so peaceful, was strange to everyone. And they all felt a bit numb. (Jones 1962: 338)

Time functions here as a measure of changes affecting space. Yet, in war conditions its flow is considerably disturbed; the two days of fierce fight expand their regular forty-eight hour boundary to become a largely ambiguous portion of time stretching into an indefinite, vague time period. Its duration in the soldiers' subjective experience of the battle cannot be reasonably determined. The cognitive difficulty in organizing the most recent past experience the soldiers are facing after having completed the military task is increased by a close interconnection of space and time. The appearance of the terrain they have fought for is directly dependent on the temporal dimension of space. And although the foregone still reverberates in the soldier's perception of their surroundings, the area around them has successfully transformed into something else, eluding the controlling power of perception.

The characters in *The Thin Red Line*, despite sharing common wartime experience gained within the borders of the same island, perceive space through the prism of various shades of their subjective perception of particular events. Therefore, in Jones's novel Guadalcanal undergoes transfiguration on both macro and micro scale, as not only the narrator, but also the protagonists contribute to space transfiguration. Similar distortion of the perception of reality to the one discussed above, appears when Stein, one of

the characters in the novel, suddenly remembers that both the space he is immersed in, and the events he is more or less directly experiencing, are strongly interconnected with the passage of time:

> Stein, at the bottom of the shale slope, could see very little of anything . A great racketing of noise had commenced and hung everywhere in the air without seeming to have any source. Part of course was due to his own side firing all along the line, and the bombardment and the mortars. Perhaps the Japanese were firing too now.[7] But he could see no visual signs of it. What time was it, anyway? Stein looked at his watch, and its little face stared back at him with an intensity it had never before. 6:45; a quarter to seven in the morning. Back home it would be just – Stein realized he had never really seen his watch. (Jones 1962: 1981)

The perceptual inability to embrace the surroundings neither with the senses nor with reason in order to organize the elements of space into a coherent, and thus more stable and more secure picture of reality, is directly followed by a distorted perception of time. Not only is the soldier suddenly unable to comprehend the concept of time, but also experiences the sense of insecurity, confusion, and isolation in space. Stein's disorientation in space and time is enhanced when the protagonist realizes the existence of time difference between Guadalcanal and the United States. This is where his haphazard, incoherent efforts aimed at systematizing the current spatio-temporal experience abruptly stop, culminating in an absurd impression of seeing the watch for the very first time. The peculiar, inexplicable sharpening of some selected sensual impressions with simultaneous suppression of others is induced by the rapid tempo of space-time transformations; the reality of war is in a state of permanent, dynamic disintegration, and as such appears as cosmic, otherworldly, and utterly incomprehensible.

[7] "Perhaps the Japanese were firing too now. But he could see no visual signs of it" – This fragment can be read within the context of these parts of Einstein's Theory of Relativity that seek to explain the notion of simultaneity with reference to a broader discussion on the nature of time. In Einsteinian physics, the concept of simultaneity applies only to those events which take place in the same reference system. Moreover, for the events to be described as simultaneous, it is necessary that their occurrence converges with the arrival of the beam of light that has been sent midway between these two events. As a result, in the light of Einstein's findings, simultaneity, just like time, should be viewed as a relative concept. Stein's assumption that the Japanese are involving in fight, and that the firing at the American side has its mirror image at the side of the enemy, is marked by a subtle feeling of uncertainty, since not the whole frame of reference is available for the character at a given point in time. Hiding at the foot of the slope, Stein sees only a clipping of the landscape of the battle. Relying on a limited portion of external stimuli, the character builds a provisional image of reality that quickly becomes outdated. Moreover, the inability to interweave the elements of the environment into one, coherent four-dimensional reference system leads to a significant distortion of the perception of reality; the quickly transforming world becomes largely unintelligible in its transmutability and fragmentation. In the absence of a stable frame of reference, time and simultaneity in the quoted "watch" scene become not only unreliable, but also, or predominantly, relative.

3.1.2.3. Discovering nonspace: the dialogic relationship between space(-time) imagery in *The thin red line* and Relativity Theory discourse series

The compositional design behind the creation of the represented world in *The thin red line* remains coherent throughout the whole narrative. The deconstruction of the myth of Guadalcanal explicitly announced by the author in the "Special Note" requires a methodical narrative approach that would infiltrate all its composing parts. The historical dimension of the clipping of the Asia-Pacific war that Jones explores in the second part of the trilogy is disturbed already in the author's note by an explicit reference to both the temporal aspect of the experience of all those, who took part in the Guadalcanal campaign, and to the historical embedding of the events, the details of which can be treated in the post-war period as historical data to be ordered, analyzed, and studied. Further distortion of the space-time of Guadalcanal takes place at the level of the construction of the represented world. Yet, the process of a deliberate misrepresentation of Guadalcanal between 1942-43 in *The thin red line* is fully coherent with the narrative perspective taken by the author already in the introductory note, and presumes maintaining the linkage between space and time. These, in Jones's novel, interweave to form a four dimensional manifold. And although the space-time continuum from *The thin red line* is of course not fully compliant with Einstein's original idea, and by no means seeks to observe the mathematically grounded scientific accuracy behind the interconnection of the spatial and the temporal aspects of reality, narrative attempts to ascribe time to space prove the novel's embedding in the context of the 1950s marked by the renaissance of the Theory of Relativity.

Despite the fact that James Jones's letters from the 1950s do not feature explicit references to the Theory of Relativity and the achievements of physics from the first half of the twentieth century, a year after the release of *The thin red line* Jones publishes a text which, if read within a broader context of the author's intricate narrative play with space (and time), can serve as yet another paratext to the second part of the war trilogy. "L'ombre de l'avenir" originally a commentary in Alexander Calder's exhibition catalogue, reveals much more than Jones's fascination with the artists (spatial) works. Republished in the "Letters home" column of the December 1964 issue of "Esquire", the text explores the extraordinariness of Calder's artistic technique of negotiating space-time. Jones's excellent eye for architectonic detail of form combined with the ability to

decode the artistic language of Calder's creations and grasp the very nature of their spatial being prove the writer's heightened perceptual sensitivity to the spatio-temporal dimensions of the directly experienced aspects of reality. With the essay's title, "The shade of the future", Jones indicates the entanglement of every spatial form in time, that expands to involve the past, the present, and the future. For Jones, the uniqueness of Calder's works dwells in their power to stretch into four, not three dimensional manifold. According to Jones, the artist's spatial creations push the boundaries of both space and time to produce the "cosmic" experience of reality:

> It may be that when the astronauts and cosmonauts, with their crude instruments, get far enough out into space to discover nonspace, shove off for another solar system only to meet themselves coming back, they will find that Calder, with his peculiar cosmic, or Universal, or Einsteinian view, call it what you will, working quietly and alone in Saché and in Roxbury, will already have anticipated them, and stated their experiences. (Jones 1964: 34)

Linking the essence of Calder's art to the images of astronauts, technology, space, solar systems, and science, Jones proves that his way of space perception and space decoding is largely influenced by Relativity Theory discourse series. And although the figure of Einstein appears in the text only as a metaphorical formula for ascribing the non-standard spatial and temporal features to Calder's works, mentioning the name of the scientist, especially in the light of the preceding decade, means placing the discussion both on Calder's art and on space in a broader discursive framework of Relativity Theory discourse series.

Taking into consideration the above discussed, it can be argued that Jones's literary transfiguration of an actual space-time in *The thin red line*, into an imaginary setting for a war novel, which, paradoxically, denies its historical roots, constitutes something more than just an attempt to transmute the way Guadalcanal appears in American collective memory of World War II. Creating a meticulously structured literary topography of the island, which does not comply with the actual terrain layout on Guadalcanal, Jones explores broader and more abstract categories of space perception. These, as it has been already mentioned, can be read through the prism of Said's notion of imagined geographies and the idea of the Other, provided the way the Asia-Pacific theater of World War II is imagined in the novel is linked to the political, and socio-cultural profile of the enemy. What could also offer a new interpretational perspective on both

space and place analysis in Jones's *The thin red line* is Kitchin and Blades'(2002) perspective on behavioral geography that allow to view space-related aspects of reality as malleable phenomena, highly responsive to human actions and actively involved in the course of events.

Nevertheless, the above mentioned methodological frameworks do not fully explain Jones's preoccupation with space and its dimensions discernible throughout the whole World War II trilogy. The narrative distortion of space-time which in *The thin red line*, as in the case of the two other trilogy parts, is realized at two different levels – at the level of the paratext(s) accompanying the novel, and at the level of the main narrative line, has its strong anchorage in the discourse series on Relativity Theory and other scientific findings complementary to it. That Jones in the early 1960s skillfully and consciously extracts and then combines the elements of the imagery belonging to the discourse series on the Theory of Relativity to discuss Calder's creations, gives an indication of the author's knowledge of the most significant scientific findings from the first half of the twentieth century. Moreover, linking them to the unique character of the spatio-temporal experience produced by Calder's works, Jones proves his awareness of the influence of Relativity Theory on the products of culture and their consumers' perception of space.

The thin red line, written to the end of the decade, can be read as Jones's (1964: 34) manifest of the belief in nonspace; the narration on Guadalcanal, like Calder's artistic spatial forms, is "able to fill a given space without occupying it". According to Jones, Calder "has taken a given space and, by molding beautiful elements of steel around it, caused it to become nonspace" (Jones 1964: 34). Similarly, Jones takes the space and myth of Guadalcanal and shapes them with narration that seeks to deconstruct both the place and the image of the island rooted deeply in American cultural and historical understanding of the Asia-Pacific war. What the writer achieves by means of a profound, uncompromising de-construction is, indeed, a nonspace – a highly deformed picture of Guadalcanal, which at the same time constitutes a perfectly plausible, detailed literary image of the island and the military campaign from 1942-43. The discourse of the Theory of Relativity, so precisely sensed in Calder's art by Jones in 1963, infiltrates the writer's spatio-temporal construct in *The thin red line*, and the two remaining parts of his war trilogy, long before the author explicitly voices his deep understanding of the influence of Einstein's "cosmic mathematic" (Jones 1964: 34). It is therefore Jones

(1964: 34) himself, who, using his pas wartime experience "shove[s] off for another solar system only to meet [himself] coming back" after having obtained the "Einsteinain view" on the mythical and the foregone. The compositional design behind literary space-time creation in *The thin red line* can be treated as a literary equivalent of the artistic technique of space negotiation and space de-formation used by Calder. Created to the end of the decade of popular science craze, marked by significant technological development, and the Renaissance of Relativity Theory, the represented world in Jones's (1964: 34) *The thin red line* acquires the "Einsteinian-Universe feeling", becoming a relative nonspace inscribed in (the myth of) Guadalcanal, performing a series of breaches with the actual space-time of the Guadalcanal campaign, and, consequently, becoming a literary replication of the concept of space and time relativity.

3.1.3. The literary idiolect of Flannery O'Connor and the question of space

Born in the middle of the Roaring Twenties in Savannah, the oldest city of the state Georgia and one of the first cities established in the American South, raised away from big cultural or literary centers, with a life too short to leave an extensive literary oeuvre, but long enough to provide both the readers and literary critics with a highly representative sample of her talent, Flannery O'Connor still mesmerizes the audience with a unique narrative perspective on the world. Although usually considered as a Southern author writing in a style most often classified as the Southern Gothic, O'Connor still defies simple categorizations. Her fiction, despite its utterly distinctive character and brilliantly original narrative voice remains substantially ambiguous, inherently multidimensional, internally diverse.

The discussion on space(-time) imagery in O'Connor's 1955 novella entitled "The displaced person" will essentially draw on the above mentioned equivocality stemming from the author's unique literary idiolect, which leaves space for new interpretational ventures, independent readings, and (radical) context shifts within which to analyze the writer's works. The Southern optics usually applied to O'Connor's fiction will be therefore abandoned in this subchapter to explore new interpretational possibilities offered by the contextual framework of the development of science and technicization of life in America of the 1950s. The novella's setting, a middle-sized farm in the

American South, will be analyzed in isolation from the historical as well as the socio-cultural landscape of the region to bring to the foreground the elements of literary space imagery non-compliant with the Southern view, but signalizing the presence of external, Relativity-Theory-related elements that disturb the coherent structure of the represented world with foreign undertones.

"The writer operates at a peculiar crossroads where time and place and eternity somehow meet. His problem is to find that location," –Flannery O'Connor states (1969: 59) in "The nature and aim of fiction". In this succinct but meaningful observation O'Connor explains in the simplest possible way the mechanism underlying the work of an author. Acting as a catalyst, the writer processes the real, the imaginary, and the universal to extract their essence. The substance so obtained should be skillfully interwoven into the literary representation of the chosen fragment of reality to instill in it a proper sense of authenticity and artistic refinement. To grasp the palpable and the universal, to blend them into one coherent vision, to distil the spirit of the moment, the writer has to adopt proper optics through which to view the chosen portion of reality. Interestingly enough, for O'Connor the narrative potential of the here and now is released only at the point of the clash of the spatial, the temporal, and the eternal, and it is the observance and sensitivity of the writer that determine how much of the capital of such a spatio-temporal blend will be invested in a work of literature. The abandonment of the formerly mentioned perspectives on O'Connor's works provides an opportunity to look closer at the aspects of both the spatial and the temporal in "The displaced person" bringing them to the major focus of the analysis with an aim to trace the evidence of the dialogue of O'Connor's otherwise hermetic literary world with its vibrant outsides.

3.1.3.1 The peacock and its tail full of fierce planets: space contraction, space expansion, and cosmos-related imagery in Flannery O'Connor's "The displaced person"

With her deep contemplativeness, relentless quest for moral truths, and an uncompromisingly honest perspective on reality, Flannery O'Connor creates spiritually heavy literary worlds. The sharp objectivity of her narrative view does not stand in contradiction

with a clear distinction between good and evil. Similarly, the firm ethics underlying O'Connor's literary creations does not preclude the democratic involvement of the elements of the flawed, immoral, and imperfect in the complex socio-cultural and moral landscapes of the represented world.

"The displaced person", a novella first published in 1955 in a short story collection entitled *A good man is hard to find*, can be viewed as a representative sample of O'Connor's fiction. Exploring the themes of displacement, alienation, prejudice, and loss, the author uses the story of a Polish refugee family as a certain form of a parable. Its well balanced narrative design meets the compositional requirements of the genre by following simple, clear, sometimes even predictable pattern of plot development which, despite its plainness, offers a firm narrative construction able to carry the weight of universal moral truths. It should be mentioned however, that O'Connor is far from resorting to truisms or clichés; the rough poetics of her realism, the uncompromising objectivity and honesty in character creation, and the unshakable moral code encrypted in the text, keep the narrative line always close to the palpable and the genuine, while a profound insight into human nature precludes oversimplifications, banalities, or stereotyped conclusions.

Whereas the well-defined and clearly delineated ethical framework underpinning the text does not allow for any residues of moral relativity to contaminate the once chosen moral philosophy, the compositional design behind the construction of the represented world is sometimes heavy with foreign sediments. These are carried by Relativity Theory discourse series and find their way to O'Connor's novella through the theme of a peculiar, because largely imagined, cultural clash between the farm's residents and the newcomers. The discrepancy has its source in geography, is indissolubly linked to the characters' (dis)location, and evokes questions of both place and space. These are explored in the novella not only within the contextual frame of their tremendous influence on the (cultural) identity of an individual, but also are evoked and reconsidered with reference to the concept of space as such, with its properties, possible dimensions, and constitutive features.

In "The displaced person" the composition of the story's internal space-time is inextricably intertwined with movement. That the entire represented world is set in motion from the novella's very opening lines signalizes that the driving source of narration lies in a sequence of processual re- and trans-locations taking place both in the story's

literal and symbolic layer. Due to the fact that the major objective of the study is to analyze literary space-time imagery with reference to the changed perception of reality resulting from the circulation of Relativity Theory discourse series in non-academic contexts, the way religious and/ or theological content is coded in the text by the use of either metaphorical or literal meanings, will not be taken into consideration. A detailed discussion of the spiritual in the novella would of course broaden the background to the analysis, but it could at the same time distract research attention from the major point of focus. The objective of this section is to extract the echoes of Relativity Theory in O'Connor's "The displaced person" and strengthen its resonance in the novella by building links to their source of origin that remains outside of the text. Therefore, conducting the analysis of the spatio-temporal construct in "The displaced person" in at least partial isolation from the usually evoked contexts may allow to rediscover the text by giving voice to the elements otherwise suppressed by the over-dominant themes of religion and spirituality.

The novella's opening scene spans between three moving compositional elements, of which the vectors are oriented towards the common coupling point. With the movement of Mrs. Shortley and the peacock approaching "the red clay road that turned off from the highway" (O'Connor 1992: 196), Mrs. McIntyre, and the car carrying the Guizacs, a Polish refugee family and the priest to the farm, the space contracts abruptly to finally accumulate in one focal point – the place where the newcomers and the farm's residents meet for the very first time. The same place constitutes the first nodal point for the events, a peculiar crossroads where the elements of space and time clash and absorb new narrative energy, to once again disperse and head in their own directions.

The narrative threads preliminarily sketched by O'Connor in the novella's opening sections, especially when analyzed with reference to the previously quoted reflections on the role of the author, resemble vectors with well-determined direction and sense. The orderly distribution of the components of the represented world and the writer's effective narrative control over them produces an impression of a mathematical-like planning of space. This peculiar geometrization of the represented world obtained by means of its neat division into sections featuring moving elements oriented at the same point in space, could suggest an absolute subjugation of space, a complete narrative subordination of its elements to the requirements of the plot, and its immediate takeover by the protagonists. As such, the story's internal space-time would serve as a scene to

the events, a well-designed and well-managed background to the characters' actions, a stage put at their disposal and subjected to the protagonists' formative influence.

The setting so designed should be therefore more than controllable, should easily succumb to the regulatory power of narration and/or the characters' agency, should appear as fully conquered, not conquering. Yet, as the whole farm gradually eludes Mrs. McIntyre's control with the arrival of the Guizacs, so does the spatio-temporal construct within the novella. That the space-time will undergo a profound, nonreversible disturbance once the refugees cross the boundaries of the farm is signalized as early as in the story's opening sections with the introduction of the figure of the peacock. The bird is therefore something more in the story than just an ornamental element, a carrier of metaphorical meanings, or just a symbolic tribute paid by O'Connor to (one of) her favorite bird species. Its mesmerizing presence opens up a new dimension of reality; the irrational, useless beauty of the bird distorts the practicality of the farm and places the animal in a position of a stranger. As an almost otherworldly creature, the peacock does not comply with the vision of the world consequently implemented by Mrs. McIntyre since the death of her husband. From the very beginning of the novella, the bird radiates an aura of alienness. Along with "the white afternoon sun which was creeping behind a ragged wall of cloud as if it pretended to be an intruder" (O'Connor 1992: 196), the animal acts as an indicator of a thorough change the farm residents will soon have to undergo.

It is however not only the peacock's exotic appearance that O'Connor emphasizes in the text to render the sense strangeness, displacement, and alienation a dominant theme of the novella. The bird's otherness manifests itself also in a substantially different perceptual mode, a sensitivity far different as compared to that of a human:

> [H]is tail – glittering green-gold and blue in the sunlight – lifted just enough so that it would not touch the ground. It flowed out on either side like a floating train and his head on the long blue reed-like neck was drawn back as if his attention were fixed in the distance on something no one else could see. (O'Connor 1992: 196-197)

What does the bird see in the distance? Is it something that remains beyond the perceptual ability of Mrs. Shortley and other characters? Does the altered way the bird perceives time and space allow it to step ahead into the upcoming moment, embrace a larger portion of space-time, and pre-construct the most immediate future from the elements of the intensified present before it starts to materialize in front of the onlookers' eyes?

O'Connor's exploration of the non-human perspective on reality is rather limited in the story, but the juxtaposition of the exotic beauty of the bird with the image of the sun that acts like an intruder able to (literary and metaphorically) bring to light the most shameful recesses of the protagonist's souls, unclothe the dark sides of their nature, and lay bare the truth about their hearts, offers a new perspective from which to view the farm and its residents.[8] This additional perspective is the one of the Other, of someone non-native to the community, non-compliant with its specific requirements and, thus, excluded from its rights and privileges.

Nevertheless, apart from the limitations, the status of exclusion brings certain opportunities that remain beyond the reach of those who are defined by the place they are indispensably bound to. As a double outsider (due to its appearance contradicting the general character of the farm and its non-human nature), the bird seems to be more sensitive to the silent murmur of its surroundings and, as a result of its heightened responsiveness to stimuli, has access to those elements and phenomena of reality, which usually elude human sensory perception. Consequently, the peacock may be viewed as living in, and belonging to a slightly different space-time that, at the perceptual level, does not fully blend with the one to which O'Connor attaches the human protagonists of the novella.

Whereas Mrs. Shortley perceives the peacock's otherness in the categories of an unnecessary, impractical extravagance, the priest ascribes to it positive semantic load. Cherishing its mesmerizing beauty, all the more enchanting that arising entirely from the bird's extraordinariness, the priest involves in a discussion with Mrs. McIntyre:

> "What a beautiful birdrrrd!" the priest murmured.
> "Another mouth to feed," Mrs. McIntyre said, glancing in the peafowl's direction.
> "And when does he raise his splendid tail?" asked the priest.
> "Just when it suits him," she said. "There used to be twenty or thirty of those things on the place but I've let them die off. I don't like to hear them scream in the middle of the night."
> "So beauty-ful," the priest said. "A tail full of suns," and he crept forward on tiptoe and looked down on the bird's back where the polished gold and green design began. (O'Connor 1992: 201-202)

[8] According to Halleran mcMullen (1996: 32-33), the sun-related imagery in O'Connor's works should be directly related to the author's religious worldview, and interpreted as a symbolic representation of God. Although this view is well argued by the author and should be taken into consideration while reading O'Connor's works with reference to Christian theology, due to the research perspective developed in this study, the theological roots of the symbolism used by O'Connor in "The displaced person" are of minor importance and will not be discussed.

Mrs. McIntyre considers the peacock in terms of an item, a superfluous "thing", a remnant of a larger group of objects representing the same, irritating features and therefore intended for emotionless disposing, which involves a whole range of options that does not exclude ruthless elimination. Viewed in this way, the peacock functions in her perception as a largely definite, nonvolatile "thing" whose influence on reality is rather finite and falls within the spectrum of expected behaviors. The farm owner subconsciously considers the perspective of the Other as jeopardizing her vision of the world, and therefore strives to suppress it by means of the most uncompromising solutions.

Despite the efforts undertaken, Mrs. McIntyre's meticulously categorized and rigidly disciplined world eludes her control with the arrival of the newcomers assisted by the priest. It is him who for the first time explicitly marvels at the beauty of the bird and respects its subjectivity and agentship. The priest's attitude of acceptance and openness stands in flagrant contradiction to Mrs. McIntyre's limited stance based on prejudice, which prevents her from obtaining a broader, more diversified picture of reality. With his almost childishly naïve rapture over the peacock's charm, the friend of the Guizac family is powerful enough to violate the boundaries of Mrs. McIntyre's reality. His openness to alterity boldly reminds the farm owner about the spatio-temporal expanse stretching beyond her property, engulfing it, intruding the farm from the outside, and encircling Mrs. McIntyre's dwelling from all possible sides to disturb its orderly and seemingly well-controlled structure:

> The peacock stood still as if he had just come down from some sun-drenched height to be a vision for them all. The priest's homely red face hung over him, glowing with pleasure. (O'Connor 1992: 202)

The bird seems to be a messenger of another world communicating with its unique outward appearance the existence of a space-time fundamentally different than the one the farm belongs to. And it is the priest who, because of his function that places him closer to the spiritual "upper" world, is sensitive enough to discover the bird's otherworldly character. The conceptual linkage between the pattern on the peacock's feathers and galaxy-related imagery is further expanded in the novella to include other elements of the cosmic landscape. Farm residents however, including Mrs. Shortley, whom the peacock follows curiously in the beginning of the story, are oblivious to the bird's exceptional character:

> Then she stood a while longer, reflecting, her unseeing eyes directly in front of the peacock's tail. He had jumped into the tree and his tail hung in front of her, full of fierce planets with eyes that were each ringed in green and set against a sun that was gold in one second's light and salmon-colored in the next. She might have been looking at a map of the universe but she didn't notice it any more than she did the spots of sky that cracked the dull green of the tree. She was having an inner vision instead. (O'Connor 1992: 204)

The "inner vision" that occupies Mrs. Shortley's mind and stultifies her senses limiting her perceptual abilities is directly related to the issue of a large-scale immigration. "The ten million billion" desperate people "pushing their way into new places over here and herself" appall Mrs. Shortley (O'Connor 1992: 204), evoking the worst fears fuelled by intolerance and prejudice. Despite the fact that the woman is gazing thoughtlessly at the peacock without recording the visual stimuli, the abstract extraordinariness of the bird on a subconscious level provokes reflections that go beyond the boundaries of the farm. As an almost otherworldly creature, the animal reminds the protagonists of "The displaced person" about the existence of realities formerly unthought-of.

By enriching the novella's space-time with cosmos-related imagery suddenly brought into focus with the appearance of the peacock, O'Connor opens up a vast, new space stretching not only above the protagonists' heads. The concept of the map of the universe at first recalls a flat, two dimensional representation of a certain geographical area, but the introduction of the image of "fierce planets" and "suns" shimmering with opalescent green, yellow, and salmon pink on the bird's tail inscribes into the representation of the cosmic space an indispensable sense of multidimensionality stemming from the spherical shape of the objects represented, and the added dimension of time. The temporal aspect of the cosmic reality closes in the adjective "fierce" that presupposes certain dynamics of the objects it refers to. Hence, time can be viewed here as an indicator and the most basic measure of changes (potentially) affecting the entire system.

3.1.3.2. When the world becomes too big to bear: space relativity and displacement

Binding the action of "The displaced person" firmly to the setting of which the boundaries largely coincide with those of the farm, O'Connor still manages to keep the novella's internal space-time widely open. As it has been already observed, the impression of

the sudden expansion of space to a considerable extent results from the cosmic-related imagery brought into narration by the figure of the peacock, but it is also the parallel image of the titular displaced person, that allows the author to fully re-create the multi-dimensionality of space-time and symbolically reflect the new perspective on the world resulting from the changed perceptual sensitivities shaped by Relativity Theory discourse series. The arrival of the Polish refugee family from war-torn Europe forces farm residents to acknowledge the existence of the remote space-time defined by atrocities. For both Mrs. McIntyre and Mrs. Shortley, its substance consists almost entirely from the images of massive extermination:

> Mrs. Shortley recalled a newsreel she had seen once of a small room piled high with bodies of dead naked people all in a heap, their arms and legs tangled together, a head thrust in there, a head there, a foot, a knee, a part that should have been covered sticking out, a hand raised clutching nothing. Before you could realize that it was real and take into your head, the picture changed and a hollow-sounding voice was saying, "Time marches on!" (O'Connor 1992: 199)

Shaped partly by prejudice, and partly by the information reaching the farm from the outside, the formerly fragmented, blurred image of Europe starts to acquire proper sharpness once a part of it materializes itself in the figure of the Guizac family. This however does not mean that the characters' overall vision of reality becomes fuller, more coherent, better structured and, as a consequence, more comprehensible, since the process of completing an integrated picture of one part of reality takes place at the expense of the stability of the other:

> This was the kind of thing that was happening every day in Europe where they had not advanced as in this country, and watching from her vantage point, Mrs. Shortley had the sudden intuition that the Gobblehoocks, like rats with typhoid fleas, could have carried all those murderous ways over the water with them directly to this place. If they had come from where that kind of thing was done to them, who was done to them, who was to say they were not the kind that would also do it to others? The width and breadth of this question nearly shook her. (O'Connor 1992: 199)

Once securely separated from America by extensive ocean tracts, Europe starts to invade the peaceful space-time of the farm. In the eyes of Mrs. Shortley, the presence of the refugees, apart from disturbing the rhythm of the life on the farm, jeopardizes the whole country, raises questions about the security of its citizens, and poses threat to the achievements of culture cherished by American society. According to Mrs. Shortley the

Guizac family, called dismissively Gobblehoocks, bring with them a portion of a peculiar Europe-at-war space-time able to infiltrate the secure and predictable reality of the farm. As a result, with the arrival of the newcomers the world of the Shortleys and Mrs. McIntyre suddenly explodes from the inside, loses coherence, and expands to embrace dangerous, unfamiliar areas. These, in the imagination of Mrs. Shortley and her husband's employer, take on the characteristics of uncanny, violence-saturated places, where the ineffaceable, life-threatening conditions, seem to violate the natural time flux. "Time marches on!" reminds the gloomy voice directly accompanying the picture of the naked corpses, in all likelihood prisoners of a Nazi concentration camp, shown on a newsreel. It is therefore not only the horrors of war that become a source of emotional disturbance for Mrs. Shortley, but also the way in which war deforms, human bodies, space, and time.

The existence of such space-times as the ones powerfully brought into the conscious awareness of the protagonists by the figure of the peacock and the displaced people, has for a long time been successfully suppressed by the widow of the Judge and Mrs. Shortley. For the characters of the novella immigration is something more than a(n) (uncontrollable) movement of people heading from one place to another. Along with their families, personal belongings, unintelligible language, and unaccustomed culture, refugees bring with them a part of another space-time able to contaminate the one they have chosen as their new place of residence. Movement and displacement abolish the long taken for granted divisions, forcing the protagonists to change their ordinary scope of perception in order to recognize the space-times formerly falling outside their vision of reality.

Listening Mrs. McIntyre's positive remarks on the displaced man's work, Mrs. Shortley rests her eyes on a point in space "as if her vision penetrated the cane and the hill and pierced through to the other side" (O'Connor 1992: 209). Feeding her "dark suspicion" (O'Connor 1992: 210) with new reflections rooted in prejudice, Mrs. Shortley bitterly acknowledges the change triggered by the appearance of the Guizacs:

> [W]ith the foreigners on the place, with people who were all eyes and no understanding, who had come from a place continually fighting, where the religion had not been reformed – with this kind of people, you had to be on the lookout every minute. She thought there ought to be a law against them. There was no reason they couldn't stay over there and take the places of some of the people who had been killed in their wars and butcherings. (O'Connor 1992: 211)

The above-quoted fragment is heavy with meanings that emerge directly from the novella's major themes, and without doubt could be analyzed within the context of O'Connor's highly particularized sense of morality, almost always expressed in her works by means of images contradictory to the rules stemming from the adopted moral system. Since the study focuses on the analysis of literary spatio-temporal constructions, the discussion on the topic extensively analyzed by authors such as Kilcourse (*Flannery O'Connor's religious imagination: A world with everything off balance*, 2001), O'Donnell (*Flannery O'Connor: Fiction fired by faith*, 2015), or Bruner (*A subversive gospel: Flannery O'Connor and the remaining of beauty, goodness, and truth*, 2017) may prove superfluous. Nevertheless, the already mentioned design inherently based on binary oppositions used by O'Connor to construct a firm moral skeleton behind each story, functions in her prose as a more universal scheme that underlies the broadly understood construction of the represented world, and applies to the author's vision of the novella's internal space-time as well.

Persistently looking for harmony by ascribing counterbalance to each portion of meaning, O'Connor implicates her literary worlds in a net of strong, irreconcilable tensions. Everything needs to be reflected in its opposition, defined by contradiction, reproduced in a reversed version of itself. For Mrs. Shortley, the symbolic placement of the newcomers on the opposite pole to the one occupied by farm residents is obvious and comes as a natural, instinctive division, securing her reality from sudden, undesired infiltration by foreign elements that can easily disturb its orderly structure. Once the woman realizes that every part of her well-known, secure reality has its antithesis on the other side of the Atlantic (here versus there, culture versus war and butcherings, reformed religion versus unreformed, fossilized religious worldview) her world expands to incorporate another space-time.

As Mrs. Shortley's world starts to overflow its own boundaries, the whole reality becomes unmanageable and hostile, as if its unexpectedly broadened scope placed an unbearable burden on its inhabitants. And indeed, Mrs. Shortley is both physically and mentally unable to withstand the change. Emotionally tormented, overwhelmed by her own thoughts and prejudices that have been haunting her since the arrival of the refugee family, Mrs. Shortley suffers stroke that leads to her sudden death:

> The two girls, who didn't know what had happened to her, began to say, "Where we goin, Ma?" Where we goin?" They thought she was playing a joke and that their father, staring

> straight at her, was imitating a dead man. They didn't know that she had had a great experience or ever been displaced in the world from all that belonged to her. (…) her huge body rolled back still against the seat and her eyes like blue-painted glass, seemed to contemplate for the first time the tremendous frontiers of her true country. (O'Connor 1992: 223).

While the symbolic layer of the above quoted excerpt can be easily decoded within the context of Christian theology, with the "true country" and "displacement in the world" metaphorically denoting the end of the earthly life and the protagonist's transfer to the hereafter, it is interesting how O'Connor envisages the new, abstract space-time spreading in front of Mrs. Shortley the moment she passes away. Opening the first part of the novella with an image of the peacock following Mrs. Shortley, and closing it with the woman's dramatic death, O'Connor sets a certain rhythm of space contraction and space extension. The world of the protagonists either shrinks to be contained within the clearly defined, safe boundaries of the farm, or expands into infinity. Especially the second phenomenon goes beyond the perceptual abilities of the characters. Both the description of Mrs. Shortley's reflections on the new situation and the narrative portrayal of her inner states caused by the incomprehensible change, includes frequent references to vision: "a newsreel she had seen", "looking from her vantage point", "people who were all eyes and no understanding", "you had to be on the lookout", "her unseeing eyes", "she might have been looking at a map of the universe but she didn't notice it". The protagonist's efforts to see and comprehend the things perceived prove vain, the constantly changing space-time eludes Mrs. Shortley's (perceptual) control to finally overwhelm her with its vastness and unintelligibility. By inscribing the inconceivability to space, O'Connor seems to be deliberately disassembling the setting from the inside to make it acquire malleability and dynamism thanks to which the space and place achieve agency, are able to influence the characters, and affect their actions.

It is also worth to mention that the abstract realm of the afterlife resembles the boundless space-time of cosmos. Its "tremendous" frontiers along with the "great experience" leading Mrs. Shortley to the final discovery of her "true country" suggest that the transformation of the protagonist's reality is complete. As a result, the space-time in which all the characters are functioning reaches its fullness. This state however, should not be understood as the act of space reaching its full and at the same time finite capacity, filling tightly its boundaries to claim its rights to itself. Fullness manifests here rather in an uncontrollable, self-induced infinite unfolding, a boisterous, uncontained trans-

formation of the novella's setting from an embraceable space into an uncontrollable, multidimensional expanse. If read with reference to the achievements of Einsteinian physics, the space-time transformation in "The displaced person" could be perhaps at least partially described by Prigogine's (1997: 73) discussion on the probabilistic processes and their relation to the dimension of time:

> [I]rreversible processes describe fundamental features of nature leading to nonequilibrium dissipative structures. Such processes would not be possible in a world ruled by the time-reversible laws of classical quantum mechanics. Dissipative structures require an arrow of time. Furthermore, there is no hope of explaining the appearance of such structures through approximations that would be introduced by these laws. (…) for unstable systems we have to formulate the laws of dynamics at the statistical level. This changes our description of nature in a radical way.

Owing to the character of the study in focus, an explicit reference to the scientific concepts appearing in the excerpt quoted above serves primarily the analysis of the literary text. For this reason, the rigid reasoning behind Prigogine's scientific observations will not be followed, since the demonstration of the pure workings of the scientific ideas in their uncontaminated form within O'Connor's "The displaced person" is rather unattainable. As in the case of other literary works discussed in this dissertation, the elements of Relativity Theory discourse series in the novella should be viewed as a certain form of sediment brought into the text from the outside by the constantly flowing stream of discourse. When it is no longer controlled by scientific experts, Relativity Theory discourse undergoes numerous takeovers by various speaking subjects which result not only in its fragmentation but also, or primarily, in its transformation and/ or distortion. As such, the elements of Relativity Theory discourse series reach literature in a contaminated, frequently disfigured form. Of course, a non-committal borrowing of the scientific formulas used by Prigogine followed by a loose treatment of the structures of knowledge underlying the author's discussion on the phenomena of probability and irreversibility in order to apply the scientist's considerations in the field of physics to the study on literature involves the risk of a significant distortion of scientific accuracy. Nevertheless, as it is the general formula for the perception and the representation of reality resulting from Relativity Theory discourse series (not Relativity Theory itself) with its pure theoretical and mathematical structure that lies at the center of this study, appropriating the previously cited fragment to broaden the perspective on the spatio-temporal design within "The displaced person" may be viewed as justifiable.

What Prigogine offers is a centralized outlook on the scientific revolution resulting from a profound paradigm shift that subverted the ordinary outlook on reality until then viewed as a coherent amalgam of the spatial, the material, and the temporal that could be easily circumscribed and disciplined by using the labels offered by Euclidean geometry and Newtonian classical mechanics. The new discoveries either completely invalidate the old perspective or prove it insufficient, while at the same time highlighting the pressing need for developing a more-encompassing outlook on the world that would allow for its newly discovered characteristics and dimensions. The physical structure of the world, long-considered as scientifically verifiable and mathematically stable suddenly appears as an indefinable, largely incalculable construct. And it seems to be the added dimension of time that deconstructs reality and leads to its irreparable distortion. The inexorable, notoriously inconceivable, perversely unstable structure of the world overwhelms the characters of O'Connor's novella. Additionally, the new reality of a suddenly expanded microcosm of the protagonist's lives stretches on the abstract realm of the afterlife as well, violating all the possible boundaries, overflowing them to finally transform into a non-embraceable expanse that escape both perception and cognition.

3.1.3.3. O'Connor and the inadequacy of the scientific milieu: "The displaced person" as entangled in discourses

Murmur of Relativity Theory discourse series in "The displaced person" is particularly subtle. A strong embedding of the novella's major themes in the context of Christian theology allows the voices related to ethics, religion, and spirituality to speak louder than the ones vocalizing the changed perception of reality resulting from the new perspectives on the space, time, and matter offered by the development of science in the first half of the twentieth century. It is therefore apparent, that the voice of science in O'Connor's prose can function only as an echo, a more or less pronounced scraps of a foreign discourse absorbed by the text from the outside, and breaking through its structure in those places, where the dominant narrative line becomes less authoritative.

The discourse of science is not given much space to develop fully in the linguistic layer of the text. Yet, skillfully operating with setting, space, and place in the novel-

la, O'Connor achieves a particularly interesting effect; her spatio-temporal imagery in the text transfers a hidden message, becomes an expression of the new perceptual sensitivity to the spatio-temporal aspects of reality shaped by Einstein's discoveries in particular, and the unprecedented development of science in the first half of the twentieth century in general. Especially the image of the peacock with the tail embodying such an abstract concept as a map of the universe inscribes into the picture of the expanding world that, due to the achievements of science and an increased interest in the dimensions of space other than the closest, directly observable reality, becomes a new formula for the perception and representation of the world since the start of Relativity-Theory-related discourse series spread beyond academic contexts.

Determining the true source of O'Connor's inspiration with the cosmic imagery that enriches the represented world of "The displaced person" with its vibrating otherness and unfamiliarity, is particularly difficult. The writer's decision to implement the elements of the cosmic into the plain landscape of the rural (Southern) farm residence followed by narratively subtle, but striking in effect experimentation with the story's spatio-temporal construct may have its roots in the author's direct fascination with the new concepts circulating in popular culture since 1905 and receiving once again widespread publicity in the early 1950s due to the upcoming fiftieth anniversary of Einstein's Theory of Relativity. But the elements of Relativity Theory discourse series could have found their way into O'Connor's "The displaced person" in a less transparent and a less obvious way.

As many of American late modernist texts written in the 1940s and 1950s, the novella may have acquired some of the aspects of the new outlook on reality offered by Einsteinian physics from the outside, without the author's deliberate search for the inspiration in the area of science. Such infiltration of the elements characteristic for one order into another frequently results from a virtually unavoidable immersion of the author and/or the text itself in the general ambiance of the time. Due to the profound technicization of life and war and a significant advancement in physics, the 1940s and the following decade seem to be breathing with the atmosphere of the veneration of the machine, while cherishing the facilitated access to otherwise impenetrable, highly specialized scientific content, now made more available due to the development of popular science.

Whereas it is the second assumption that seems more plausible in the case of O'Connor's inspiration with relativistic space-time imagery in "The displaced person", it should be emphasized that a more direct influence of broadly understood science on the author's work can be proven. In his *Flannery O'Connor and Teilhard de Chardin: A journey together towards hope and understanding about life* Watkins (2009) explores the complexity of O'Connor's inspiration with the works of the French Jesuit and paleontologist. As a priest and a scientist, de Chardin aspired to reconcile the scientific perspective on reality with the religious one. This resulted in creating a dense philosophical approach towards both physical and spiritual reality interspersed by elements of catholic theology, evolutionism, Darwinism, vitalism, paleontology and biology, to mention just a few areas of de Chardin's interest.

Whereas the accuracy and logic behind the Jesuit's philosophical, theological, and scientific considerations was often questioned, with some of the ideas presented in his major works, such as *The phenomenon of man* (1955), or *The divine milieu* (1957), raising controversy, especially in Catholic and Jesuit circles, de Chardin's perspective on God, reality, or human being was highly influential and provoked numerous scientific and theological discussions. Since his early works written in the 1920s and 1930s frequently contradicted the fundamentals of catholic dogma, their publication was forbidden by the Church (Stilwell 2009: 233). And although many of his texts were finally published posthumously, the Church officials maintained their position towards the Jesuit's in many respects cumbersome theories, rejecting the possibility of granting de Chardin's works the *Nihil Obstat* or *Imprimatur* formula (Stilwell 2009: 234). The distanced stance of the Catholic Church towards de Chardin's should by no means be perceived as a neutral or passive attitude. The Church's denial to ascribe *Nihil Obstat* status to de Chardin's manuscripts is tantamount to considering that their content is far from being "free of doctrinal and moral error" (Stilwell 2009: 234).

Regardless of their degree of compliance with the official teaching of the Catholic Church, scientific accuracy, or philosophical logic, de Chardin's texts constitute an interesting example of scientific discourse takeover. As a paleontologist, and thus a scientist, de Chardin seems to be eligible for using scientific discourse and controlling its flow. Yet, instead of guarding its scientific purity, de Chardin deliberately contaminates it with the elements of other discourses and discourse series, that come from the areas essentially unrelated to it. What arises from such juxtaposition is a heterogeneous,

polyphonic discourse, which eludes any form of control due to its poliperspectivity, multifocality, and internal diversification. The incoherence inscribed in its structure is both an immediate cause and a direct result of a fully intended, bi-directional sequence of transgressions.

De Chardin's otherwise quite successful attempts to create a fusion of discourses to speak in a multiplicity of voices on a single topic, constitutes an example of something more than just an infiltration of a certain area of knowledge with a foreign discourse. Allowing various discourses to blend freely and produce new meanings, frequently inconsistent with the knowledge inscribed within the framework of a highly controlled area of the discipline(s), de Chardin opposes discourse dissemination and control mechanisms. "(…) In order to be part of a discipline" states Foucault (1981: 60) "a proposition has to be able to be inscribed on a certain type of theoretical horizon". But this is not the only requirement the new proposition has to meet. Due to the fact that "the discipline is a principle of control over the production of discourse" and "fixes the limits for discourse by the action of an identity which takes the form of a permanent reactuation of the rules" (Foucault 1981: 61) it is necessary for the newly proposed knowledge to perpetually obey the external controlling and shaping pressure that results from power-knowledge relations. This is perhaps where de Chardin commits the biggest, from the perspective of discourse dissemination and control mechanisms, fault; he might be speaking "the truth" but does it "in the space of a wild exteriority", as he refuses to "reactivate" in his own discourse what Foucault (1981: 61) calls "the rules of a discursive policing". Such a blatant violation of the regulations governing discourse creation and spread has to result in an act of a decisive exclusion supported by attempts to suppress the non-compliant, unmanageable discourse of de Chardin's theories. All these actions were performed in the 1920s and 1930s by the Catholic Church authorities and significantly delayed the publication of the Jesuit's works.

O'Connor's interest in de Chardin's theories falls within the period of a significant deterioration of the author's health due to the condition known as lupus eritematosus, a chronic disease causing a progressive loss of functional capacity, that finally led to the author's premature death at the age of thirty-nine. When O'Connor receives the diagnosis in 1951 (Kirk 2008: 13), she is only twenty-six years old. A year later her first novel *Wise blood* appears in print. Interestingly enough, the time of gradual degradation of O'Connor's health coincides with progressive acquisition of greater artistic maturity

marked by periods of increased literary activity[9], that result in the publication of a short story collection entitled *A good man is hard to find* (1955) (containing "The displaced person"), and the appearance of the author's second, and at the same time last novel *The violent bear it away* (1960).

Nevertheless, it is neither the publication of the second short story collection nor the release of O'Connor's last novel that should be considered as a turning point in the author's literary career. According to Watkins (2009: 29), the work that marks a significant shift in the artistic and spiritual direction previously taken by the author should be primarily seen in the short story "The enduring chill". Written in 1958, but published only posthumously in *Everything that rises must converge*, the text "is the beginning thrust of a return to using familiar settings, character types, and narration in a new provocative insight to address new pressures on O'Connor" (Watkins 2009: 29). The extraordinariness of the short story dwells however not only in the author's creative re-using of "her familiar elements" in an attempt to create "a new style"; as Watkins (2009: 29) notices, it is also the underlying influence of the works by Teilhard de Chardin that add to the uniqueness of the writer's works after 1958.

As it can be easily noticed, there is a considerable time gap between the creation of "The displaced person" discussed in this subchapter, and the moment O'Connor's "The enduring chill" materializes on paper. Also, it is difficult to argue with Watkins, who, providing a complex argumentation based on biographical information, primary and secondary resources, memoirs, and letters presents a comprehensive study on the influence of Teilhard de Chardin on O'Connor's fiction, with particular focus on biographical details and chronology. A similar conclusion as to when the influence of de Chardin's works on O'Connor began can be reached on the basis of the analysis of the writer's letters selected and edited by Sally Fitzgerald (1979), where de Chardin is first mentioned by the writer in the correspondence from 25th of May, 1959 to Dr. T.R. Spivey (1979:334). Yet, it is important to note that the editor herself decides to make reference to the Jesuit's influence on the writer in an introduction to Part II of the collection,

[9] In fact, whether O'Connor's deteriorating physical condition constituted a factor impeding her literary work or produced circumstances which contributed to an increased artistic sensitivity becoming a source of inspiration is a subject of dispute. Researchers into O'Connor's life and work present a number of highly contrasting views, some of which have been collected, summarized, and concisely presented in Chapter II of the already mentioned *Flannery O'Connor and Teilhard de Chardin: A journey together towards hope and understanding about life* by Watkins (2009: 13-28).

embracing the letters written "during the years after Flannery had come to terms with the way of life circumstances now dictated", which is between 1953 and 1958 (Fitzgerald 1979: 53). De Chardin is mentioned in the introductory note as a person from whom O'Connor "eventually learned a phrase for something she already knew about: 'passive diminishment'" understood by Fitzgerald as "the serene acceptance of whatever affliction or loss cannot be changed by any means", but in fact de Chardin's name does not appear in any of the letters from the aforementioned period. What is more, the concept of passive diminishment is invoked by O'Connor as late as on 25th February 1963 in her letter to Janet McKane (Fitzgerald 1979: 509).

Of course the above-discussed discrepancies between the editor's observations presented in the introductory note preceding Part II of the collection of letters, and their actual content may be a direct result of the editing work of which an indispensable part in the case of such publications is a careful and well-thought selection of the content to be published. This of course involves the omission of certain texts. Furthermore, the influence of de Chardin on O'Connor's works from before 1959, when the author makes the first (in the collection) direct reference to the priest's works can be a matter of a less explicit and less pronounced inspiration, that acquires maturity only to the end of the decade to finally flourish in the beginning of the 1960s with the creation of "Everything that rises must converge" in 1961 (Maida 1961: 142). In a letter dated from the March 1, 1959 to father James McCown selected by Alexander (2019: 138) and presented in *Good things out of Nazareth: The uncollected letters of Flannery O'Connor and friends* De Chardin is presented by O'Connor as a Jesuit and paleontologist, on whom Romain Gary models one of his protagonists of *The roots of heaven*. Less than a year later, O'Connor envisages de Chardin as "the great Christian prophet of this century", a scientist, philosopher, a theologian, and a poet as well (Alexander 2019: 160). This perhaps can be seen as sign of O'Connor's gradual but fruitful exploration of the priest's works which not only brought her a deeper understanding of the Jesuit's theories, but also made her recognize the complexity of both the character of the researcher and his field(s) of interest.

And as Driskell and Brittain (11: 1971) notice, the influence of de Chardin on O'Connor "is difficult to assess because her knowledge of Teilhard came late in her life and because his ideas in many ways replaced and in other ways extended those ideas of Catholic orthodoxy which has shaped all her life's work." Although it is rather ques-

tionable whether the religious dimension of O'Connor's work should be analyzed within the context of catholic orthodoxy or rather catholic conservatism, unequivocal evaluation of the scope and intensity with which de Chardin's philosophy infiltrates O'Connor's prose is indeed challenging as many of the themes and perspectives brought into the writer's text may stem either from O'Connor's spiritual growth and transformation, or from a direct inspiration with the priest's ideas.

The analysis of the influence of Relativity Theory discourse series on literary space-time imagery in O'Connor's "The displaced person", apart from raising questions about the scope and the character of the influence of de Chardin on the writer also calls attention to the author's individual perspective on science. O'Connor's letters provide evidence of the author's passion for reading that intensified during the author's college years. A comprehensive list of books that belonged to the author, and by the decision of Regina Cline O'Connor, the writer's mother, were donated to the Russell Library at Georgia College & State University (Scott 2002: 44) has been compiled by Kinney in a publication entitled *Flannery O'Connor's library: Resources of being* (1985). According to the author "the listing of her personal books demonstrates conclusively the seriousness of her writing, the logic of her thinking, and the fineness of her sensibility" (Kinney 1985: 8). But perhaps above all, the internally varied collection, with many items in a state indicating frequent re-reading due to the introduction of personal notes or markings annotated in detail by Kinney in his study, constitutes a proof of O'Connor's great and varied interests that go beyond the field of belles-lettres. The fact that the writer eagerly involved in a dialogue with the text read, underlining important passages or writing her own reflections on the margins is an expression of O'Connor's extraordinary mindfulness of being, innate curiosity inscribed in her perspective on reality, and great sensitivity to both the intellectual landscape that surrounded her directly, and to a more distant cultural contexts she immersed in while on her (not always) solitary quest for new knowledge, outlooks on reality, and approaches towards the material, the abstract, and the spiritual.

The organizational structure underlying the contents presented by Kinney is a thematic classification of the items from O'Connor's private library. Amongst the books belonging to the field of philosophy, history, fiction, literature, or religion, Kinney lists a considerable number of publications that can be respectively ascribed to the fields of applied, and pure sciences. "I didn't mean to suggest that science is unreliable, but only

that we can't judge God by the limits of our knowledge of natural things" – writes O'Connor in the opening lines of her letter from 15th September 1955 to an anonymous addressee marked as "A." (Fitzgerald 1979: 102). This short and clear explanation written a month after the international conference at Bern organized to celebrate the jubilee of Relativity Theory could be perhaps viewed as satisfactory answer to the question on Flannery O'Connor's perspective on science. Yet, in order to obtain a more comprehensive outlook on the writer's approach towards science it is necessary to contextualize the above-quoted fragment within a broader framework.

Amongst the publications listed by Kinney (1985: 85), of particular importance for the study in focus is *The universe and dr. Einstein* by Lincoln Barnett. O'Connor owned a 1960 copy of the book originally published in 1948 to provide "a clear explanation of Einstein's theories and their effect upon the modern world" and to familiarize the readers with "recent discoveries in nuclear science"[10]. Re-issued several times, Barnett's work popularizing (not only) Einstein's scientific achievements invariably featured a foreword by the scientist himself. In his usual concise and clear style Einstein (1962: 9-10) praises the author for his superior ability to present complex scientific ideas in a comprehensible manner:

> Lincoln Barnett's book represents a valuable contribution to popular scientific writing. The main ideas of the theory of relativity are extremely well presented. Moreover, the present state of our knowledge in physics is aptly characterized. The author shows how the growth of our factual knowledge, together with the striving for a unified theoretical conception comprising all empirical data, has led to the present situation which is characterized – notwithstanding all successes – by an uncertainty concerning the choice of the basic theoretical concepts.

For Einstein, the introductory note to Barnett's book not only constitutes an opportunity to provide the readers with a brief review of the text but also serves as a pretext for the reflection on popular science and its role in the dissemination of scientific knowledge. Despite the fact that Einstein recognizes Barnett's efforts to popularize his achievements in the field of physics as scientifically accurate and consistent with the requirements set by those who control the field, his attitude towards popular science in general expressed in the first two paragraphs of the text can be described as rather reserved. Both Einstein's approval of Barnett's Relativity Theory discourse takeover and his

[10] The blurb on the cover of the 1962 edition of the book from A Mentor Book series published by The New American Library (New York).

veiled criticism of those examples of popular scientific literature of the time, that either fail to provide the readers with a comprehensive explanation of the issues discussed or fall into the trap of oversimplification "offering to the reader only superficial aspects or vague allusions" (Einstein 1962: 9), can be analyzed within the context of power-knowledge relations and read as an explicit example the discourse dissemination control.

The "Pure Sciences" section of Kinney's study features only one position, apart from the one by Barnett. The publication bringing new ideas from the field of physics closer to non-professional readers is, however, the only book devoted almost solely to Einstein that was found in O'Connor's private library. Nevertheless, as a popular scientific study providing a synthesized outlook on the advancement in the field of physics, Barnett's *The universe and dr. Einstein* might have turned out sufficient for O'Connor in her explorations of the topics more or less directly related to the Theory of Relativity. And although the list of books compiled by Kinney clearly shows that O'Connor was rather interested in collecting publications from the areas other than exact sciences, the writer was certainly not ignorant of the discoveries revolutionizing (not only) the scientific perspective on the world. The letters clearly show that O'Connor's insight in science is followed by in-depth meta-scientific reflection on its role in the search for truth. This, in turn, is for the author closely related to the search for God. Explaining her interest in de Chardin O'Connor writes:

> I am all the more taken with de Chardin because I found my way to the Church out of the inadequacy of the scientific milieu. To be sure the history of Protestantism had some effect in pushing me toward Catholicism. But it was the report on the state of things in physics and biochemistry that reached me in the Thirties that first shook my faith in the godhead of Science. And the Confession that Erwin Schroedinger made in his *What Is Life* lectures in the Forties confirmed my then advanced suspicion. It became plain to me that the scientific one-way descent into the doodle hole to explain life was headed the wrong direction. (Stephens 1986: 158)

Stating that O'Connor viewed the scientific method as inadequate in the quest for truth would be perhaps exaggerated. The writer's reserved attitude towards science is rather dictated by her religious outlook on life, but does not mean a complete rejection of the scientific perspective as directly conflicting the Catholic theology. It is rather the complete eradication of the element of the divine from the scientific considerations the author refers to in the fragment of the letter, that render the approach of the scientists of

the time flat and insufficient. Therefore, on the background of the scientific landscape of the era, de Chardin appears to O'Connor all the more credible and intellectually attractive, as he reconciles pure, objective knowledge with a more metaphysical reflection on the world:

> The biochemists and paleontologists will probably be slower to give de Chardin their imprimatur than the Church. But then their source of ignorance (and prejudice) is far more nearly invincible. (Stephens 1986: 158)

O'Connor's projections on the reception of de Chardin's works did not prove right, as neither the academic circles nor the Catholic Church have fully accepted the Jesuit's ideas. Remaining skeptical about de Chardin's works, both academics and the Church authorities treat them as an interesting, non-conventional approach towards the material and the spiritual world rather than a plausible scientific theory or an internally coherent, rational and, thus, reliable philosophy.

Describing the reading of *The divine milieu* as "the most illuminating Christian experience" O'Connor (Stephens 1986: 158) clearly indicates the system of values underlying her worldview, of which a more contextualized reflection the writer finds in de Chardin's works. But these are not only Christian values that constitute the common denominator of O'Connor's and de Chardin's worldviews. De Chardin and O'Connor must have been aware of Einstein's ideas, and with their unique sensitivities they could not have overlooked the imprint the physicists' findings from the first half of the twentieth century left on the overall perception of the world, modeling its cultural understanding, deconstructing the long-accepted perspectives on reality, re-shaping cognition. But for both de Chardin and O'Connor the new achievements of science are deficient without the figure of God inscribed in the considerations; the new, scientific vision of reality can be accepted only if it is accompanied by a thorough meta-scientific reflection. This is for sure present in Einstein's works, of which the most vivid example is his famous "subtle is the Lord" statement. Yet, both de Chardin and O'Connor request a more substantial and more detailed figure of God to be inscribed in scientific inquiry. For them, the vague, general suggestion that the Universe equals God, or that God equals Universe, is not enough. And perhaps this is why both O'Connor and de Chardin prefer to "surrender to the cosmic Christ" (de Chardin, as quoted in Lyons 1982: 37)

rather than to contemplate the subtlety of Einstein's image of God, veiled under cold, mathematically orderly theories.

If read within a broader context of O'Connor's standpoint on exact sciences, "The displaced person" can be viewed as a peculiar instance of the influence of Relativity Theory discourse series on a literary text. Recognizing the achievements of science, but criticizing the researchers' prejudice towards the metaphysical and the spiritual, O'Connor in the first place remains faithful to her worldview, which evolved throughout her lifetime, but remained invariably anchored in Catholic theology. As it has been already discussed, this does not mean a complete rejection of the discourse of science in her literary works. In "The displaced person" Relativity Theory discourse still speaks through the text, puts pressure on space-time imagery, and remodels the setting according to the principle of sudden growth and expansion.

Chapter 4: Time

4.1. Time as entangled in space, space as immersed in time: Einsteinian perspective on the temporal dimension of reality

The major aim of the previous chapter was to discuss the effects of the influence of Einstein's Relativity Theory and other related scientific findings from the first half of the twentieth century on the construction of literary imagery of space in selected American late modernist works of fiction. As it was already mentioned in the introductory note to Chapter 3, the separated approach with research focus shifting from space in the first part of the study, through time in the second thematic section of the thesis, to finally bring to the fore the discussion on the material dimension of reality in Chapter 5, results from practical considerations and does not mean the disarticulation of the notion of space-time into two separate concepts.

The idea of space-time is understood in this study as a four dimensional manifold, in which the three dimensions of space are immanently connected with the fourth dimension of time. The original assumption of the indissolubility of the spatial and the temporal aspects of reality made by Einstein is therefore preserved as the conceptual basis for the analysis of literary space-time imagery.[11] The division of the four dimensional manifold into space and time used in the study should be therefore viewed as a purely organizational design aimed at ordering the content discussed around those as-

[11] "(...) I still respect the dogma that both space and time have independent significance" – this statement by Minkowski (1923: 76) clearly shows that the conjunction of space and time within the common conceptual scheme does not equal the deprivation of its composing parts their autonomy. Thus, the adoption of the relativistic perspective on reality still allows for, at least to some extent, separate treatment of the notion of space and time, depending on the research needs and the aspects of a given topic to be emphasized in the study.

pects of space-time imagery which constitute the core of the analysis in a given chapter or its part.

Time, within the framework of Einstein's scientific theories, is one of the intrinsic components of reality. Attached to space understood as "an elastic deformable physical object, which is not made of "nothing" but that is filled with "something", a field, an elastic substance" (Izabel 2021: 86, 166), time functions as a malleable entity. Its flexibility manifests itself in the ability to contract or expand, depending on the speed of the moving object, with dilatation[12] constituting an example of negative contraction (Izabel 2021: 167). Also, it is crucial to mention the mutual interdependence of space and time reflected in the curvature of space-time – a state of space, time, and matter that proves the elasticity of all the phenomena. Since the deforming force of gravity has an impact on both space and time, it can be stated that the four dimensional manifold behaves as an object characterized by its unique density, as a substance prone to deformation, able to expand or contract, depending on the physical conditions dictated by the dynamics of motion (Izabel 2021: 168).

Due to its entanglement in the relationship with other aspects of the physical reality, time, similarly to space, cannot be treated as an independent entity. Therefore, it is crucial to note that the conventional split of space-time into space and time deliberately used in the study for the reasons discussed in the introductory note to Chapter 3 and briefly recalled in this section, does not entail a complete rejection of the complexity of the notion of space-time. The reflections on the possible literary realizations of one of the components of the four dimensional continuum should be always read with reference to the broad and multifocal contextual framework provided by the scientific and socio-cultural background to the topic, which was discussed in the first chapter of the dissertation.

The four papers that made 1905 the miraculous year in science revolutionized physics with Einstein's groundbreaking observations concerning the photoelectric effect, Brownian motion, mass-energy equivalence and, most importantly for the analysis undertaken in this study, Special Relativity. Although the thematic scope of the articles

[12] Izabel (2021: 167) differentiates between the notion of *dilatation*, rarely appearing as such in various studies on relativity and viewed in the book as negative contraction of time, and the concept of *time dilation* understood in the discussion in a classical way as the difference in the time measured for the object moving at least 20% and more of the speed of light (Izabel 2021: 7), and the time measured on earth by a passive, non-moving observer.

is rather broad and internally varied, all of the newly discovered phenomena share a common denominator – they shatter the old vision of reality viewed as stable, coherent, cognizable and, above all, describable by the use of well known, in all respects obvious and nonnegotiable patterns based mainly on the organizational approach dictated by Euclidean geometry. The world seen through the prism of the all-organizing and all-harmonizing rules of Euclid's mathematical system appears as harmonious, manageable, and controllable, as all the elements of reality can be encapsulated in and defined by a set of axioms or theorems subject to the rules of logic. A good example is the paper on photoelectric effect, in which Einstein addressed Philip Lenard's surprising observation that intensity of light did not influence the electric energy produced by the photoelectric effect; this seemed to contradict Maxwell's theory of light, and to contradict common-sensical (or logical) expectations of researchers at the time. What Einstein's photoelectric effect paper does to such an orderly vision of reality is to compromise if not to undermine its internal structure of material reality, questioning the (scientific) beliefs that lied at its very basis.

The new perspective on the ray of light now seen as composed of energy quanta, along with the discussion on the nature of atom undertaken in the Brownian motion paper, inspired the public to pay closer attention to the world in the micro scale, while unveiling the hidden potential of matter. Mass-energy equivalence expressed in a striking in its simplicity, yet brilliant equation that quickly became an element of popular culture turning into a symbolic graphic representation of Einstein's achievements – $E=mc^2$ displays the interdependence of mass and matter. The interconnection between mass and energy is of particular importance for the objects travelling at the velocity close to the speed of light. Nevertheless, regardless of the speed of the object in motion, the equation, particularly when functioning as an element of Relativity Theory discourse series taken over by non-academic speaking subjects, puts spotlight not only on the notions of mass and energy, but also on the speed of light. This in turn, according to Einstein, should be regarded as constant, notwithstanding the physical characteristics of the frame of reference from which it is observed. The speed of light in vacuum in an inertial frame of reference becomes thus the only stable and reliable value describing reality, the new absolute in the face of time and space relativity.

Almost all of the formerly discussed elements of Einstein's miraculous year papers are more or less closely related to the problem of time, influencing the way the

temporal dimension of reality is perceived both in the scientific and common understanding of the world. With the publication of Einstein's "On the electrodynamics of moving bodies", the article in which the scientist introduces the Theory of Relativity, time, although already an abstract idea, becomes even more vague and illusory than it appeared to be. Its linkage to space and matter does not make it any more tangible or legible, but rather places it in a complicated network of cross-dependencies generating additional cognitive burden, at least for non-academic speaking subjects seeking to have an insight in or willing take over (the elements of) Relativity Theory discourse.

4.1.1. Time, space, and matter as dependent on the speed of light

"The objects of our perception invariably include places and times in combination. Nobody has ever noticed a place except at a time, or a time except at a place" states Minkowski (1923: 76) in his "Space and time," which constitutes an example of the propagation of Relativity Theory discourse series. "Space and time," as published in 1923, was an English translation of the 1908 "Address at the 80th Assembly of German Natural Scientists and Physicists, at Cologne," published by Methuen Press in *The principle of relativity: A collection of original memoirs on the special and general theory of relativity*. The book, rather than a collection of memoirs, is a translation of a German collection of original papers and lectures by Einstein, H.A. Lorentz, Hermann Weyl, and Minkowski; they were translated by the physicist George Barker Jeffery and philologist Wilfrid Perrett, edited and annotated by another great German physicist, Arnold Sommerfeld. The book was an important source text for the distribution of Einstein's ideas in English, and has been in print as a Dover paperback in America, since the 1940s. It is difficult to argue with that simple but firm statement, yet the clarity of logic behind Minkowski's argumentation does not make the interconnection of space and time less complex and, as a consequence, more perceptually straightforward. The issue of the interconnection of space and time becomes even less transparent when the speed of light is involved in the scheme. According to the major premises of Einstein's Relativity Theory when the fast moving object approaches the speed of light, time slows down. The phenomenon, known as time dilation, is considered a theoretical evidence of the peculiar flexibility of time which, able expand and contract, behaves similarly to an

elastic body. Additionally, not only does time slow down for objects moving at high velocities, but, as the conclusions drawn from Einstein's equations clearly indicate, it is almost certain to stand still for the objects moving at the speed of light.

Speed, not without an effect on space and the material dimension of reality, is also interconnected with time, as the increase in the velocity of a fast[13] moving object is directly proportional to the slowing down of time. The phenomenon of clock retardation is of course not the only deformation space-time is subject to when an object moves at the speed of light. The velocity of 671 million miles per hour causes the object in motion to shrink, and its length reduction takes place along the direction of movement. Additionally, according to the principles of the Special Theory of Relativity, the mass of the object depends on its speed. The premise is closely linked to Einstein's famous $E=mc^2$ equation and complements the picture of reality as relative, transmutable, and prone to distortion. All of the above mentioned phenomena prove a strong, and at the same time complex interrelationship of space, time, and matter. Therefore, the discussion on one of the components of space-time cannot be considered in isolation from the others.

4.2. 1920s and "the drama of relativity revolution": time, space, and literature during the first wave of popular science craze in America

"In many ways the time dilation is the strangest deduction of special relativity, since it violates our (and Newton's) intuitive sense of time" states Topper (2013: 58), involving in the following part of his considerations the issue of biological time. And indeed, the intuitive, inbuilt way of perceiving time has to be radically revised in the light of Einstein's 1905 publications. Einstein's discoveries from the miraculous year quickly caused a worldwide sensation evoking polar opposite emotions both among those who had proper methodological tools and were and able to scrutinize the newly proposed theories from the scientific perspective, and those who could only assess them through the prism of their own everyday life experience and worldview. Yet, it was only in 1915 when the new theories brought the scientists "the avalanche of attention" (Cropper

[13] This concerns the speed values equal to or exceeding 20% of the speed of light.

2001: 217). In November 1915 Einstein publishes "The field equations of gravitation" supplementing the Special Theory of Relativity form 1905 with General Relativity. The peak of public interest with the ideas linked to the notion of space-time however falls on the year 1919, when the solar eclipse experiment proves the bending of the light rays emitted by stars when they approach the gravitational field of the Sun in their way to Earth.

The beginning of the new decade was thus in many respects special, and the entire 1920s were marked by what Holton (2001: 81) calls "the drama of the relativity revolution". As the new scientific ideas spread quickly beyond academia, their influence on the perception of reality becomes more and more pronounced in various fields of human activity. These, apart from popular science, include broadly understood culture, art, and literature. The permeation of Relativity Theory discourse series through areas formerly unrelated to physics contributes to a profound change in the way reality and its dimensions are perceived by various academic and non-academic speaking subjects, either taking over the discourse and using it as their own, borrowing it, or simply passively allowing the powerful language of the new physics to influence their world view. Einstein certainly became "the Man of the Hour"[14] in the 1920s revolutionizing not only science, but also everyday life by re-shaping ordinary people's perspective on reality and, consequently, inspiring an entirely new science-shaped outlook on the world.

The extremity of the new vision of space and time proposed by Einstein in 1905 and developed throughout the following decades becomes particularly attractive for the creators of the early twentieth century culture. The world of art and literature actively responded to the vision of the space-time continuum presented by academics. Sensitive to changes, inspired by the atmosphere of multifaceted scientific and technological progress, both the writers and artists of the time re-consider their artistic perspective in the search of a new approach towards the creative process of translating reality into a work of art. Art and literature immediately enter into an exuberant dialogue with Einstein's revolutionary theory creating a new discourse on space and time that arises from a vibrant and brisk amalgam of the abstract with the substantive. The new language of art

[14] Quoted after Pyenson (2001: 282). His brief study on the Theory of Relativity is based on an interesting parallel between the structure of the scientific revolution in Germany initiated by Einstein's discoveries and the French Revolution. Analyzing both similarities and asymmetries, Pyenson extracts the common denominator of the radical and the subversive dwelling in the previously mentioned socio-political turn in France of the 18th century and the relativistic turn in physics in Germany in 1910s and 1920s.

in the 1920s is as radical in the process of reality de-construction as Relativity Theory discourse itself, and the mixture of the ideas from the two diverging fields only boosts the process of reality de-composition. This cross-field mixture of ideas which, although approached and applied by scientists and artists in a different manner, is unified by a common denominator – the need to adopt a new, more adequate perspective on the world that had suddenly turned out to be more complex and less cognizable than it used to appear.

Perhaps the most vivid example of its application as a tool in the process of the translation of reality into an artistic vision is offered by cubist paintings. Since the possible linkage between Picasso, a symbolic representative of the entire movement, and Einstein, has been already discussed in the second chapter, a detailed discussion on the topic would be redundant. Nevertheless, regarding the issues raised above, it is worth to make a brief reference to an interesting observation made by Gamwell (2020), who argues that the origins of the revolutionary perspective on the world proposed by cubists should by no means be traced to the discoveries made by Einstein in the beginnings of the twentieth century. With her remarks on the alleged linkage between the world of art and science, or rather its definitive lack, Gamwell (2020: 188) takes on a radical stance in determining the roots of cubism. For this reason it is worth quoting the author's stance at full length:

> During the development of Cubism (1907 – 14) writers associated the style with many scientific developments that were part of the complex matrix out of which Einstein forged his revolution, such as the French mathematician Henri Poincaré's speculations about the relativity of space and time that were precursors to Einstein's theory of relativity, and non-Euclidean geometries. But Poincaré's speculations and the new geometries were nineteenth-century ideas awaiting a new synthesis and there is no evidence that any Cubist artist was aware that an unknown German employee of a patent office in Bern, Switzerland, had accomplished this in 1905.

While there is, indeed, a scarcity of resources containing evidence that would prove cubists painters' fully conscious, explicit inspiration with the theories formulated in Einstein's 1905 papers, the overall influence of Relativity Theory discourse series, a quickly spreading, powerful stream of speech on the new qualities of space and time now viewed as a single concept, cannot be neglected. Similarly, Einstein's role in developing the formerly loosely sketched scientific ideas that set the ground for relativity goes far beyond a mere synthesis and complementation of the previously fragmentized

and only loosely formulated theories. What Einstein does to the ideas proposed by Poincaré, Michelson, Maxwell, Lorentz, and Mach is of course to provide them with a more unified methodological and theoretical framework, but the scientist's unprecedented popularity is mainly due to his unique ability to convince not only the academic communities, but also ordinary people that the long-accepted Newtonian notions of absolute space and time are no longer valid.

Einstein's uncompromisingness in formulating the Theory of Relativity is a proof of the scientist's exceptional research courage. And even if Einstein did not directly imbue that courage on cubist painters and, as Gamwell (2020: 188) argues, it is Helmholtz with his both scientific and philosophical achievements who should be credited with exercising the greatest impact on cubists by provoking a switch from objective to subjective space perception, it needs to be emphasized that Einstein is the first person to whom the Relativity Theory discourse fully belongs. Formulating the theory in a series of papers as early as in 1905, Einstein becomes the one who controls the entire discourse series by entitling certain speaking subjects to use and transform it while simultaneously depriving others of the right to draw from the stream of speech on space-time and its dimensions. And finally, it is Einstein, not Helmholtz, whose controlling power the discourse eludes and from whom the discourse is symbolically stolen by speaking subjects not eligible to partake in its dissemination.

The stream of speech on space and time relativity is perhaps one of the most representative examples of a discourse following the four principles outlined by Foucault (1981: 67) in his theory on discourse management and spread. It is particularly worth to mention here "the rule of exteriority". According to Foucault (1981: 67)

> [W]e must not go from discourse towards its interior, hidden nucleus, towards the heart of a thought or a signification supposed to be manifested in it; but, on the basis of discourse itself, its appearance, and its regularity, go towards its external conditions of possibility, towards what gives rise to the aleatory series of these events, and fixes its limits.

The dissertation constitutes an attempt to explore the highly malleable outer limits of Relativity Theory discourse series, that go beyond the field they belong to and infiltrate various areas of broadly understood culture. Therefore, the research requires taking into consideration what Foucault calls "the aleatory series of events" taking place in the liminal area where the discourses meet and interfuse. The mixture of the scientific with the literary that lies at heart of the study in focus is indeed so internally diversified that

tracing back the exact nucleus of the influence becomes nearly impossible. For this reason, it is not excluded that the previously referred to Gamwell's observations on the scientific and philosophical factors that inspired the rise of cubism may be at least partially relevant while answering the question about the outside sources of inspiration for the new artistic perspective on the world. Yet, a more comprehensive outlook on the issue can be obtained only by placing these considerations in a broader scientific, philosophical, and, perhaps most importantly, cultural context of the era.

The brief discussion on the roots of cubism undertaken in this section constitutes an important reference point in the analysis of the influence of Einsteinian new physics on the creation of literary space time-imagery in American prose text from the 1940s and 1950s. The formative period of cubism coincides largely with the rise of the new trends in literature which, similarly to art, faces the urgent need to respond to the new now that arose from Einstein's equations and turned out to be so radically different from what it appeared to the senses and common reason. Since it is the speed of light, a dynamic phenomenon displaying qualities beyond human comprehension, that becomes the new absolute, the firm frame of reference of Newtonian mechanics rapidly disintegrates to unveil formerly unthought-of complexities, cross-dependencies and most shocking correlations between time, space, and matter.

How could thus the new world be narrated in fiction? What should be done to provide a symmetrical reflection of the new reality in a literary text? To obtain the most vivid effect, the writers of the core modernist period resort to the most radical compositional and stylistic solutions. Following Pound's "Make It New" imperative, an insistent and powerful agitation strenuously suggesting a deep need to break with tradition, modernists are involved in a frantic quest for fresh ways of seeing the world. Pound's manifesto, a bold call for both progression and transgression, voices a strong demand for new stylistic and compositional practices that would allow literature to keep pace with the rapidly changing world.

In many cases, the break with the past and the restrictions imposed by the foregone on the present in the first place affect the narrative construction of time. Paradoxically, although Einstein's Theory of Relativity and the accompanying scientific findings oscillating around the issues related to the nature of light and matter postulate the inseparability of time and space, binding the two formerly disconnected aspects of reality into (despite all the intricacies and blank spaces in the theory) a single, coherent entity,

it has a dissociative rather than merging effect on literary space-time imagery. In this view, the essence of the theoretical approach towards modernism adopted in this study is largely based on what Peppis (2014: 12) calls "an old modernist/ new critical sense that modernism is a literature of disjunction and disorientation". The disjunction and disorientation identified by Peppis as key features defining the period are according to the author of the book on the sciences of modernism the fruit of "a consciousness of existential doubt and epistemological difficulties, of temporal and cultural disjunctions (…)" that shaped the era both from the inside and from the outside (Peppis 2014: 22).

The predominant view of modernism as a series of fractures and breaches leading to a certain form of dissociative artistic, social, scientific, and cultural being, can of course be challenged and should not be seen as one and only way of seeing modernity, especially in literature. Nevertheless, the adoption of a diffusing lens on modernist texts allows to understand better the relationship between literature of the era and a profound epistemic crisis induced by the revolutionary scientific theories that re-shaped the vision of the world.

4.2.1. The experimental quality of high modernist literature: the poetics of distorted time

1920s as the peak period of modernism is by all means a decade of experiment. The experimental quality of the actions undertaken by scientists, artists, and writers in the light of the sudden disarticulation of the basic components of reality are aimed at proving that the world no longer comprises of stable dimensions and involve the risk of obtaining even a more internally incoherent and incomprehensible image of reality than the one already proposed by Einstein. This results in both the scientists' and authors' involvement in the irreversible process of a progressive de-construction of reality. Radical purposeful delamination of narrative space-times into turbulent, rough mixtures of the spatial, the temporal, and the material becomes the essence of modernist approach towards the composition of literary worlds.

Literary modernism, especially in its core period, can be perhaps best described by the use of meanings aggregated around and generated by Deleuze and Guattari's (1977: 5) concept of a desiring machine. Introducing the idea of the desiring machine,

the authors of *Anti-Oedipus: Capitalism and schizophrenia* emphasize the phenomena of interrelation and interlinkage that define the machine, desire, and desiring-production, that lie at the core of the entire desiring system:

> Desiring-machines are binary machines, obeying a binary law or set of rules governing associations: one machine is always coupled with another. The productive synthesis, the production of production, is inherently connective in nature: "and …" "and then …" This is because there is always a flow-producing machine, and another machine connected to it that interrupts or draws off part of this flow (…) Desire constantly couples continuous flows and partial objects that are by nature fragmentary and fragmented. (Deleuze and Guattari 1977: 8)

Literary modernism, especially in the 1920s when it undertakes a dynamic dialogue with science, resembles a desiring machine. Behind that linkage lies the need to move in the same general direction designated by the physicists, with Albert Einstein at the forefront of the scientific and epistemological revolution. The net of connections briefly outlined here is of course broader, by far more complex, and embraces a series of variegated, more or less stable linkages to fields, subjects, and phenomena external to literature but supporting it in the process of its fundamental break with traditional time and space perception. The extrinsic outreaches of literature include popular science, popular culture, art, politics, (current) history, and social issues. It should be noted that the brief list covers only some of the most prominent areas with which literature enters dialogic relations in the course of the ongoing stylistic, compositional, and ontological revolution, the peak of which falls on the 1920s, and therefore should be by no means be considered complete. The products of the frequently frantic and improvised conjunctions of modernist literature with the above listed areas are, to borrow from Deleuze and Guattari's discourse, fragmentary and fragmented. Especially science, with Relativity Theory and other related discoveries should be viewed as the fragmenting mechanism inducing a profound delamination of modernist narratives, inspiring the break with the old vision of the world, and disturbing the image of space and time.

Suspended in disjunctions, modernism, especially in art and literature, becomes a manifestation of a certain form of collective schizophrenia stemming from and fuelled by the previously mentioned epistemic crisis. Modernity can be associated with multifocal and multidimensional being aimed at multiple contradictory directions at once, drawing from its surroundings, entering into highly diversified dialogic interactions with its "outsides", and adopting foreign elements as its own. All of the interdependen-

cies and new dialogic interactions with the peripheral spaces lead in the first place to a considerable distortion of the image of time. Out of all the contaminations brought into modernist literature by foreign discourses, the distortion of time is the most striking. Since the Theory of Relativity proves clocks unreliable (Newtonian concept of absolute time in the light of the new findings turns out to be, if not an invalid, than surely a very simplified idea) modernist literature has no other choice than to disassemble the old notion of time. "Desiring-machines work only when they break down, and by continually breaking down" write Deleuze and Guattari (1977: 8) emphasizing the importance of the factor of discontinuity that paradoxically boosts the performance of the machine, facilitating the establishment of new connections between the machine or its elements with external objects and phenomena. The breaks, fissures, and various discontinuities of form in modernist literature do not only concern the formal aspects of a literary work, but soak deeper through the text's internal structure to affect the innermost layers of meanings and the aspects related to the perception of reality, one of the key factors determining the shape of a literary work as a whole, and the construction of the represented world as well.

The distortions of the narrative time caused by external factors the vast majority of which are technology and thereby science-related, are collectively referred to by Heise (1997) as "chronoschisms". According author of the study on time in postmodern novels

> If one traces the development from the high-modernist to the postmodernist culture of time, therefore, one finds that two central issues are envisioned in fundamentally different ways: although both modernism and postmodernism foreground breaks or schisms in time, high modernism questions mainly the relevance and accessibility of the past, whereas postmodernism challenges the notion of time as such; and high modernism emphasizes the difference between private and public temporality, whereas both became precarious categories in postmodernism awareness. (Heise 1997: 37-38)

Although the mapping of (high) modernism and postmodernism proposed by Heise cannot be considered essentially incorrect, the division lines between the two periods are rather too sharp and too categorical for obtaining a more comprehensive picture of the treatment of (narrative) time in the two contrasted periods. Such a stark demarcation between modernism and postmodernism determines the adoption of a polarizing approach aimed at defining the periods in focus by means of contrast. Additionally, the

generalizations made by Heise almost entirely exclude the existence of a largely unstable peripheral area between modernity and post-modernity.

In general, although the observations made by the author of *Chronoschisms* are overall legitimate and can be easily supported by evidence from literature, they do not take into consideration the deeply nuanced nature of narrative time in modernist works of fiction. The modernist distortion of time is not only an effect of the authors questioning the past and doubting the availability of the foregone experience for human perception. The subjective vision of time, otherwise a very important aspect to be taken into consideration while analyzing modernist literature, is not the only factor determining literary treatment of time. Similarly, the deconstruction of the notion of absolute, objective and linear time in high modernist works of fiction frequently goes beyond the issues related to the subjectivity of temporal experience or the sharp distinction between what Heise calls "private and public temporality" rooted in Bergson's philosophical ideas. Works of authors such as Faulkner, Stein, Dos Passos, or Hemingway to narrow the field only to American modernist literature, despite their significantly varying degrees of experimentality, present remarkably complex approaches towards the notion of time and its perception. Especially the texts of Gertrude Stein display a wide array of external influences affecting the narrative treatment of time. These range from William James' psychological and philosophical theories, through the geometrization and atomization of reality of cubist artists out of whom the greatest importance with regard to the impact exercised on the writer's work should be ascribed to Paul Cézanne and his innovative painterly technique, to the distant echoes of Einstein's Relativity Theory.

It can be therefore argued that the new sensibilities of time and space in the period of high modernism should be viewed as a resultant of multiple diversified factors originating in a number of fields, which mainly include philosophy, psychology, and science. In the light of the multifacetedness and high diversification of the external factors influencing the shape of literary space-time imagery, the exploration of the topic through the prism and by the use of the notion of discourse series appears as justified, since the concept itself presupposes a certain degree of autonomy of both the series and the speaking subjects. Additionally, Foucault's perspective on discourse series makes allowance for potential contamination of the series with foreign elements acquired by discourse in the course of its circulation. In the light of the philosopher's theory of discourse, the year 1919 would be perhaps more important for the dissemination, control,

and spread of Relativity Theory discourse series than 1905. Perceived in the categories of a discursive event, the solar eclipse (experiment) from 1919 played a far more crucial role in Relativity Theory discourse dissemination beyond academic fields than the miraculous year. “Before 1919 almost no one outside of physics knew of Albert Einstein. After 1919 almost no one did not know of him” states Goldberg (1984: 309), emphasizing the importance of the famous solar eclipse of 1919 for the development of Einstein’s myth and the proliferation of knowledge on relativity beyond academia. The discoveries made in physics just a year before the beginning of the Roaring Twenties, set the ground for the high period of modernism, reinforcing the public in the belief that a new perspective on reality is not only welcomed, but highly desirable in the face of the rapidly changing world.

Since Einstein’s Relativity Theory triumphs over skeptics and disbelievers at the beginning of the 1920s, and the new sensibilities concerning the perception of time and space are now well grounded and waiting for further enhancement, it can be stated that the phase of high modernity in literature and art coincides to a considerable extent with a rapid advancement in the field of physics. The newly proposed revolutionary ideas received unprecedented public attention, creating a breeding ground for the development of popular science. The interest of non-academics in the theories originating in a seemingly hermetic scientific environment therefore opens new possibilities for the peculiar leakage of Relativity Theory discourse series into new areas and its quick, frequently uncontrollable spread beyond academia.

For the reasons discussed above it can be argued that the roots of literary modernity lie not only in the changing cultural, or socio-political ambiance of the time; they are also, or primarily to be found in rapidly developing science. Physics, with the radical paradigm shift inspired by the Theory of Relativity proclaimed in 1905 and proven right fourteen years later, becomes a strong source of influence shaping both narrative temporalities and the space time imagery of high modernist fiction. The impact of the notions of relative space-time was nowhere near as strong as in the 1920s, the decade following the famous solar eclipse experiment, when the notion of relativity was still relatively fresh, emotions around Einstein’s theories were exceptionally high, and the ideas proposed by physicist appeared to the public mesmerizingly incomprehensible. Relativity Theory discourse series, forcefully borrowed by non-academics and applied

to speaking on "Einstein's topsy-turvy world"[15], becomes the major theoretical framework offering a repository of new, more appropriate concepts for the description of the newly discovered qualities of reality. The new ideas, either explicitly evoked by non-academic speaking subjects, or underlying the altered perception of space and time and influencing the image of the world at the subconscious level, become the essence of modernist thinking about the world.

Art and literature, sensitive barometers of all the socio-cultural changes, cannot be therefore irresponsive to the radically altered spatio-temporal sensibilities. The modernist literary experiment with form, aesthetics, and narration can be seen as a symmetrical reaction to the experiments conducted in science, since the distortion of narrative realities achieved through new artistic ventures corresponds with the general distortion of the Newtonian vision of the world. With texts such as Hemingway's *in our time* (1924), a collection of literary vignettes which in their condensation of meaning, intensity of image, and rawness of form are actually timeless or beyond time, Dos Passos' *Manhattan transfer* (1925) where narration splits into several autonomous lines with their inbuilt subjective temporalities, or Faulkner's *The sound and the fury* (1929), a novel blatantly de-composing the notion of absolute time, the period of high modernism is marked by relentless experimentation. As such modernism appears as the time of intensive, frequently improvisational search for the new narrative means of expression which would be in line with, reflect, and express the profound paradigm shift caused by Einstein's theories, the development of sciences, and the new technological solutions derived from the overall scientific progress.

In the light of the above discussed it can be argued that experiments with narrative time are an obvious part of high modernist aesthetics and can be found at multiple layers of a literary text, starting from the compositional structure, through its form to style. Tracing all its possible instances in American modernist literature of the 1920s would require conducting a separate study that would take into consideration the multifacetedness of the contextual framework of the texts, as well as the complexity of the dialogic relations between science and literature. Hence, a brief discussion undertaken in this section is by no means exhaustive and should be treated only as a sample exemplifying the workings of the influence of science on high modernist literary texts.

[15] The title of an article on Einstein's theories in April 1929 issue of Popular Science (p.17-19, 133-134)

Since the major and at the same time most intense phase of literary experimentation with (narrative) time falls on the decade directly following the confirmation of Einstein's Theory of Relativity, and the vast majority of American modernist works of fiction from that period were comprehensively researched with regard to the treatment of time, analyzing the same qualities in late modernist texts from the 1940s and 1950s would be perhaps secondary to the already existing studies. This, however, is not equivalent to the statement that American late modernist prose does not feature any significant alternations concerning the narrative representation of time. Both the technicization of life and war in the 1940s and the fiftieth anniversary of Relativity Theory in the mid 1950s re-evoke deep concern about the degree of adequacy of the Newtonian perspective on the world based on, as it had turned out at the beginning of the twentieth century, false presumption that time and space are absolute phenomena.

The progress made in the field of physics throughout the decades following the famous solar eclipse experiment of 1919 is not without significance for American late modernist fiction. As the second wave of popular science craze observed in America in the 1940s and 1950s to a considerable degree revolves around Einstein's achievements and speaks Relativity Theory discourse, or at least rumbles with its distant echo, the already known but now much more developed scientific ideas either directly linked to the concept of relativity, or emerging only partially from Einsteinian physics receive wide publicity. Both the intensive technicization of life and war, and the fiftieth anniversary of the Theory of Relativity provoke further investigation of the issues related to space-time perception, imagining, and representation.

Thus, literary space-time imagery once again becomes a space of artistic intervention of the writers in the 1940s and 1950s. Yet, as the notion of space-time in mid-twentieth-century America, sanctioned not only with scientific evidence, strong theoretical basis, and a number of equations but also with time, had already settled, the distortion of the classical vision of reality, especially of its temporal dimension in American late modernist literature is significantly more subtle than in the literary works which originated in the 1920s. Additionally, several decades of research on relativity and the popularization of the new findings bring the public a deeper understanding of the idea of space-time; the interlinkage of the spatial and the temporal starts to function as the major point of reference in the process of re-imagining reality. Moreover, the notion of space-time itself is no longer about its seeming, at first sight inbuilt duality but rather

about the internal coherence and inseparability of its composing elements. Thus, time and space in the 1940s and 1950s are increasingly seen as irreversibly conjoined, co-dependent phenomena, and the idea of space-time borrowed directly from or carried by Relativity Theory discourse is more often accepted as an indivisible concept.

For the above presented reasons, the issue of narrative time in American late modernist fiction, its shaping, modifications and distortion will not be discussed extensively in the thesis. Due to the fact that in the socio-cultural perceptual background of the period in focus time is viewed as one of the dimensions of reality, the considerations on the temporal dimensions of the plot and the deformation of time under the influence of Relativity Theory discourse series are linked in the study to the aspects of literary space representation. This allows for obtaining a more coherent interpretational picture of the changes in space-time representation traced in American late modernist works of fiction. As it has been already emphasized in the previous chapter, in the light of the contextual framework of Einsteinian new physics of which the nucleus is to be found in the concept of space-time understood as a single entity, the analysis of narrative time should be conducted taking into account the overall construction of the represented world.

In this view it can be argued that while the authors of the core period of modernism focus largely on the experimentation with narrative time resourcing to diversified innovative stylistic and compositional techniques which result in the rejection, deconstruction, or various degrees of deformation of the linear, absolute time, late modernist works of fiction are less frequently characterized by intense experimentality. As it has been already mentioned, a significantly less revolutionary aesthetics entails a proportionately subtler realization of the paradigm shift regarding both the perception and the representation of reality, now considerably more often seen as a conglomerate of the three spatial dimensions of the material world and the abstract, all-embracing and all-shaping dimension of time. Time relativity and/ or time distortion resulting from the second wave of popular science craze followed by intensified infiltration of (popular) culture by Relativity Theory discourse series, are less explicit in American late modernist works of fiction. A more calibrated approach towards the experimental aesthetics – an immediate artistic reply to the ideas that shifted the prevailing paradigm at the beginning of the twentieth century results in a more understated implementation of the premises of relativity in American literature of the 1940s and 1950s. Hence, whereas it

can be stated that high modernist works of fiction spoke the Relativity Theory discourse loudly, explicitly, and, quite frequently, knowingly, late modernist texts often whisper the silent, distant echo of Einsteinian science.

American late modernist works of fiction that would inscribe into the discussion on science-induced change in the overall perception of time are perhaps Irvin Shaw's *The young lions*[16] (1948), Steinbeck's *The log from the Sea of Cortez* (1951), James Jones' *Some came running* (1958) or Thomas Berger's *Crazy in Berlin* (1958). The list is by no means complete, but with Jones and Shaw exploring the concept of the simultaneity of events, Steinbeck openly referring to the notion of relativity and its creator, and Berger strongly leaning towards subjective time perception while examining the problem of the past, the works listed above would certainly lend themselves to close reading aimed at analyzing the influence of relativistic physics on literary (space-)time imagery in American late modernist fiction. Nevertheless, despite the fact that the distortion of the temporal dimension of the represented world is discernible in the aforementioned novels, it is crucial to notice that it does not constitute the prevailing narrative feature of any of the books. Therefore, since the major phase of experimentation with narrative time falls on the 1920s and the texts representing the period of late modernism are characterized by less pronounced, more subtle distortions of narrative time which in the 1940s and 1950s is more often viewed as a component of the continuum, not an independent entity, the interpretational part of this chapter will be devoted to only one novel.

The choice of Norman Mailer's *Barbary shore* was mainly dictated by the character of the study in focus, and the text's unique treatment of (imagined) time that allows for the confusion of all the temporal dimensions of reality and the supplementation of their missing, blurred, or incomplete parts with the subjective and the illusory. With the misty, largely unknown dimension of the past invading the present as early as in the first sentence of the novel, the protagonist's perception of reality is profoundly dis-

[16] Apart from Shaw's *The young lions*, another book by the author worth to mention here is his 1951 novel *The troubled air*. Although the story unfolds according to the principles of linear time, the author makes several explicit references to the atomic bomb and the way its presence in the socio-political and military landscape of the era subverts the ordinary vision of reality. The bomb functions in the novel as a distant object, a symbolic representation of the most condensed and most intensified violence, a source of paralyzing fear able to distort the perception of the world, and the world itself. Shaw's almost rhythmical evocation of the nuclear threat can be analyzed not only with reference to The Cold War a context obvious to the book, but also can be seen as a convoluted, fragmentized dialogue of literature with the branch of physics of which the development was in the 1940s and 1950s largely ascribed to Einstein.

turbed. The deformation the narrative time undergoes at the very onset of the story bears similarity to the distortion of a wave that significantly disrupts and/ or impedes its usual distribution, which previously used to take place according to a well-known and generally expected scheme. Moreover, the distortion of time in *Barbary shore* goes beyond Lovett's subjective perception of reality and its dimensions, as it influences the shape of the represented world not only for the protagonist himself but also for other characters appearing in the story. It can be therefore stated that what stands behind the obvious notion of time subjectivity in the novel, is a more subtle and less obvious concept of time relativity – a foreign sediment brought into the narrative by all infiltrating Relativity Theory discourse series sustained by the second wave of popular science craze in America of the 1940s and 1950s.

4.2.2. "Probably I was in the war": perception of time, imagined memories and the role of the body in remembering the forgotten in Norman Mailer's *Barbary shore*.

"Speaking of newcomers in the field – one of the greatest writers today is young Norman Mailer – author of *The naked and the dead* – an amazing bit of writing. That boy has talent worth preserving. There's nothing petty about Mailer – he's the author of the hour – the greatest writer to come out of his generation" says Sinclair Lewis about Norman Mailer in one of the interviews, after having met the twenty-five year old promising author of one novel in the August of 1948 (Lennon 2013: 109). After the unprecedented success of Mailer's first publication – *The naked and the dead* (1948), that soon became one of the most widely discussed books of the time, Mailer found it difficult to repeat the literary success that opened his artistic career and introduced him into the literary circles of such well established authors as Sinclair Lewis, Ernest Hemingway, William Faulkner, John Dos Passos, James T. Farrell and John Steinbeck.

It was perhaps Mailer's brilliant artistic intuition that was critical to the success of his first novel. Inspired by the aforementioned writers, out of whom Farrell, Dos Passos and Steinbeck are said to be a "literary trinity" for the beginner writer (Lennon 2013: 30), Mailer instinctively recognized the value of a genuine experience, which, if presented honestly, conscientiously and with almost atomic precision, is able to lead both

the author and the reader towards discovering the bare truth about life. *The naked and the dead*, "a best-seller that was the work of an amateur", as Mailer (2000) himself defined it, is based on the author's personal wartime experience and observations, whereas his second novel – *Barbary shore* evolved rather from the author's strive for literary experimentation than the profound need of a young war witness to make his real wartime traumas concretize in narration. Contextualized within the socio-political spirit that pervaded America in the late 1940s and early 1950s, the storyline in *Barbary shore* revolves around Marxist philosophy that clearly is the focal point of the novel. According to Leigh (2003: 83) "the Marxists influence in *The Naked and the Dead*", distinctly palpable although not as boldly and explicitly vocalized in the text as in Mailer's second novel, "is translated in *Barbary Shore* into Marxist perspective".

However, although the major critical interest in regard to *Barbary shore* centralizes on the controversies of Mailer's "unclear, unstable and changing" (Leigh 2003: 84) attitude towards the ideology the writer deliberately filters through the text, the major aim of this section is to bring to the surface the story's background themes of war and combat by accentuating the aphonic existence of an obscure and inchoate trauma stemming from an unintelligible and half-forgotten wartime experience that materializes symbolically in the war wound. The themes related to body will be thus linked to the overarching issue of time perception and trauma-induced time de-construction.

4.2.2.1. Struggling to remember the forgotten: time and body memory

Seventeen years before Mailer publishes the book, Max Planck says in the interview with Sullivan (1931: 17): "I regard consciousness as fundamental. I regard matter as derivative from consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness." An inverted formula of the deeply metaphysical observation made by the quantum physicist can be used with reference to Miler's *Barbary shore*; perversely, Lovett's consciousness derivates from matter, as it is the protagonist's war-marked body with a scar behind the ear that induces the character's hunger for the recovery of a full consciousness of (the past) time. In the novel's opening lines, Lovett states:

> Probably I was in the war. There is the mark of a wound behind my ear, an oblong of unfertile flesh where no hair grows. It is covered over now, and may be disguised by even the clumsiest barber, but no barber can hide the scar on my back. For that a tailor is more in order. (Mailer 2013:3)

The character is clearly an amnesiac, a dislocated individual who struggles to find his own place not only in space but also, or primarily, in time. Having experienced a serious head injury, Mike is able to recall nothing but short, nonchronological shreds of memories, that dwell somewhere beyond time and cannot be assigned to any particular point in space. It is certainly not accidental that the novel is opened by the word "probably" followed by a simple statement in past tense. The first sentence, although consisting only of six clear, unambiguous words, carries the whole load of uncertainty about the protagonist's past and, in consequence, his identity. As a result the book's opening statement can be perceived as a forerunner of what Mike is yet to face, a condensed but unclear synopsis of the story behind the scenes, a diagnosis of Lovett's mental and emotional state.

Internally bewildered by the irreversibility of his state, Mike attempts to fill in the blank spaces in his life with imagined memories, striving to remember the forgotten. The information about the protagonist's former Self is nebulously brought to his consciousness by his body's long-term sensory memory. A crucial role in awaking the blurred remnants of Mike's past is played by two scars, both of which are located in those parts of the character's body which are out of his sight. However, the marks of war wounds behind Mike's ear and on his back can be easily noticed by others of which the character is fully aware, and thus resorts to some aesthetic solutions aiming at covering the war stigmas with a proper haircut or garments. The uncanny presence of the scar, visible for the others but not for its bearer seems to be a matter of the protagonist's suppressed anxiety.

The character's will to distance himself from the uncanny symbols of the past and the obliterated war trauma evinces itself in the descriptive representation of the scar referred to euphemistically as "the mark of a wound" and "an oblong of infertile flesh". Metaphorically conceptualized, the scar undergoes mythologization, becoming an alien part to the character's body. As a piece of "infertile flesh", which does not allow hair to grow, the scar becomes an uncanny, foreign, self-contained being parasitizing both on the character's mind and psyche. Out of its bearer's sight, it seems to lead its own life as a separate entity that guards its own secrets rooted in the unarticulated traumas. Para-

doxically, the permanent marks of once inflicted and now bygone head wounds, the main cause of the character's memory impairment, function as the upmost symbol of the inaccessibility of the past, while at the same time constituting the only means through which the past can be unlocked.

4.2.2.2.The "transient *now*s": Lovett's dislocation in (space-)time

Assuming that remembering is a continuum that stretches between experience and the experienced, it can be stated that in the case of Lovett, the linkage between these two phenomena has been irreversibly disturbed. The scar, visible, palpable, and with a fixed location on the character's body, is an indicator of a past traumatic event, obliterated and suppressed. In the novel's opening Lovett confides:

> Here and there, memories return. Only it is difficult to trust them (...) The deaf are supposed to hear a myriad of noises, and silence is filled with the most annoying rattle and tinkle and bell; the darkness of the blind is marred by erratic light; thus memory for me was never a wall but more a roulette of the most extraordinary events and the most insignificant, all laced into the same vessel until I could not discern the most casual fact from the most patent fancy, nor the past from the future; and the details of my own history were lost in the other, common to us all. (Mailer 2013: 4)

Contrasting the mechanisms of suppression and involuntary forgetting with the intrusive presence and palpability of the scars allows the conclusion that Lovett's wartime memories are to some extent aporetic. Similarly to the noises heard by the deaf and the light seen by the blind, the character's memories are tinged with an element of the surreal and the abstract. Their existence is unquestionable, the evidence of which are obviously the scars, and the signals that reach the protagonist's mind as a result of the body processing sensory stimuli, but they never materialize fully and unequivocally, neither in language nor in images. Memories, a dimension of time, similarly to the subjective impressions of light, space, and sound, are transitory and elusive. Escaping cognition, they finally blend with other sensations to form an atemporal, amorphous mass of experience from which they are never to be extracted again. Lovett's pondering upon his largely inaccessible and shrouded in mystery past which left him marked with scars evoking difficult to define emotions resembles, to a certain extent, watching far away galaxies through the telescope; although unavailable to the observer's eye, cosmic events viewed from the Earth are frequently only a projection of the phenomena that

had taken place dozens, hundreds, or millions light years away before they could be spotted via telescope lens. The way in which Lovett's memories, a series of vague, unorganized scraps of the past invade the present is largely analogous to the workings of the laws of physics governing the cosmic phenomena and their observability on Earth.

With the loss of memories comes the loss of identity, as the character cannot perceive his life in the categories of a linear continuum, chronologically ordered and constantly evolving towards the future. Instead, Lovett's life is entirely founded on dislocation in the never-ceasing present. The perpetual now the main character of Mailer's *Barbary shore* is paradoxically both immersed in and excluded from can be perhaps read as a literary equivalent of Alexandroff's vision of the present, which was defined by Savitt (2009: 358) as "the special relativistic successor of the classical world-at-a-time". Although Alexandroff's topology does not directly stem from Relativity Theory, the physicist explored Einstein's ideas in detail. His own scientific understanding of time is based on a presumption that "a (local, specious) present is construed as an open set" and that "the passage of time is a succession of presents along a timelike curve" (Savitt 2009: 349).

Alexandroff's concept of present, called by Savitt (2009) "the transient *nows*" offers a perspective on time suspended between the foundations Einstein's Theory of Relativity and psychological time. Its focus on locality, which does not exclude a broader view on the phenomena in focus, offers a breeding ground for the combination of the scientific and the objective on the one hand with the psychological and the subjective o the other. As such, the perspective on time offered by Alexandroff's topology, a theory that enters into a dialogue with Minkowski's concept of space-time, can be viewed as a special instance of Relativity Theory discourse takeover assuming very flexible approach towards its premises. Of course, the similarity of the perspective on time offered by Alexandroff and the way time is structured and narrated in Mailer's novel is not a direct result of the influence of the physicist's findings on the writer's literary vision of reality. The analogy should rather be seen as the resultant of the overarching scientific and cultural climate of the time, shaped by various discursive events in the field of science, many of which oscillate around the common axis of space and time analyzed in (an almost) complete isolation from Newtonian mechanics since Einstein's unprecedented discovery.

Spinning in circles, teetering on the border between the real and the imaginary, Mike is unable to differentiate between the external stimuli coming from the objectively existing, physically tangible, and cognitively verifiable reality, and the subjective products of his imagination incited by various states of psyche that seek outward expression:

> I could never judge whether something had happened to me or I imagined it so. It made little difference whether I had met a man or he existed only in a book; there was never a way to determine if I knew a country or merely remembered another's description. The legends from a decade of newsprint were as intimate and distant as the places in which I must have lived. No history belonged to me and so all history was mine. Yet in what a state. Each time my mind furnished a memory long suppressed it was only another piece, and there were so few pieces and so much puzzle. (Mailer 2013: 4)

Lovett quickly notices that if no memory belonged to him then he can appropriate all the history that ever belonged to humanity for himself. This does not mean that Mike reconciles with his memory impairment, yields to chaos, accepts the irreversibility of his troublesome condition, assuming a passive attitude towards the past, present, and future. "During one period I made prodigious efforts to recover the past" – Lovett admits "(...) but I recovered nothing except to learn that I had no past and was therefore without a future", the protagonist concludes (Mailer 2013: 4). As his attempts to source it from the outside by asking questions, browsing documents or writing letters to those, who might have known him before the war appeared to be ineffective, Mike realizes that the only way to regain at least a part of his lost identity is to create it anew, using the materials at hand. Consequently, Lovett weaves his past the very recent experience allowing it to accumulate in the *now*, or to use the term proposed by Savitt, multiplying "transient *nows*":

> And as time possessed the present I began to retain what had happened to me in the previous week, the previous month, and that became my experience, became all my experience. If it were circumscribed it was nonetheless a world (...) I doubt if I shall find my childhood and my youth—but I have come to understand the skeleton perhaps of that larger history, and not everything is without its purpose. I have even achieved a balance, if that is what it may be called. (Mailer 2013: 5)

In the light of the above quoted the whole narration in the novel can be perhaps read as the protagonist's deliberate, fully conscious effort not to re-construct his uncertain past from dispersed scraps of memories, but rather to built is anew as an alternative dimension of time, all in response to the irredeemable loss. Time becomes a highly malleable substance susceptible to various forms distortion and subjective shaping. This is perhaps

most visible in chapter ten, where Lovett daringly weaves a bold narrative by means of which he manufactures his fictitious past image by image:

> Could it not be possible that I was born in an old house in the center of a Midwestern city, (…) This would be a city whose suburbs were constantly expanding (...) Institutions altered, and with them, men, and there would be a new country club and insurance brokers who peopled it. My parents would talk about such things with distaste for they lived in the memory of an earlier world (…) Spring mornings the men would walk to work, and on Sundays the entire family was in black, the quiet afternoons in the back yard annotated only by church bells. (Mailer 2013: 84).

The whole picture, drawn meticulously with respect to the principle of verisimilitude, is unexpectedly destroyed with one sentence: "it is a sweet picture, but it is a false shore". Mike acts as a fully conscious creator, aware not only of the possibilities but also of the limitations of imagining the forgotten. Similarly as in relativistic physics, time in *Barbary shore* becomes a plastic material as the main character's imagined past undergoes numerous transfigurations and changes. The ability to manipulate the alternative dimension of reality is perhaps a defense mechanism, which gives the protagonist a competitive advantage in his struggle with time and his impaired memory. Yet, the narrative strategy towards time and the protagonist's past, present, and future in Mailer's novel can be seen as something more than just a literary reflection on an individual's struggle to regain their lost identity and misplaced past, which in the face of a complete confusion resulting from the distortion of the temporal continuity of experience prove to be inextricably interconnected. The narrative approach adopted by Mailer in *Barbary shore* aimed at restructuring the image of time becomes a meta-commentary on the new outlook on the temporal aspect of reality, a change in the perception of the world induced by the proliferation or discourse (series) on Einstein's Relativity Theory and other related scientific findings.

As it was already discussed, Lovett's perception of time is largely shaped by his body memory, as it is the body that acts as a primal receptor and filter of his traumatic experience, nudging Mike to seek for an alternative vision of his past. Its role in stimulating the protagonist to create an imagined past can analyzed by the use of Marleau-Ponty's *Phenomenology of Perception.* The scar, "an oblong of unfertile flesh", paradoxically appears as a startlingly fertile source of information about Mike's uncertain past as well as identity, becoming an anchorage point from which narration develops, even before it starts to materialize in words in the character's mind. The body urges

Mike to dive deeper into what memory cannot remember or mind vocalize, becoming a setting point in the character's quest for reassembling his disarticulated Self.

Discussing the nature of language and its use by a speaking subject, Marleau-Ponty (1962:180) refers to Bergsonian notion of habit and memory. In the second chapter of *Matter and memory* Bergson (1912: 86-169) puts forward an idea that memory should not be treated as an internally coherent entity, but rather as a dualistic phenomenon which consists of independent recollections (the intellectual dimension of memory) and habits understood as motor mechanisms of the body (the physical dimension of a given experience). However, as Marleau-Ponty (1962: 180) notices, Bergsonian perspective on the process of remembering fails to take cognisance of the presence of the concepts that "are behind me, like things behind my back, or like the city's horizon round my house, I reckon with them or rely on them, but without having any 'verbal image'". Although Marleau-Ponty criticizes Bergson's idea, it is the blend of Bergsonian approach towards memory with Marleau-Ponty's vision of the body as the first and main receptor and filter of stimuli that becomes a useful methodological tool, allowing to capture the genuine nature of Lovett's uneasy experience. The protagonist's past, brought to consciousness through the presence of scars is like the space(-time) behind Mike's back; although Lovett's body provides him with clear indicators of its existence, the character's perceptual system has no access to it apart from the scars, as its nearly total detachment from the foregone forces a complete, one directional orientation of Mike's cognition towards the present – the space in front of him and within the reach of his sensory and mental perception.

The "transient *now*s" are however not fully cognizable and do not lend themselves to any form of internal or external structuring. Rather, the internally diversified present which in the course of narration absorbs the elements of the past and sometimes takes abrupt, improvised steps ahead into the future annexing its small portions as its own, carries the characters into its constantly new, perpetually evolving, unstable forms. Due to Mike's blurred past, largely inaccessible to the character, all of the new instances of the present are free from the anchorage in the foregone and, therefore, to a considerable extent autonomous. To contextualize Mailer's narrative perspective on time, it is perhaps worth to refer to Carnap's (1963: 37) recollections on Einstein's vision of the present:

> Once Einstein said that the problem of the Now worried him seriously. He explained that the experience of the Now means something special for man, something essentially different from the past and the future, but that this important difference does not and cannot occur within physics. That this experience cannot be grasped by science seemed to him a matter of painful but inevitable resignation.

The fact that Lovett's perspective on time is largely confined to the sequence of "transient *now*s" that cannot be defined neither in relation nor by contrast to the past and the future, adds complexity to the character's spatio-temporal situation making it even more confusing. As Mike's *now* cannot take on any deeply personal significance, the perspective on time the character is trying to deconstruct resembles the cold, hermetically scientific approach towards the temporal aspects of physical phenomena.

The character's efforts to call into existence an alternative dimension of time – imagined past, can be perceived as a pursuit to restore the broken connection with the bygone and with his former Self, but also as the character's discovery of time relativity and malleability. Mike's narration, an attempt to complete the missing part of his own story that culminated with the character receiving war wounds, opens a never-ending quest for satisfying the body's intrusive demands to vocalize the existent, but unspoken. The internal temporality of Barbary shore, suspended between the body's memory and the mind's disremembering, will never be complete, will always be evolving in unexpected directions in order to finally dissolve in the sea of chaos: "So the blind will led the blind, and the deaf shout warnings to one another until their voices are lost" (Mailer 2013: 312) concludes Mike in the final lines of the story. But for the time being, the voices are not lost, they are still reverberating with the uncanny, obscure echo of the past, forcing the character to make one more attempt to regain his past. The struggle to either remember or imagine the forgotten is in fact a deep dive in time, a thorough exploration of its internal dimension, a covetous use of the opportunities it provides and a determined attempt to neutralize the threats stemming from its formerly unexpected plasticity. In the light of the above discussed, Mailer's peculiar form of experimentation with time can be viewed as an element of a larger perceptual scheme that arose from relativistic physics; the past invading the present, along with the malleability of time, inscribe in the broadly understood concept of time relativity which, carried by the current of relativity Theory discourse series reaches literature to change the structure of the represented world at the very atomic level, making it more amorphous, more flexible, and more unpredictable.

Chapter 5: Images of physical reality: the material dimension of space-time continuum

5.1. "The subtlety of the concept of space"[17]:Einstein and the (literary) imagery of objects in four-dimensional manifold

A superficial analysis of Einstein's Special and General Theory of Relativity can lead to a conclusion that both the theory and the discourse series which originate from it are largely subordinated to the dominant notion of space-time viewed as a four-dimensional continuum. Correspondingly, the Theory of Relativity appears mostly as a theory of space and its four inalienable and inseparable dimensions.

Nevertheless, confining the notion of space-time to a multidimensional scene of events which resembles an empty box of an easily identifiable capacity, able to contain a specified quantity of objects, constitutes a highly reductionist perspective. Discussing the problems of space in the light of both Relativity Theory and philosophy, Einstein (1961: 136) invokes Cartesian reasoning, according to which "space is identical with extension, but extension is connected with bodies". Such correlation does not only imp-

[17]In " Relativity and the problem of space", an appendix to Einstein's *Relativity: the special and the general theory. A popular exposition* (1961), the physicist discusses the problem of space-time with reference to Newtonian mechanics. The text, thought as an accessible recapitulation of the main points covered across the book's three parts, combines scientific considerations with an abbreviated history of the space-time notion viewed as a scientific idea. "The subtlety of the concept of space" writes Einstein (142-143) "was enhanced by the discovery that there exist no completely rigid bodies". Another difficulty inhibiting unequivocal identification of the relation between space-time and matter stems from the rules of atomistics and finite divisibility. The problem, partially solved by the use of the theoretical and methodological tools provided by the Theory of Relativity, brings into focus the material dimension of space, that should be perceived primarily as a *physical* four-dimensional continuum, and is recognized as such even in the case of the hypothetical considerations on the possible (non) existence of the "empty" space.

ly “that there is no space without bodies” (1961: 136), but also excludes the possibility of the existence of empty space.

Despite describing Descartes’ outlook on space as “remarkably attractive”, Einstein (1961: 136) retains a considerable distance towards the philosopher’s argumentation. According to the scientist, the major weaknesses of Descartes’ reasoning stems from ascribing the feature of extension solely to material objects, that is to empirically experienced physical phenomena. “It is indeed an exacting requirement to have to ascribe physical reality to space in general, and especially to empty space” – states Einstein (1961: 136) in the same text. Interestingly enough, the scientist’s skepticism regarding Cartesian argumentation for the non-negotiable dependency of space on the existence of material objects characterized by physically observable qualities that could be proven by direct empirical experience does not entail Einstein’s complete rejection of Descartes’ inexorable logic. In fact, the rationale behind the general Theory of Relativity is partially concurrent with the one constituting the foundations of Cartesian philosophical outlook on space.

While Descartes’ considerations on the nature of space are largely based on the psychological dimension of human experience, Einstein’s Theory of Relativity broadens, in an obvious way, the perspective on the spatio-material aspects of reality by resorting to the achievements of science that go beyond the line of reasoning developed by the philosopher. What allows for filling the gaps in Cartesian polemic on the reliance of space on the physical extension of objects with more compelling argumentation, are the scientific theories revolving around the phenomenon of the field. From the standpoint of Newtonian mechanics

> “physical reality”, thought of as being independent of the subjects experiencing it, was conceived as consisting, at least in principle, of space and time on one hand, and of permanently existing material points, moving with respect to space and time, on the other. The idea of the independent existence of space and time can be expressed drastically in this way: If matter were to disappear, space and time alone would remain behind (as a kind of stage for physical happening). (Einstein 1961: 144)

As Einstein (1961:144) further notices, the above-quoted outlook on the observable world and its spatial, temporal, and, finally, material qualities, undergoes further transfiguration along with the development of scientific thought. A breakthrough in the physicists’ endeavors to grasp the true nature of reality comes with the introduction of the

aforementioned concept of the field. Penetrating scientific discourse in the first three decades of the 19th century, the notion of the field gradually evolves to reach beyond its original semantic boundaries and embraces the physical occurrences initially considered as unrelated to it. These include optical phenomena such as light diffraction and light interference, provided they are analyzed within the framework of methodology conventionally applied to the research on wave-field (Einstein 1961: 145). This new perspective on light allows for exposing the formerly unrecognized correlation between the internal "structure" of a light beam and an elastic solid body, which share the same physical quality: mechanical vibration field (Einstein 1961: 145).

According to Einstein (1961: 145), the discovery of the nature of light simultaneously behaving as a wave and a stream of particles, makes evident the need for the introduction of "a field, that could also exist in "empty space" in the absence of ponderable matter". In light of the new findings, it was necessary to concern the assumption of the existence of a peculiar form of matter different from the one constituting rigid bodies, and occupying the whole of space regardless of the physical circumstances. Hence the unavoidable reassessment of the notion of aether which, starting to function as an unequivocal scientific concept closely related to the notion of the field, finally affirms its position in the physical discourse on space:

> Physical knowledge has advanced very much since 1905, notably by the arrival of quantum mechanics, and the situation has again changed. If one re-examines the question in the light of present-day knowledge, one finds that the aether is no longer ruled out by relativity, and good reasons can now be advanced for postulating an aether. (Dirac 1951: 906)

Dirac's observations on the unstable position of the concept of aether in the post-relativistic scientific discourse exposes the processual character of pushing the conceptual, semantic, and perceptual boundaries of the newly formed narration on space. The control of Relativity Theory discourse series should not be associated exclusively with the power of constraint. As a centrifugal or external force acting on discourse, the mechanisms regulating discourse series dissemination either force the semantic narrowing of Relativity Theory discourse or allow its more or less spontaneous spread beyond its boundaries.

The integration of the ideas of field and aether in the scientific considerations on space results in obtaining a broader perspective on both the material reality and space-

time in general. To use the metaphor skillfully interwoven by Grygiel (2021) in his philosophical discussion on Einstein's Theory of Relativity, space, formerly considered as nothing more but a stage for physical occurrences, becomes the drama itself. As such, it can no longer be perceived in the categories of a mere "container", a three or four dimensional zone embracing physical reality and its transformations understood as physical phenomena. Essentially overlapping with the field, space, or in a broader perspective space-time, acquires the status of a full-fledged actor actively creating the reality of physical events. With the field, formerly ascribed to ponderable mass only, space-time exhibits the agency unthought-of in classical physics.

The radical change of a relatively stable perspective on reality offered by Newtonian physics involves a thorough reconsideration of the scientific as well as the empirical perception of the material dimension of reality. This, in turn, finds its reflection in the analogical remodeling of the linguistic picture of the world. Both the mental concept of a material object, and the scientific definition of matter are subject to at least partial deconstruction that brings into light their previous limitations manifested mainly as conceptual and semantic inefficiencies. Revised and broadened, the notions of aether and field bridge the previously unidentified gaps in the scientific definition of space, at the same time reshaping its colloquial understanding.

In the light of the scientific reconsideration of the concepts of field and aether, Descartes' observations on the ontological dependence of space on matter are, to a considerable degree legitimate, and should be considered as such both in the context of philosophy and physics. The theory of wave-particle nature of light results in a revolutionary "emancipation of the field concept from the assumption of its association with a mechanical carrier" (Einstein 1961: 146). This pronounced shift in the scientific outlook on space has its wide-ranging ramifications in the general perception of space-time: the material aspect of reality, similarly to its temporal dimension, unveils its formerly unknown qualities, inspiring a profound mistrust towards the knowledge rooted in empirical experience. Correspondingly, human sensory perception can be viewed as neither a reliable tool in the in the process of apprehending reality nor a dependable source of insight lying at the heart of genuine cognition.

"There is no such thing as empty space, *i.e.* a space without field. Space-time does not claim existence on its own, but only as a structural quality of the field" – states Einstein (1961: 155). And although the notion of space and the accompanying mental

images of the state of space fulfillment and/or emptiness are understood differently in the scientific and non-academic contexts, the new approach towards space and matter offered by Einsteinian physics is radical enough to start the ongoing process of the re-construction of percepts connected with space. Nevertheless, prior to reaching the level of mental imagery construction, the aforementioned trans-formation leads to a profound disturbance in the already established discourse on space-related phenomena. In consequence, the narration on space changes, resulting not only in a semantic deformation of the most fundamental concepts underlying universal descriptions of space, but also in the general plasticization of the process of space (re-)defining.

In view of Einstein's quantum revolution, the essence of which lies in the theory of wave-particle duality of photons, both the scientific discourse on space and matter and its colloquial counterpart acquire formerly unexpected malleability. The emancipation of thinking about space from a rigid Renaissance perspective allows the discourse-on-space and matter to spill beyond its framework, split into internally diversified discourse series, and penetrate the fields either previously uninvolved or not even vaguely engaged in the discussion on the spatio-temporal or material dimension of reality.

An example of an early Relativity Theory discourse takeover associated with its simultaneous introduction into a context other than its field of origin is Minkowski spacetime. Incorporating Relativity Theory discourse into his own research, and complementing Einstein's achievements with a geometrical model of a four-dimensional space-time continuum, which in the simplest terms can be viewed as a combination of a three-dimensional Euclidean space with the additional dimension of time, Minkowski makes a substantial contribution to Einstein's scientific thought (Hazewinkel 1995, 3:905). His famous observation that "space by itself, and time by itself, are doomed to fade away into mere shadows", immediately followed by and strengthened with a bold statement that "only a kind of union of the two will preserve an independent reality" (Minkowski 1923: 75) can be viewed as a peculiar form of a relativistic manifesto within the field of mathematical physics.

Assuming that the above-quoted fragment of Minkowski's considerations of the freshly adopted perspective on the physical reality can be analyzed in the categories of a proclamation of the death of space and time recognized as separate, autonomous phenomena, then Einstein's (1961 [1952]) note to the fifteenth edition of *Relativity: The special and the general theory. A popular exposition* may be considered as an even

more radical move in the process of the deconstruction of conventional space-time perception:

> (…) space-time is not necessarily something to which one can ascribe a separate existence, independently of the actual objects of physical reality. Physical objects are not *in space*, but these objects are *spatially extended*. In this way the concept of "empty space" loses its meaning.

Minkowski's non- or pseudo-Euclidean model of a four dimensional manifold constitutes a meaningful gesture of a decisive break with the pre-relativistic outlook on space performed within the safe environment of Einsteinian physics. Although initially highly skeptical about his former teacher's idea regarding the geometrical visualization of the spatio-temporal continuum, Einstein finally recognizes the importance of Minkowski's contribution to the development of Relativity Theory.[18] His indisputable argumentation on the inalienable spatiality of objects and an almost persistent materiality of space-time constitutes a part of the same narration on space as the one presented by Minkowski – the narration of annulment, invalidation, and withdrawal aimed against the simplistic classical perspective on the world. As a result, Relativity Theory discourse series becomes a series of breaches, a sequence of definite departures or radical breaks with the long-standing status quo in both the scientific and casual perception of reality. The first,

[18]Minkowski's geometrical interpretation of Einstein's four-dimensional manifold entailed the transposition of Relativity Theory onto the field of mathematical physics. "Minkowski may be creating a mathematically elegant version of the theory, but he was not disclosing the underlying reality; to the contrary, he was obscuring it" – comments Gimbel (2015: 65) trying to illustrate Einstein's viewpoint on one of the most vivid Relativity Theory discourse takeovers. Einstein's opinion on Minkowski's achievement however was far more critical; the tensor model of his theory developed by Minkowski was referred to by the physicist as "überflüssige Gelehrsamkeit" translated by Pais (1982: 152) as "superfluous learnedness", or understood after Bodanis (2015: 242) in the categories of "superfluous erudition". In fact, Einstein acknowledges Minkowski's contribution to solving some of the most puzzling problems regarding the still incomplete Theory of Relativity only in 1916 (Pais 1982: 152). In his "Autobiographical notes" written down in 1946, Einstein (1970a: 59) explicitly recognizes Minkowski's input into the development of Relativity: "Minkowski's important contribution to the theory lies in the following: Before Minkowski's investigation it was necessary to carry out a Lorentz-transformation on a law in order to test its invariance under such transformations; he, on the other hand, succeeded in introducing a formalism such that the mathematical form of the law itself guarantees its invariance under Lorentz-transformations. By creating a four-dimensional tensor-calculus he achieved the same thing for the four-dimensional space which the ordinary vector-calculus achieves for the three spatial dimensions. He also showed that the Lorentz-transformation (apart from a different algebraic sign due to the special character of time) is nothing but a rotation of the coordinate system in the four-dimensional space". If analyzed through the prism of the mechanisms governing discourse series dissemination (Foucault 1981), Einstein's initial objection against Minkowski's space-time model can be viewed as a vivid gesture of discourse dissemination control. Within the same framework, the acknowledgment of Minkowski's scientific accomplishment exemplifies the scientist's acceptance of Relativity Theory discourse takeover, which inscribes into the 'will to truth' at the expense of the suppression of 'the power of constraint'.

and most remarkable breach is the one with absolute time. The second concerns the rejection of the three dimensional space in favor of adopting the model of a four dimensional manifold, where the three classical dimensions of space are inseparably combined with the fourth dimension of time. The last break, which disputes the existence of empty space, takes place at the level of space(-time) perception, and results in the final deconstruction of the Newtonian model of physical reality.

In the above quoted fragment of the note to the collected papers on Relativity Theory, Einstein emphasizes the inherent interconnection between space and matter expressly rejecting the notion of empty space by the exposition of the "spatial extension" of objects. Relativistic continuum is thus a continuum in the purest sense and, apart from embracing the spatio-temporal dimensions of the physical world, it extends on the material aspect of reality as well. Descartes, with his peculiar view on spatiality as entangled in a direct relationship with material objects, was essentially right: absolute empty space does not exist. Nearly three centuries later, Einstein's (1961: 136) Theory of Relativity "confirms Descartes' conception in a roundabout way", proving by means of the unassailable logic of scientific reasoning that empty space is, in fact, not empty.

The paradox, elevated to the rank of (an almost indisputable) scientific fact, becomes now one of the most important reference points for the development of a new perceptual approach towards the "re-discovered" space. It is within the fresh conceptual framework stretching between the notions of space-time, aether, field, and quanta, where the long accepted cognitive patterns are critically revised, and the classical mental imagery of space and the related phenomena are subjected to a profound deconstruction gradually losing ground to the new, unobvious space-time models.

It is beyond the scope of this dissertation to examine Einstein's field equations within the context of General Relativity in great detail to comprehensively address their importance for both the development of physics and the changing perception of space. The above-discussed thus constitutes only an abbreviated analysis of the phenomena in focus and is aimed at exposing the general mechanisms behind the profound shift in thinking about space-time and matter. As such, the concise study conducted in this introductory subchapter serves both as a starting and a reference point for the discussion on the influence of post relativistic physics and the general technicization of life on literary space-time creations. Special research attention will be given to the material dimension of reality, of which the most obvious realization are rigid objects. The discus-

sion however will not be limited exclusively to the considerations on the narrative treatment of material objects and their complex dynamism in space, but will also embrace the images of human body and its transformations under the pressure of moment-specific spatio-temporal relations.

Einstein's Theory of Relativity and associated scientific findings regarding, inter alia, gravitation, field, and matter, will be regarded as a certain optics through which to view literary constructions of physical objects and human body. Nevertheless, it should be noted that the analysis of the material dimension of literary space-time imagery conducted through the prism of Einsteinian physics will be primarily subjected to the principle of intersubjectivity; Einstein's theory and the laws of relativistic mechanics will not be referred to with unequivocal scientific accuracy. Such approach would not only subordinate the otherwise multidimensional and, to a considerable extent, abstract research on literature to hermetic scientific formalism but it would also limit the research perspective on the topic in focus solely to those aspects of literary space-time constructions which are in full compliance with the principles of Einsteinian physics.

In the context of the study in focus the Theory of Relativity will be treated as a diverging rather than converging lens. This perspective opens a broader interpretative framework for text analysis and allows for a more comprehensive application of the model of discourse series that, by their very nature, function as highly diffused, internally fractioned, and frequently incoherent strings of text. "Discourses must be treated as discontinuous practices, which cross each other, are sometimes juxtaposed with one another, but can as well exclude or be unaware of each other" argues (1981: 67) Foucault emphasizing the somewhat amorphous physiology of the series. As such, the malleable, perpetually transforming structure of discourse series precludes the crystallization of any stable and reliable centre organizing discursive practices. Instead, discourse series focalize around multiple temporary points of reference and lend themselves to numerous takeovers by various speaking subject to undergo further dissemination and spread.

A phased transition from Special to General Theory of Relativity entails a profound shift, if not a cognitive confusion, in the perception and the representation of space:

> In accordance with classical mechanics and according to the special theory of relativity, space (space-time) has an existence independent of matter or field. In order to be able to

> describe at all that which fills up space and is dependent on the co-ordinates, space-time or the inertial system with its metrical properties must be thought of at once as existing, for otherwise the description of "that which fills up space" would have no meaning. On the basis of the general theory of relativity, on the other hand, space as opposed to "what fills space", which is dependent on the co-ordinates, has no separate existence. (Einstein 1961: 155)

By bringing into focus the inherent correlation between space and matter, the General theory of Relativity ultimately revolutionizes the outlook on space. The radical deconstruction of the formerly accepted perspective on space(-time) and matter, long considered as two separate and, therefore, largely autonomous phenomena, rises an urgent need to address the concerns about limited, or even illusory, nature of human cognition. Apart from distorting the concept of absolute time, Relativity Theory also contests the existing perspective on the material dimension of space, as a result forcing a new way of thinking about physical objects and matter. The scientific debate on field, waves, and quanta provokes a visceral mistrust towards classical geometry and standard measurements becoming thus a prolific source of a new discourse on broadly understood materiality.

The study on the influence of Einstein's Theory of Relativity on literary space-time imagery in American late modernist prose would therefore be incomplete without a discussion on the narrative construction of the material dimension of reality. Under the influence of relativistic physics, literature, either penetrated by or absorbing discourse series from the external context, starts to reveal similar skepticism towards the well ordered, predictable and seemingly transparent reality of material objects, leaning towards distorted cognitive perspective, the curvature of space-time, and the microcosmic character of matter. Relativity Theory discourse series, apart from offering a new repository of language tools for the description or, to be more precise, for a linguistic reconstruction of the mental representation of reality, contribute to the proliferation of images related to mechanical objects. Quoting the example of Wilson and Glass' 1976 opera entitled *Einstein on the beach*, Holton (1996: 90) notices that "Einstein's imagery has found its way even onto the theater stage" with "a prominent depiction of that train". *That* train is a symbolic train appearing in many of Einstein's thought experiments, a universal mechanical formula visualizing the principles of the newly discovered cross-dependencies between movement, time, and space reduced to a transparent,

easily accessible to non-academic subjects illustration of relativistic physical phenomena.

The train, an almost iconic mechanical design for the exposition of Einstein's most revolutionary scientific ideas, a vehicle in the strict sense of the word, and a vehicle of scientific meanings, enters the scene significantly earlier than Wilson and Glass' opera has its premiere. Along with the outburst of the two waves of popular science craze in America of the 1920s and 1950s the imagery of mechanical objects in motion forces its way into popular culture, becoming one of the most vivid signs of Einstein's pronounced discursive presence beyond the context of academia. Such permanent embedding of mechanical objects and their dynamism in (popular-)scientific discussion on the physical properties of space-time continuum attracts attention of both the academic and the general audience to the palpable, the material, and the technical. Machines, in all their variety, become a point of convergence of popular science and highly specialized knowledge, academic society and general audience in their will to truth, of academically controlled formalistic discourse on Relativity Theory, and an almost unrestrained, quickly spreading Relativity Theory discourse series.

That the driving force of the core period of American modernism lies largely in the frantic fascination with science, technology, and broadly understood progress is rather apparent. Various aspects of the tangle between American literary modernism and the technicization of life and/or the development of science have already been discussed by Steinman (1987), Albright (1997), Berman (2005), or Biers (2013). Comprehensive studies conducted by the aforementioned authors offer a penetrating insight into how American modernist poetry and prose utilize new technological developments and scientific advancement consciously allowing machine- or science-related imagery become a part of its aesthetics at all the possible levels of literary creation.

The saturation of American late modernist literature with the elements of science and technology is perhaps less vivid when compared to high-modernist literature of the post World War I period. The presence of the mechanistic and the scientific however, is still palpable in American prose of the 1940s and 1950s. The development of science and technology in the first decades of the twentieth century results in an unprecedented mechanization of everyday life but, simultaneously, gradually blurs the machine's status of a novelty.

The ubiquity of cutting-edge technological solutions along with the popularization of science, make mechanical objects undergo the process of naturalization (but not neutralization) both in the cultural and the discursive landscape of the era. This of course does not mean a complete eradication of the machine's ontological boundaries within the semantic and aesthetic structure of a literary work. It is rather a certain discursive and, thus, narrative refinement of mechanistic imagery that, due to its firm ingrowth in the text's tissue, acquires a more organic shape. As a result, the flamboyant representation of the machine from the 1920s gives place to its more subtilized, but still expressive sketch. Einstein's train that stops at Hemingway's station[19] in 1933 in "Homage to Switzerland" might be considered an example of this change; the narrative centre of the gravity in the short story is shifted from the machine itself to its complex dynamism in time.

A forecast of the narrative lens shift can be observed in "A train trip". Alongside "A porter", the story constitutes one of the two scenes of a novel Hemingway started writing in 1927 (Sanderson et al. 2015: 287). Having completed the first four chapters of the book provisionally entitled *A new slain knight*, the writer abandons working on the "Lardneresque" composition to re-direct his creative attention to *A farewell to arms*, which absorbs him for the next fifteen months to be successfully finished and published before the end of the decade (Hemingway 1998: 557; Sanderson et al. 2015: 287). Despite its relative shortness, "A train trip" provides enough narrative space for a number of detailed images of the titular train in motion. The essence of Hemingway's reconstruction of the train in motion is to be found in the below-quoted excerpts:

> I heard the train and then saw it coming, first in a long curve looking very small and hurried and cut into little connected sections; moving with the hills and the hills moving with the trees behind it. I saw a puff of white from the engine and heard the whistle then another puff and heard the whistle again. It was still early in the morning and the train was on the other side of a tamarack swamp. There was running water on each side of the tracks, clear spring water with a brown swamp bottom and there was a mist but the mist was not foggy. It was cold and white and early morning. The train was coming straight down the tracks now getting closer and closer and bigger and bigger. (Hemingway 1998: 560)

[19] Michael S. Reynolds explores the temporal construction of Hemingway's "Homage to Switzerland" in "'Homage to Switzerland': Einstein's train stops at Hemingway's station". The paper, published in *Hemingway's Neglected Short Fiction: New Perspectives* (Beegel 1992, 255-262) next to Nakjavani's "Repetition as design and intention: Hemingway's 'Homage to Switzerland' analyzes …

and:

> We shook hands with Fred and got on the train. The conductor got on in the car ahead and the brakeman picked up the little box we had stepped up on and swung aboard the train as it started. Fred stood there on the station platform and I watched the station, Fred standing there, then walking away, the water splashing up out of the pipe in the sun and then ties and the swamp and the station very small and the lake looking different and from a new angle and then we were out of sight and crossed the Bear River and went through a cut and there were only the ties and the rails running back and fireweed growing beside the track and nothing more to look at to remember. (Hemingway 1998: 561).

The train, a long line of wagons, enters the scene in the rhythmical order of puffs and whistles. With the sound appearing prior to image, the dynamism of its motion disciplined by the geometrical layout of the rail track, and its size optically changing in direct proportion to the distance covered, the machine and its workings are restrained by the laws of physics and technology. By subjecting the train to a set of transparent rules Hemingway excludes the possibility of the vehicle's self-induced liberation from the external control mechanisms. The train, although still visibly foreign to the landscape it invades, appears as a tamed machine operating under a complex system of technical constraints and physical laws.

As such, the machine can no longer be viewed as a sinister intruder jeopardizing the pastoral ideal. Hemingway's literary representation of the machine in "A train trip" is closer to Coxe's perception of the mechanical, which, according to Marx (1972: 162) "rests on the assumption that celestial mechanics, the orrery, the new engines of production, even the factory system – all embody the same ultimate laws of nature". Of course the way in which these interrelations are translated into the construction of the represented world in Hemingway's text are somewhat different, but the essence of the general underlying rule governing both the mechanical and the natural world remains the same.

The motion of Hemingway's train is not the motion *against* space, it is the motion *within* space-time, a movement that entangles the machine into a complex network of cross-dependencies between time, space, and physical reality. This interrelationship is particularly apparent in the second of the two images cited above; the characters' involvement in the train's dynamics results in their direct engagement in a brisk dialogue with space-time. The train's movement sets in motion the whole landscape, activating the cascade of changes in the protagonist's perception of reality. Of course it would be

pointless to argue that Hemingway's literary depiction of the train's departure from the station does not exhibit the features characteristic of the experimental aesthetics of high modernism. These manifest themselves mostly in the long breathless line graphically and stylistically expressing the impression of the train's elongation due to its acceleration. Nevertheless, despite observing the modernist criteria for the new way of writing, Hemingway deconstructs the modernist image of the *machine-against-pastoralism* to create a broader, more encompassing scheme that provides a breeding ground for the involvement of the machine into multiple complex interrelationships with its environment, that starts to exhibit its formerly hidden machinist qualities.

The pronounced shift in the representation of the machine mentioned before is mostly to be found at the level of the construction of the represented world; since the relation between the machine and its surroundings is not fueled by the sense of endangerment stemming from the machine's latent destructive potential, but is rather based on a skillfully extracted common denominator, the machine and the outside natural world are unified into one, mechanistic system. In such a manifold structure of interconnections the laws and rules governing both the machine and its environment partially overlap. Therefore, the object's movement across space-time induces a series of dialogic physical phenomena, a redundant strain of inter-actions.

The effect Hemingway's train and its movement exert on the represented world in "A train trip" resemble concentric circles that spread from the centre (the vehicle) through the adjacent area (fireweed and the two streams on both sides of the track) onto the neighboring space (tamarack swamp, lake) to finally reach the peripheral sphere, of which the boundaries are marked by the hills. Re- and de-constructing the reality, accelerating the passage of narrative time, influencing the shape and size of the physical objects inscribed in the landscape of the represented world, and, finally, modifying the observer's perception of reality, the train's motion fuels the whole series of changes. Neither of them however threatens the subjectivity of the world around the machine; the running train involves the outside reality in an impact cycle, but does not destroy it, invades the landscape, but by no means subdues the natural world.

Hemingway's image of the train thus seems to be based on a partial deconstruction of the high modernist image of the machine, of which a symbolic, representative

example can be found in Nevinson's "The Soul of the Soulless City"[20]. Nevinson's vision of the new reality is a total vision. Modernity, as viewed by the painter, concentrated around the axis determined by the machine – a focal point of the modern world, a nucleus around which the technical structure of the urban space crystallizes to form a rough, "soulless" sphere, is based on hermetic self-referentiality. As such, it excludes the possibility of a dialogue with the pastoral, or to use a broader, more inclusive term, with anything representing other-than-modern reality. The uncompromising character of what Anderson (1914: 23) calls "the new world" construed in the fresh, resolute discourse, "the voice of the new man", disturbs the balance of power between the natural and the technicized. Since the machine and the pastoral are mutually exclusive, the only scenario is that of seizure and suppression. As a result, the image offered in the place of the subdued and/ or eliminated is usually the one of the one of Fitzgerald's (1995: 27) valley of ashes – "a fantastic farm where ashes grow like wheat into ridges and hills and grotesque gardens".

Of course, the above-quoted is also likely to be read within a broader context of Hemingway's fiction which, to a greater or lesser degree, resonates with the author's childhood experience related to various outdoor activities. Dictated by the natural conditions of Michigan, these oscillated mostly around fishing and hunting, in an obvious way making Hemingway if not more sensitive, then definitely more responsive to what nature can offer to a writer. Therefore, it remains uncertain whether Hemingway consciously breaks with the imagery of total modernity predominant in American literature of the post World War I decade in favor of adopting a more imaginative scheme allowing for the expression and representation of the technical in a complex net of interconnections with a non-homogeneous outer environment, or just perceives resigning from the elements of the pastoral, firmly inscribed into his personal experience, as rather disadvantageous from the point of view of his writing strategy[21]. Nevertheless, if analyzed within the context of high modernism of the 1920s, the train scenes from Hemingway's

[20] The original title of Nevinson's painting was "New York - an Abstraction".

[21] After all, Hemingway's fiction allows for the existence of the "valleys of ashes"; its particular variant can be seen in the burned town of Seney from Part I of "Big two-hearted river": "Seney was burned, the country was burned over and changed (…)" (Hemingway 1998: 164). There is still, however, a potentiality of the reversal, a margin for rebalancing the disadvantageous for nature ratio of forces: "(…) it did not matter. It could not all be burned" (Hemingway 1998: 164). The reassuring thought, followed by the grasshoppers adaptation to the new conditions of the burned land by the change of their chitinous shell color, prove that Hemingway's literary construction of the modern world is capacious enough to contain two divergent orders of things without the need of placing one of them in the lost position.

unfinished novel should be rather catalogued somewhere on the peripheries of the prevalent trend of representing modernity as construed around the centre occupied by the all-appropriative machine.[22]

The above-discussed constitutes only a sample of what is going to be analyzed in this chapter. The previously quoted excerpts from Hemingway's unfinished 1927 novel, of which the aim was also to exemplify the more or less subtle shift in the way the machine is imagined in American late modernist fiction, serve as a departure point for a more comprehensive discussion on literary representations of the material dimension of reality in selected prose text from the 1940s and 1950s. A detailed study of literary tropes related to the machine in American modernist literature would be redundant with respect to the already existing studies on the topic. Nevertheless, elements of a motif-based approach are perhaps indispensable and will supplement the study with a more universal outlook on the subject matter.

As it was already outlined, particular research attention will be given to the imagery of material objects and human body, whereas their interrelationship with space-time, understood in the light of Einsteinian physics as a four dimensional manifold, will constitute the focal point of the analysis. Correspondingly, instead of investigating literary ontology of mechanical objects, the discussion on the topic will rather turn towards examining a complex network of interconnections between material objects and the external reality they are immersed in.

In 1927, when both Hemingway's *The sun also rises*, and Fitzgerald's *The Great Gatsby*, are already known to the public, William Carlos Williams boldly advocates the new form of artistic expression that crosses the boundaries of the conceptual to take a more tangible, "bodily" form of objects. His red wheelbarrow had been in the modernist

[22]It is also worth to mention that Hemingway devotes more narrative attention to the machine as such in his journalist accounts from the Spanish Civil War and the Second World War. The focus on the machine in the author's by-lines is sharper than in his fiction, yet the machine-related imagery is still construed with or by an explicit reference to the natural world. In "The first glimpses of war" (NANA Dispatch, March 18, 1937) Hemingway (225) compares "the careened hulk of a freighter, visibly damaged by shell-fire" to "a whale with smokestakcs that has come to the beach to die". "Bombing of Tortosa" (NANA Dispatch, April 15, 1938) features Heinkel light bombers and Messerschmidts which "swung 'round and 'round in a slow circle, like vultures waiting for an animal to die" (Hemingway 250). German planes in "Tortosa calmly awaits assault" (NANA Dispatch, April 18, 1938) resemble lions that can be watched while feeding (Hemingway 253). "The big guns of Texas and Arkansas" from "Voyage to victory" in turn (Collier's, July 22, 1944) "(…) were like the thunder of a storm that is passing in another country whose rain will never reach you" (Hemingway 302, 305). German tanks mentioned briefly in the same text inscribe into the imagery of water and rain; with their silhouettes and color the war machines correspond to "big yellow toads" which perched along the water line as if waiting for their prey.

garden for some three years when it finally symbolically reaffirms its place and shape in modernist poetics of text with the publication of "Paterson". " – Say it, no ideas but in things – " exhorts Williams (1986: 263) explicitly naming the modernist inclination for the palpable and the concrete. This coarse fascination with the material favors the substantial, rough, and vividly silhouetted discursive landscapes of things over the blurred panoramas of vague discourse. William Carlos Williams' terse manifesto, deeply rooted in the core period of American modernism and at the same time expressing its spirit, seems to evolve in the late phase of the era into a new, this time not verbalized, form – no ideas, but things, no things, but their complex networks of interconnections, their interrelationships with the external world, their vibrant resonance in space-time.

5.1.1 James A. Michener: the poetics of delamination

"Michener has become an institution in America, ranking somewhere between Disneyland and the Library of Congress. You learn a lot from him." – says one of the blurbs opening the 2015 edition of *Sayonara*. And indeed, it would be hard to argue with that astute observation; there is something in Michener's prose that keeps the author permanently suspended between two divergent orders occupying opposite poles.

This internal cleaving is not only a matter of broadly understood aesthetics that in the case of Michener's texts spans from so-called middle-brow fiction to formal academic writing. It is also, or predominantly a direct result of the author finding himself immersed in various discourses, or discourse series, that cross or interweave in his prose. Consequently, the writer's literary oeuvre appears as inherently polyphonic; an observant reader of Michener's works can easily differentiate between multiple voices that push their way through the text's tissue. Amongst them one can distinguish the speech of a (former) soldier, the discourse of a popular writer, reporting traveler's narratives, descriptive accounts by a nonfiction author, and, finally, some distinct informative tones of a(n) (amateur) researcher. The multidimensionality of Michener's prose is also a direct result of the author's mosaic-like map of literary inspirations. Suspended in between conventional narrative structure and more experimental literary aesthetics, Michener's texts reverberate with the echoes of diversified literary influences that span from Milton to Capote. Reflecting on his early works the author writes:

> Rereading these earlier writings, I am struck by the innumerable factors which helped shape me: writers as varies as Grace Livingston Hill and Truman Capote, with styles as varied as Ernest Hemingway and Sigrid Undset. Every book I've ever read has influenced me. Much of my style, and indeed much of my personality, has been shaped by the poetry I revere. Psychologically as a person and stylistically as a writer I prefer Keats to Shelly, and Wordsworth to Byron. I cherish the poetry of Milton. My own fotre is prose, but my homage to the poets occasionally leads me on forays into their métier. In college I began a still-and-never-to-be-finished verse play on Thomas Chatterton, Wordsworth's 'marvelous boy' who wrote wonderful poetry before his tragic death at age eighteen (…) (Michener 1993a: ix)

Michener's *Literary Reflections* constitutes a compilation of mostly pre-existing texts published over some fifty years. Its orderly, but internally diversified, multifocal structure is loosely wrapped around the through line constituted by the writer's mainly essay-like, largely personal considerations on literature. This vibrant assemblage of texts, written by the author speaking multiple voices and simultaneously letting himself be beguiled by a dozen more literary discourses, explicitly shows that the essence of Michener's writing lies in polyphony which does not always mean consonance.

In 1988, as an artistically mature and by all means an accomplished writer, Michener ponders upon his past endeavors to define his own place (and perhaps artistic identity as well) in the literary landscape of the era:

> At ine period of my life numerous critics, when writing of other writers, were fond of comparing them to me, and always the other fellow came off best" 'He is a better storyteller than Michener' or 'His novel moves mor honestly than a Michener.' For a while I kept a list of such comparisons because I wanted to know what happened to all these peop;le who were better that I was, but it came to naught because most of them were never heard from again, and those that were had only feeble lasting power.[23] (Michener 1992: 134)

If the above-quoted fragment can be analyzed within the framework of anxiety of influence, (provided the concept is rather loosely treated, and the context of Michener's reflections on the critical reception of his and his contemporaries' works is expanded to include into the analysis a more nuanced picture of the author's attitude), then the following stands in a complete opposition to Bloom's theory:

[23]The fragment comes from "Summarizing a book and a life" (1988), a verbatim retyping of the draft thought by Michener as a closing section of his *Handbook*. The writer inserts the original version of the carbon copy into his writing guide to provide aspiring authors with a deeper insight into his creative process and applicable writing strategies. The text thus serves a double role – of a training material and of a set of final remarks summarizing the author's instructions. This justifies a rather crude form of the text that features frequent spelling errors as well as stylistic, syntactic, and compositional inaccuracies. Original spelling has been retained.

> Over the decades I've analyzed hundreds, perhaps even thousands, of the literary masters, near masters, and never-to-be masters, dissecting their styles and probing their techniques. What did they do to make their writing sing? What mistakes did they make which doomed them to failure? By this means I discovered elements which I could adopt to form my own style and technique, or avoid because, although they might suit some other writer as if invented for him or her, for me they wouldn't work. (Michener 1993a: vii- viii)

The contrast between the two excerpts is indeed very sharp; heading ninety, Michener presents a way more democratic attitude towards his (and others') writing, truly cherishing the diversity of the literary landscape, acknowledging individuality, and, above all, accepting the limits of his work's internal diversification. Unable to incorporate all the elements of the external literary mosaic enveloping his texts, Michener still draws as much as possible from the outside, stemming the tide of the extraneous when necessary and opening the sluices for the foreign wherever it is possible. The stream-like flow of 'the other' through Michener's texts does not only infiltrate the writer's literary discourse by means of a powerful intrusion, but also brings a considerable amount of discursive sediment. This, in turn, settles in Michener's fictions and grows into its structure to become an elementary substance inducing the dissolution of the author's works from the inside. The incorporation of foreign material becomes thus one of the most influential factors responsible for Michener's fiction's multifocality and polyphonic nature.

Despite its internal discursive and thematic diversification, Michener's prose is still far from representing Bakhtinian carnivalistic peripheries vibrating with a number of voices that, never harmonious, always disturb the customary order of things. Nor are they totally subversive narratives attacking the centre from the outside to abolish the fossilized centre-peripheries division. An interesting view concerning Michener's literary style has been presented by Perrin (2015). The author of *The Aesthetics of Middlebrow Fiction: Popular US Novels, Modernism, and Form, 1945–75* argues that Michener's aesthetics is the one "based not on repression but on disavowal" (Perrin 2015: 106). Comparing Michener's writings to these of Caldwell and Drury, Perrin (2015: 106) extracts the common denominator of the authors' prose, a constitutive feature which, mostly on the level of text poetics, allows to classify them as popular literature:

> [T]hese texts manage anxiety about the incoherence of individualism not by consigning it to the reader's unconscious, but rather on the reader's consciously knowing well that individualism is incoherent but, all the same, in some sense not knowing it at the same time. Pleasure in the smooth and conventional contours of their narratives is not subverted by the revelation that such conventionality unfaithfully represents the world they purport to depict. Rather, pleasure at the thematic resolution the text's formal coherence promises

> coexists, paradoxically, with the ever-present knowledge that this promise of resolution is false.

The heterogeneity of Michener's literary output does not mean that the author's works lack stylistic coherence; it is, in fact, the peculiar graininess, a pronounced inhomogeneity of the author's texts that, paradoxically, becomes the essence of Michener's style. And although it would be difficult to disagree with Perrin's observations on the safe conventionality of Michener's prose that embraces a number of stylistic solutions as well as thematic, compositional, and narrative choices which, when combined, comprise the aesthetics of popular fiction, it should be noted that the researcher's conclusions are mostly based on a narrowly tailored study. Perrin's research is largely confined to the analysis of *Hawaii* with occasional references to other texts by the writer that contextualize the research within a broader literary landscape.

The choice of *Hawaii* as the major focus of the study is, however, fully justified; the novel, preceded by *Sayonara* and *The bridges at Toko-ri*, appears on the bookshelves in 1959, and its release can by far be considered a defining moment in Michener's writing career. Called by Lyons (2006: 164) "Michener's most influential promotional work", with a number of enthusiastic reviews and approximately 200,000 copies sold in the months immediately following the release, *Hawaii* brings the author extensive publicity. As his "first epic historical novel", and at the same time "his last major work on the Asia-Pacific region" (Klein 2003: 252) *Hawaii* constitutes both a closure and an opening in the author's literary endeavors. As a result Michener's 1959 famous novel serves as a bold narrative gesture finalizing the author's work on the Asia-Pacific themes, and as a starting point marking the crystallization of both the writer's artistic maturity and his literary interests which, from that time onwards, oscillate mainly around geographically-embedded epic historical fiction.

A general methodological trend discernible in a considerable majority of literary studies devoted to the exploration of Michener's fiction is the adoption of a synthesizing approach aimed at leveling the internally heterogeneous landscape of the author's text(s) to a more refined form from which to extract idiosyncratic constellations of features characterizing the author's writing. Yet, the research in focus will not try to orchestrate the polyphony of voices interweaving in Michener's narrations. Drawing on dispersal, the considerations presented in this subchapter will concentrate on the subtleties arising from the tensions and resonance between various discourses that find their

way to Michener's prose. Out of them of particular importance to this study is the discourse of science. Although not so explicit as the fictionalized historical discourse that constitutes the main narrative axis of many of Michener's texts, the discourse of science still marks its pronounced presence in Michener's prose at multiple different levels. These include the formal and structural properties of literary language, the choice of themes to be explored, the ratio of historical-to-fictional narrative and, finally, the construction of the represented world.

Assuming that *Hawaii* can be treated as a contractual caesura designating Michener's pronounced turn towards historical fiction, while basing on the premise that the author's immersion in science-related discursive environment may vary in degree, but is more or less permanent over time, it can be argued that the writer's works from before 1959 utilize the scientific discourse in a considerably different manner. This is not only a quantitative, but also a qualitative change; early works by Michener seem to absorb science- or technology-related discourse series on the level of the subconscious dwelling in the text, whereas his historical fiction features a deliberate, well-thought implementation of the factual in aid of the imaginary.

It is not, however, the planned and complex process of harnessing the indisputable and the objective into lengthy fictional accounts of epic proportions that will be analyzed in the study. Instead of exploring the workings of the scientific discourse in Michener's grand narratives, this subchapter will put the spotlight on the osmotic absorption of Relativity Theory discourse series by one of the early publications by the author – *The Bridges at Toko-ri*. The study, therefore, aims at rethinking Michener's 1953 novella by placing it in the context of the (pop)-scientific landscape of the decade to extract the effects of the post-World War II technicization of life and an increased interest in science fuelled, inter alia, by the forthcoming fiftieth anniversary of Einstein's Theory of Relativity, on the construction of the spatio-temporal imagery in the text. The abovementioned will constitute an attempt of proving that Michener's ties with Einstein, although at first sight subtle and rather understated, are not confined to the author being presented the Einstein Award in 1967, but are deeply inscribed in Michener's construction of literary space-time imagery.

If purified from the fabular content, characters, stylistic nuances of narration, and finally, the self-evident pattern of reoccuring themes and motifs, the otherwise fairly uncomplicated textual tissue of *The Bridges at Toko-ri* reveals the underlying delicate

nervous system, a transparent framework for the construction of the represented world. Stimulated by the outside influence of the decade of technowonders, a period celebrating popular science and the notorious presence of the machine, Michener's *The Bridges at Toko-ri* not only tell the story of Harry Brubaker, a young navy pilot forced to leave his family to take part in a military operation aimed at destroying the titular bridges. It also recounts the profound transformation of space-time which, invaded by the techno-systems of wartime machinery operating according its own principles, undergoes a profound distortion. The mass of technicized steel and concrete that aggressively penetrate space, violates the customary dimensions of reality, as if the complex systems of military machines were too heavy for space-time to bear it without straining its, as it turns out, delicate structure. And it is in space-time deformation caused by fast-moving, massive objects, where the silent murmur of Einstein's Relativity discourse series speaks to the reader.

5.1.1.1. Contraction of form, expansion of space: setting in *The Bridges at Toko-Ri*

"Between 1940 and 1947, most war fiction is tightly focused; it is miniaturized in some respects. It deals with the lives of only a few soldiers, with the Italian front, with French resistance, with the Germans in Norway, with civilian life at home (…)"[24] states Linda

[24]Wagner-Martin (2016: 161) provides a list of literary works that fulfill the criterion of miniaturization, oscillate around war-related themes, and were published by American authors between 1940-1947. Next to Steinbeck's *The Moon is down*, John Hersey's *A bell for Adano*, and Gertrude Stein's *Wars I have seen*, to mention just a few, the author provides an example of Michener's *Tales of the South Pacific*. Since Wagner-Martin's work constitutes a study on American modernism, the above-mentioned places Michener amongst modernist writers. Nevertheless, the author's discussion on modernism stops at 1949 and does not take into consideration the following decade. Up to 1950 Michener has published just two texts, *Tales of the South Pacific* (1947) and *The fires of spring* (1949), and it was only in the following decade, when the writer, already holding a Pulitzer Prize for Fiction (1948) strengthens his literary position. The time-frame for modernism adopted by Wagner-Martin suggests Michener's peculiar suspension between modernism and postmodernism. Of course, the writer's later works absorb much of the postmodern ambience, but Michener himself is rarely classified as a postmodern author. Instead, his fiction is frequently labeled as contemporary American literature. Yet, this term is rather vague in this context and does not reflect the complexity of Michener's literary output, its multiple concurrent rootings, and highly diversified sources of influence. On the other hand, the difference between Michener and high modernist authors such as, amongst others, Hemingway, Stein, Faulkner, Fitzgerald, or Steinbeck is self-evident and undisputable. As it was already proposed in the previous section, the contractual caesura marking Michener's turn towards the poetics of the postmodern can be seen in the publication of *Hawaii* in 1959. In this view, placing Michener' fiction in a fixed, sharply outlined framework of one literary period appears as superficial. His literary oeuvre should be treated as suspended in-between two (not so) divergent orders, with the works form before the publication of *Hawaii* focalized around modernist poetics, and the

Wagner-Martin (2016: 161) discussing the characteristics of 1940s American writing within a larger context of modernist era. Although Michener's *The Bridges at Toko-ri* published in 1953 do not fall within the specified time period and focus on the Korean War instead on World War II, the text, generally classified as a novella, still inscribes in the trend of compressed narratives.

Its condensed, in many respects narratively economized form is based on a transparent three-part structure. A clear division of the text into three compositional units entitled consecutively "Sea", "Land", and "Sky", makes the novella's structure resemble a three-act drama which recommences after each interlude in a different space-time. As it can be easily noticed, the clarity of the text's structure on the one hand, and the simplicity of the narrative line on the other, is not convergent with the miniaturization of the represented world. Compression does not apply to setting; by dividing the literary landscape into the three layers – sea, land, and sky, Michener opens up vast, almost unlimited spaces. Therefore, the scene of events in *The Bridges at Toko-ri* by no means should be discussed within the framework of miniature-related categories relevant while analyzing the plot and character creation. Instead, the monumental construction of the represented world in the novella displays Michener's early inclinations towards the adoption of a broad, all-encompassing narrative perspective, characteristic for the writer's grandiose historical sagas.

Interestingly enough, the impression of the infinity of the novella's internal space-time(s) is emphasized by the purification of its major settings from unnecessary details. The sea, land, and sky, three large elements of a fully-fledged spatio-temporal

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post-1959 texts inclining towards the postmodern stylistics of dispersion. While discussing Michener's anchorage in American literary landscape of the twentieth century it perhaps worth to quote a fragment of Barth's (2015: 174) "The Literature of Replenishment", in which the author defines a postmodern writer: "My ideal postmodernist author neither merely repudiates nor merely imitates either his twentieth-century modernist parents or his nineteenth-century premodernist grandparents. He has the first half of our century under his belt, but not on his back. Without lapsing into moral or artistic simplism, shoddy craftsmanship, Madison Avenue venality, or either false or real naiveté, he nevertheless aspires to a fiction more democratic in its appeal than such late-modernist marvels (by my definition) as Beckett's *Texts for Nothin*g or Nabokov's *Pale Fire*. He may not hope to reach and move the devotees of James Michener and Irving Wallace—not to mention the great mass of television-addicted nonreaders. But he should hope to reach and delight, at least part of the time, beyond the circle of what Mann used to call the Early Christians: professional devotees of high art". Barth locates Michener in between Beckett's and Nabokov's masterpieces on the one hand, the non-demanding content offered by television and consumed by an easily pleased audience. This suggests a non-explicit categorization of Michener's prose as middlebrow fiction that can be anchored somewhere in the late modernist landscape. It should be however noticed, that Barth's organization of the literary field of the modern and/versus the postmodern is based on a subjective distribution, and even the author himself considers it as not fully binding, leaving a significant margin for exceptions, discrepancies, and ambiguity.

scheme within *The Bridges at Toko-ri*, are sketched by Michener with clear, austere lines. The poetics of minimalism, roughness, and transparency is signalized by the author as early as in the text's opening lines:

> The sea was bitter cold. From the vast empty plains of Siberia howling wind roared down to lash the mountains of Korea where American soldiers lost on patrol froze into stiff and awkward forms. Then with furious intensity the arctic wind swept out to sea, freezing even the salt spray that leaped into the air from crests of falling waves. (Michener 1993b: 8)

The above-quoted fragment serves as the first, and at the same time major sketch of the locale. Apart from some minor references to the sea, Michener relies mainly on the initial, and by large the only representation of the setting to the events from the novella's first part. Once introduced in the opening paragraph of the text, the boundless space of the sea is implicitly acknowledged for the rest of the first section, reoccuring in synecdochic elements every time the plot pours through the boundaries of the techno-system of the aircraft carrier and the airplanes.[25] Such minimalist construction of the sea allows Michener to keep the space-time perpetually open, preserving the impression of the immensity of space throughout the whole text.

By ascribing the features of roughness and inaccessibility to the setting, the author obtains content-form coherence; while consequently following the minimalist stylistics governing literary space-time imagery creation, Michener skillfully utilizes the "empty" or "plain" spaces that arise as a result of the removal of unnecessary details. The voids in between particular elements of Michener's austere landscape sketch not only give the setting a sense of transparency and smooth elegance but also provoke an impression of space(-time) expansion due its peculiar airiness and simplicity.

The effect of space inexhaustibility is enhanced by the introduction of the image of the "vast empty plains of Siberia". Emphasizing the fact that the plains share with the sea the same characteristics connected with the general harshness of meteorological conditions, such as extremely low temperatures or "furious intensity of the arctic wind", Michener complements the already evoked picture of the ocean with a recursive projec-

[25]These include mainly elements such as "freezing wind" whipping the soldier's faces (Michener 1993b: 13), "frozen salt" covering the board, "icy waves" rocking the ship, or swallowing the pilots of the machines shot down by the enemy (Michener 1993b: 25), and "sleet" that disables the airplanes and inhibits any sort of military action (Michener 1993b: 38). The sea, more than a setting, functions as a perpetually transforming climate, a set of weather conditions and meteorological phenomena interacting with the man-created techno-system of war.

tion of the space demonstrating conformity with the same generic criteria. The juxtaposition of the ocean tossed by storm with the image of distant Siberian plains, a home to arctic wind, provides a peculiar form of a modified Droste effect, where one of the elements of the story's landscape starts to function as a redundant mirror image of the other, while at the same time becoming its extension. As a result, as early as in the opening section of the story Michener obtains a larger hybrid space-time structure that crosses the ontological boundaries of the two at first sight disassociated concepts of the sea and the plains. Endlessly reflecting one another in a hermetic cycle of self-referentiality, the sea and the plains are perpetually redefined by comparison that allows to extract their constitutive features: vastness and austerity.

While introducing the setting of the novella's second part, "Land", Michener resorts to a different strategy; instead of providing the reader with a bird's eye view of the locale the author chooses to narrow the perspective to two points on the map: Yokosuka and Tokyo. Whereas the capital of Japan lacks any description, Yokosuka is mostly defined by contrast with other places of the same kind:

> It was the greatest liberty port in the world. It had more variety than Marseilles, more beauty than Valparaiso. Its prices were cheaper than New York's, its drinks better than Lisbon's. And there were far more pretty girls than in Tahiti. (Michener 1993b: 44)

Enumerating five different ports and juxtaposing them with Yokosuka Michener organizes the represented world in a cartographic manner, temporarily using multifocal vision that emphasizes the heterogeneity of the setting. This, however, is quickly abandoned only to increase the focal length to and obtain a more centered view limited to "Yu-*koss*-ka". Nevertheless, the narrative field of vision in the second part of *The Bridges at Toko-ri* does not embrace the whole city. Once again constructing the story's space-time on the basis of synecdochic relations between the whole and its element, Michener uses the port as a representative part for the entire Yokosuka. The image of the city rests fundamentally on three pillars; apart from the harbor, it features the Fuji-san hotel and the Naval Base, whereas the rest of the urban landscape remains unknown to the reader. The background for the minimalist composition is "a superb view of Fujiyama" (Michener 1993b: 50) and the "four bridges stretching far out to sea" (Michener 1993b: 48). Instead of placing the picture of the city in a well-structured compositional framework that would clearly delineate its boundaries, Michener prefers to set it against

two distant monumental elements of the landscape, while at the same time keeping the entire space open.

The sense of space openness cultivated by Michener throughout the first two parts of the novella reaches its fullness in the story's closing section entitled "Sky". The major military operation aimed at the destruction of the bridges is preceded by a dangerous reconnaissance task of photographing the much debated military target, and it is the scene of initial exploration of the strategic point from which Michener resumes narration in the third part. Following the compositional rhythm set in the "Sea" and "Land", the writer opens the last section with the introduction of the new locale. Again, the setting for the events has nothing in it akin to a gradually constructed spatio-temporal composition, but appears as an already-existing, all encompassing construct, overwhelming the main protagonist with its vastness, transparency, and perfect bareness:

> Then, in a perpetually mysterious way, when he had climbed into the higher atmosphere, he experienced the singing beauty of a jet as it sped almost silently through the vast upper reaches of the world. Sea and sky fell away and he was aloft in the soaring realm of the human spirit. (Michener 1993b: 75)

Interestingly enough, Michener uses the notion of the sky as an implied concept inscribed in the reader's mental image of the world intuitively understood as the space above the Earth. This projection however is only valid when the point of view is anchored on land; as the plane abruptly encroaches "the upper reaches of the world" the perspective drastically changes causing both the sea and sky to "fall away". Thus, it can be argued that the image of the sky evoked in the very title of the novella's third part, and then mentioned twice in the opening paragraphs of the section, undergoes a rapid narrative deconstruction. By annulling the just set up construct of the sky, Michener brings into being a new, more voluminous expanse, now called "the higher atmosphere". This radical gesture of an almost-improvised construction of one spatio-temporal structure, followed by its rapid rejection in favor of adopting a more encompassing spatial scheme allows to maintain the sense of space inexhaustibility introduced in the novella's opening section and consequently developed its second part:

> It was terrible and supreme to be there, whistling into the morning brilliance, streaking ahead so fast that the overwhelming scream of his engines never quite caught up. In this moment of exhilaration he peered into the limitless reaches of the upper void and felt the

> surging sensation that overtakes every jet pilot: "I'm out front". Throughout the silent beauty of this cold February morning he soared through the blue-black upper sky and thought , "I'm out front." (Michener 1993b: 75)

The space above the Earth delaminates into several layers: the sky, "higher atmosphere", the "upper void" of "limitless reaches", and the "upper sky". Experiencing the boundless finally amounts to the uncanny, an affect clearly too intense to be expressed in language. The simple, minimalist three-word formula "I'm out front" is therefore everything Brubaker has against the monumental bareness of the space he, partially forcedly, partially voluntarily, immerses in. The abrupt process of space decomposition seems to be a direct effect of the airplane's velocity; the experience from land does not offer any example of an object whose speed ratio would be at least comparable to that of a plane. As a result, the sensations to which the pilot's affective system is exposed to during the jet flight exceeds the capacities of human sensory perception.

The dynamic, perpetual change of perspective caused by the plane's high-speed movement deconstructs the seemingly coherent image of reality that appears to be overflowing its own boundaries. With the limits of the material world turning out to be an artificial construct, the space starts to expand rapidly reaching infinity. What Michener achieves by leaning towards the minimalistic representation of the monumental are transparent, inexhaustible spaces, or, if taking into account the writer's division of space-time into three parts: sea, land, and sky, highly flexible, space-time bubbles with the ability to expand. The narrative design of space in *The Bridges at Toko-ri* can be therefore considered in the categories of a discursive variation on Friedmann-Einstein universe model. In "On the curvature of space" published in 1922 in *Zeitschrift für Physik* Friedmann reconsiders Einstein's scientific vision of the universe. According to Lang and Gingerich (1979: 838)

> in deriving a cosmological model from his general theory of relativity, Einstein somewhat arbitrarily opted for a static universe. The mathematical consequence of this decision was a nonzero value for one of the constants of integration, the so-called cosmological constant, Λ. From a Newtonian analogue, Λ can be viewed as representing a repulsive force that increases with distance and that keeps the universe from collapsing under gravitational attraction.

Engaging in polemic with Einstein's concept of the "cylindrical world in which space possesses a constant curvature independent of time and in which the radius of curvature is connected with the total mass of matter existing in space" on the one hand, and de

Sitter's "spherical world" characterized by constant curvature as well on the other, Friedmann (1979: 839) puts forward a new, dynamic model of the universe. The new "type" of the universe, mathematically grounded by Friedmann in a series of equations, is the dynamic model of the world, in the light of which the above-mentioned Einstein's and de Sitters' formulas are treated as "special cases" (Friedmann 1979: 839). In this view, Friedmann's new theory does not imply a complete rejection of Einstein's concept of a non-dynamic universe. It rather envisages a radical broadening of both the scientific and at the same time the perceptual horizon on the universe.

Having noticed Friedmann's paper in *Zeitschrift für Physik* Einstein promptly reacts to the Russian scientist's observations by sending to the journal a brief note with remarks on the idea of an expanding universe. "The results concerning the non-stationary world contained in [Friedmann's] work appear to me suspicious. In reality it turns out that the solution given in it does not satisfy the field equations" – states Einstein (1922: 326 as quoted in Schweber 2008: 324-325), rejecting the new approach proposed by Friedmann. The physicists' decisive response to an attempt of Relativity Theory discourse takeover and modification by Friedmann can be considered as yet another example of Einstein's controlling gesture aimed at exercising power over the discourse subjected to regulatory mechanisms of institution and/ or field. Additionally, it is worth to emphasize, that the latter one is narrowly understood; the departure from some of the basic foundations of the Theory of Relativity and its contamination with the elements of a new theory seems to be considered by Einstein as a complete breakup with the rules governing the way an academic should navigate the realm of science. Friedmann's concept appears to Einstein as too radical, as it enters the field by means of a revolution, not a gradual and manageable process, and disrupts the stability of the formerly developed solutions to some of the most complex scientific problems.

On the 6th of December 1922 Friedman, convinced about the rightness of his dynamic space-time model, sends a reply letter to Einstein. Presenting a comprehensive mathematical explanation to the results previously announced in *Zeitschrift für Physik*, the Russian scientist (as quoted in Frenkel 2002: 6) asks Einstein to reconsider the conclusions published in the note constituting a brief, but rather unequivocal answer to "On the curvature of space":

> The possibility of obtaining a world with a constant negative curvature from your equations is of exceptional interest to me. This is why I am asking you not to delay your reply to this letter of mine, though I am aware that you are very busy.

Although very polite in tone, the physicist's response signalizes Friedmann's strong stance in the potential long-lasting exchange of views with Einstein. The new observations expressed in a series of equations are well-argued and well-balanced; Friedmann does not reject Einstein's Theory of Relativity, but makes a major shift in its internal structure forcing some crucial re-formulations. The search for a world with a negative curvature was definitely worth it, and Friedmann must have been aware of the gravity of his postulate for the development of the field. Unfortunately, Einstein did not respond to Friedmann's kind but straightforward request to reassess his position towards the concept of the expanding universe until May 1923. It is a matter of discussion whether Einstein overlooked the letter (Novikow 1995: 88) or, convinced of the infallibility of his argumentation simply ignored it (Sharov and Novikov 1993: 59). There is also a possibility that the physicist did not manage to familiarize himself with Friedmann's argumentation on time due to his trip to Japan (Weinstein 2015: 332). Notwithstanding the causes of the negligence one thing is certain: the letter certainly reached the addressee, as it was found in Einstein's archive. The fact that its content was finally re-visited by Einstein should be attributed to Krutkov.

Krutkov was enigmatically mentioned by Friedmann in the previously quoted 1922 letter to Einstein. Although his name was not revealed in the message, the information presented by Friedmann, along with some external details regarding the dates, allows to assume that "the friend" Friedmann writes about was Yurii Aleksandrovich Krutkov, one of the Russian physicists pioneering in the field theoretical physics. In May 1923 both Einstein and Krutkov were staying in Leiden, where Lorentz was to deliver the last lecture to symbolically close his academic career before retirement (Weinstein 2015: 332). Taking advantage of the opportunity to talk to Einstein in person, Krutkov raised the issue of Friedmann's new conception. The discussion resulted in Einstein sending a second note to *Zeitschrift für Physik* on May 21st, in which he proves Friedmann's calculations right:

> In my previous note, I criticized the above-mentioned work. However, as I found from Friedmann's letter communicated to me by Mr Krutkov, my criticism was based on an error in calculations. I believe that Friedmann's results are correct and shed new light. It is found that the field equations allow in addition to static, also dynamic (that is, variable

> with relation to time) centrally symmetric solutions for the structure of space. (Einstein as quoted in Sharov and Novikov 1993: 59)

The note of course does not end the considerations on Friedmann's dynamic model of a universe, but constitutes a significant turn in the discussion started by the Russian scientist back in mid 1922. Einstein's rectification published a nearly year later can be read as a gesture marking a partial abandonment of the control over Relativity Theory Discourse series. The symbolic emancipation of the discourse on a small scale (in the case in focus it still flows in academic contexts and is shaped by eligible subjects) by Einstein is a proof of its more and more undisciplined spread in the face of which the scientist withdraws from resolute practices of control. Einstein's explicit consent to Relativity Theory discourse takeover and the scientist's final approval for Friedmann's findings opens a new window on the universe adding to its already high structural complexity. From that time onwards the world takes a new appearance:

> [T]he gravity of the whole universe slows the expansion from the very beginning. After the maximum has been reached, the scale of the universe contracts; it shrinks and reheats again after billions of years. This fate is sometimes referred to as the "big crunch". (Glendenning 2004: 79)

The either contracting or expanding universe with a negative curvature of space ultimately contributes to the deconstruction of the static vision of the world. The perceptual change does not exclusively concern the spatial dimensions; as the transformations of the structure of the world are in particular dependent on time, the entire concept of the expanding universe is in accordance with Einstein's original idea of space viewed as a four-dimensional manifold.

When Michener's *The bridges at Toko-ri* appear on the bookshelves in 1953 the concept of a dynamic universe is already well-known both in physics and in popular science. One of the most significant publications re-visiting Friedmann's concept is the article by Alpher, Follin, and Herman entitled "Physical conditions in the initial stages of the expanding universe" which appeared in 1953 in *Physical Review*. The publication was preceded by another paper by Alpher and Hermann sent to the same journal four years earlier – "Remarks on the evolution of the expanding universe". "Is there an aether?" asks Bondi in *Nature* in 1952. "The steady-state theory of the expanding universe", another text by Bondi co-authored with Gold appears in 1948 *Monthly Notices*

of the Royal Astronomical Society. The same journal in 1948 accepts Hoyle's "A new model for the expanding universe". Six years later, Bondi and Gold return to the topic of their 1948 paper to publish "The steady-state theory of the homogenous expanding universe", but this time their considerations appear in *Observatory*.

Significantly earlier, in 1937 in the November issue of *Popular Science* familiarizes the readers with the idea of a shrinking universe. April 1952 (18) issue of the same magazine features Einstein's reply to "a PSM reader letter" who inquires on "the progress being made on Albert Einstein's new theory of gravitation in which he attempts to interrelate all known physical phenomena into one all-embracing formula". Additionally, the reader did not hesitate to express his disappointment that the scientist's "great scientific achievement wasn't continuing front page news". Einstein's response reads as follows:

> It is not my fault that laymen obtain an exaggerated impression of the significance of my efforts. Rather, this is due to writers of popular science and in particular to newspaper correspondents who present everything as sensationally as possible. (Einstein 1952: 18)

In the letter's opening paragraph Einstein almost openly criticizes Relativity Theory discourse series takeovers by academically unauthorized speaking subjects. For Einstein these practices inevitably lead to a significant distortion of the discourse's otherwise well-controlled flow. Paradoxically, the scientist's reply to a layman's query published in one of most prominent popular science magazines of the time contributes to further Relativity Theory discourse takeovers. The process seems unstoppable and its consequences for both science on the one hand and (popular) culture on the other are rather irrepressible. Eventually, in the early 1950s everybody is able to "conquer space, explore the Universe, Planets, Moon, Craters, New Stars, etc." thanks to "complete telescope lens kit" advertised in November 1953 issue of the previously mentioned magazine. Re-discovering of space, exploring its newly recognized potential, and possible dimensions is now not only the scientist's venture. As relativity Theory discourse leaks outside of the context of academia to form uncontrollable discourse series, space-time undergoes a spectacular process of rapid democratization, and the more apparent Relativity Theory discourse becomes in various areas of culture, the more eligible laypeople feel to take part in the frantic scientific quest to explore it on their own.

The release of Michener's *The bridges at Toko-ri* thus coincides with a revived interest in Einstein's new physics and related scientific findings. Several years before the anticipated fiftieth anniversary of Relativity Theory, the scientific landscape once again becomes dense with new meanings added to the discourse circulating in both science and culture for nearly half a century. Of course, it cannot be stated that the spatio-temporal construct of Michener's novella is directly based on the achievements of science as there is no explicit evidence form letters, the writer's memories, and other texts. Nevertheless, Michener's insight and diligence concerning the exploration of scientific or science-related topics constituting the background for his grandiose place-bounded sagas cannot be neglected. In a vast majority of his works, Michener pays attention to the locale's details, studying the geography, geology, and history of the land. Such a scrupulous observance of the scientific background to his literary works suggest the author's heightened sensitivity to the discourse of science, its semantic load, the way it organizes reality.

Since the scientific discourse in general, and Relativity theory discourse in particular tend to intensify their presence in both the academic and pop-cultural context in the first half of the 1950s, Michener's expanding space-time bubbles from *The Bridges at Toko-ri* can for sure be analyzed within the conceptual framework of Friedmann – Einstein discussion on the structure of the universe. With the vast, open spaces, devoid of any unnecessary compositional elements, redundantly mirrored in one another to form the impression of an almost endless spatio-temporal extension, Michener's novella gives voice to the new, altered perception of space that escapes control of both human senses and measuring instruments.

5.1.1.2. Space (-time), machines, and motion in *The bridges at Toko-Ri*

Michener's construction of represented world in *The Bridges at Toko-ri* is definitely worthy of attention, but it is the material dimension of the three-part spatio-temporal continuum that in particular calls for a more in-depth analysis.

In the previously referred to "Relativity and the problem of space" Einstein discusses ordinary space perception stemming from everyday (sensual) experience filtered through the classificatory machinery of reason while at the same time contrasting it with

Cartesian philosophical considerations on the topic on the one hand and the evolution of the scientific approach towards the subject matter on the other. In order to make the reader acquire deeper understanding of the issues discussed, Einstein (1961: 137) uses the example of boxes:

> Suppose that a box has been constructed. Objects can be arranged in a certain way inside the box so that it becomes full. The possibility of such arrangement is a property of the material object "box", something that is given with the box, the "space enclosed" by the box. This is something that is different for different for different boxes, something that is thought quite naturally as being independent of whether or not, at any moment, there are any objects at all in the box. When there are no objects in the box, its space appears to be "empty".

That the space without any objects, or to put it more accurately, without any matter only "appears" to be empty has been already discussed in the chapter's opening section. A more interesting thing here is the fact that while explaining complex scientific notions, Einstein refers to simple imagery of space, bringing to the fore its common interpretation based on the assumption that space can be viewed as a certain form of a container of an easily identifiable capacity. It can be perhaps argued that this pre- or proto-scientific belief stems from both human perceptual capacities and the nature of the already available or potential experience. These usually allow only for a small-scale exploration of space – the grandiose spaces of cosmos escape cognition, whereas the molecular and quantum realities remain significantly beyond human perception. Einstein's boxes are thus an apt analogy illustrating the complexity of the problem of space:

> If now the concept of space is formed in the manner outlined above, and following on from experience about the "filling" of the box, then this pace is primarily a *bounded* space. This limitation does not appear to be essential, however, for apparently a larger box can always be introduced to enclose a smaller one. In this way space appears as something unbounded. (Einstein 1961: 138)

What Einstein does in the subsequent steps of his popular exposition of the notion of space is a progressive shift from the knowledge extracted from everyday experience to a more abstract scientific reasoning. The line of thinking about space proposed by Einstein requires assuming that the three (if Euclidean) or four (if relativistic) dimensional continuum may have clearly delineated boundaries, while at the same preserving its infinite character. This perspective is startlingly consistent with Michener's approach towards literary space-time construction; by binding the composition to three different

instances of one spatio-temporal continuum, Michener obtains the effect of Einstein's boxes. Self-containing and clear cut, the space-time bubbles of the sea, land, and sky, despite their organic, almost intuitively delineated boundaries, still remain infinite as each of them constitutes a natural extension of the other.

The above discussed transparent construction of space however, undergoes distortion with the introduction of movement and/or moving objects:

> When a smaller box is situated, relatively at rest, inside a hollow space of a larger box S, then the hollow space of *s* is a part of the hollow space of *S*, and the same "space", which contains both of them, belongs to each of the boxes. When *s* is in motion with respect to *S*, however, the concept is less simple. One is then inclined to think that *s* encloses always the same space, but a variable part of space *S*. It then becomes necessary to apportion to each box its particular space, not thought of as bounded, and to assume that these two spaces are in motion with respect to each other. (Einstein 1961: 138)

The element of motion added to a relatively simple and easy to follow net of physical interdependencies complicates both the scientific and the perceptual structure of the though experiment. Of course, Einstein's deliberations raising the inevitable question of the true nature of space(-time) and culminate in, at that time in many regards still fresh, concept of relativity as a possible answer to the encountered scientific problems. But how can the imagery evoked by the scientist be applied to literature?

The discussion on the compositional structure of the represented world in Michener's *The Bridges at Toko-ri* conducted in the previous section constitutes a necessary background for analyzing the novella's setting(s) with regard to the influence of Relativity Theory discourse series. Also, the major focus of this subchapter is the machine-related imagery, with the machines being treated as a special instance of matter in space. Particular attention will be paid to the phenomenon of motion and its effects on space-time perception and literary space- time construction. For these reasons, the proposed analysis would be incomplete without providing a general interpretative sketch of the background to the objects-in-motion, or rather the space within which machines function.

The title of the novella suggests that the mapping of the represented world takes place according to a classical centre-peripheries division, with the bridges constituting the obvious nucleus of the scene, and the rest of the literary landscape only serving as an enframing area where the narration circulates spirally around the centre to finally reach it and cease there. Nevertheless, this otherwise not complicated, transparent to-

pography of the represented world is subjected to a peculiar disturbance with the introduction of the machine. This, of course, evokes an obvious association with Leo Marx's concept of the machine in the garden, but applying the notion to the analysis of the material dimension of reality in *The bridges at Toko-Ri* would be perhaps at least partially misguided. In the opening pages of his book Marx (2000:4) points out:

> My purpose is to describe and evaluate the uses of the pastoral ideal in the interpretation of American experience. I shall be tracing its adaptation to the conditions of life in the New World, its emergence as a distinctively American theory of society, and its subsequent transformation under the impact of industrialism.

With the starkness of the sea, the bareness of the air, and the image of the land reduced almost exclusively to human-created constructions such as the port, the hotel, and the bridges, it is difficult to discuss Michener's short novel within the conceptual framework proposed by Marx. On the background of other elements of the represented world even Fujiyama resembles a monumental, architectonic form, a counterpoint to the titular bridges, perfectly blending into the man-made surroundings. The pastoral ideal in the novella is rather marginal, if any, as the elements of the natural world are reduced to inanimate bare minimum of substance (water, ground, air) from which the author creates a scene to the events. For these reasons, it is not the (American) pastoral ideal that the machine invades in the *Bridges at Toko-ri*, it is the *space-time* that the machine conquers, subordinates it to the principles of motion, and violates its once stable structure with the power of speed.

5.1.1.3. Techno-systems of wartime machinery

As it has been already mentioned in the previous section, the natural world in *The Bridges at Toko-ri*, restricted to minimalist portrayals of vast and bare spaces of the sea, land, and sky, is far from elaborate. Compared to Shaw's meticulously described natural settings of *The young lions* (1948), Jones' cartographically detailed depiction of the hills of Guadalcanal with a myriad of natural wonders hidden in the jungle surrounding the hillsides in *The thin red line* (1962), or Hemingway's sparingly sketched landscape of

Islands in the stream (1970)[26], which despite its clarity still constitutes an internally rich and diversified composition, the natural world opening in Michener's novella seems overly simplified. Of course, the works mentioned are of significantly larger volume and in contrast to *The bridges at Toko-ri*, regardless of the common theme(s) of war, they represent significantly different compositional qualities. Yet, irrespective of the disproportions in the texts' narrative scope, the representation of the natural world in Michener's novella still appears if not incomplete, then at least extravagantly austere, producing an impression of an overwhelming emptiness and unnatural starkness.

If Michener did not compensate for this peculiar deficiency in the representation of the space belonging to nature, the internal balance of the entire composition would be significantly disturbed. In order to harmoniously distribute the tensions between the elements of the novella's structure, the writer introduces a complicated technical network of wartime machines. These, however, do not blend with the surroundings but violate its the laws of space with the power of motion, not only move in four dimensional continuum, but push against it, do not stand up against nature, but substitute its elements deliberately suppressed by Michener. As a result the author creates an intricate techno-systems of wartime machines of, to borrow from Deleuze and Guattari's discourse, anti-production that oppose the productive eco-systems of nature. Geared towards destruction and uncompromising subordination of space-time to the principles of mechanics and motion, the machines in *The bridges at Toko-ri* are mutually exclusive with the literary imagery of nature. Their destructive power does not allow for the existence of any productive networks, especially the ones related to nature. As such, the machinery leads to a complete extinction of the eco-systems long before they are even given voice in the narration. The space belongs almost exclusively to the machines, and, as in Einstein's thought experiments explaining the principles of relativity on the example of the images of fast moving objects, the natural space undergoes a profound suppression. Only machines and/ in space-time; anything else would lead to focus dispersal, cause unnecessary tensions, and disturb the composition's balance.

[26] Both Hemingway's *Islands in the stream* and James Jones' *The thin red line* with their publication dates fall outside of the time period generally covered in this study. Nevertheless, what was taken into consideration while including these works in the discussion of American late modernist fiction of the 1940s and the subsequent decade, is the time of their creation. Hemingway was working on his novel in the early 1950s, while the second part of Jones' World War II trilogy, firmly rooted in the writer's own wartime experience, finds its way onto the paper in the last years of the same decade (Hendrick 1989: 263).

5.1.1.4. Like herds of technicized animals: warships and planes in space

Immediately after introducing the reader to the locale, sketching a minimalist image of the sea in just one paragraph, Michener does not hesitate to counterbalance the bare portrayal of the sea with a more complicated depiction of a complex network of military machines:

> Through these turbulent seas, not far from the trenches of Korea, plowed a considerable formation of American warships. A battleship and two cruisers, accompanied by fourteen destroyers to shield against Russian submarines, held steady course as their icy decks rose and fell and shivered in the gale. They were the ships of Task Force 77 and they had been sent to destroy the communist-held bridges at Toko-ri. (Michener 1993b: 8)

By using the preposition *through* the author allows the space to expand in all possible directions. The multiperspectivity achieved by means of such a minimalist but bold narrative choice makes space capacious enough to embrace the complex techno-system of military machines. These create a well-ordered network organized according to a highly technical distribution of roles, ascribed to each of the system's elements on the basis of its constitutive mechanical features. In such a mathematically planned structure, there is no place for coincidence or a haphazard, unpredictable gesture; the seemingly tight and inflexible set of laws of mechanics is efficient enough to explain emergencies and inscribe them in the natural functioning of the entire macro-machine.

The internal organization of the naval formation resembles the structure of the atom, with the aircraft carriers in the nucleus and the smaller ships occupying the peripheries of the fast moving construct:

> Toward the center of this powerful assembly rode two fast carriers, the cause of the task force and its mighty arm. Their massive decks pitched at crazy angles, which for the present made take-offs or landings impossible. Their planes stood useless, huddled together in the wind, lashed down by steel cables. (Michener 1993b: 8)

The new, technicized structure of reality is organized according to the simple centre-peripheries division. Nevertheless, the compositional design beyond the military techno-system becomes less transparent when the entire structure is analyzed with reference to space in which it functions, and motion that defines its character. Since the *assembly* is not static, the centre functions in the categories of a double bind, because it simultaneously can and cannot be ascribed to any stable point in space. Certainly, the carrier's

deck is a permanent point of reference for the planes and their pilots, but as it constantly moves through space with different speeds while at the same time altering its course, its localisation coordinates are subject to a perpetual change. And as in Einstein's new physics, the carrier's movement in space and its spatial location in relation to other elements in of the material reality are primarily dependent on the temporal aspects of motion.

Task Force 77 can be therefore viewed as a molar structure comprising of smaller, molecular elements functioning according to the principles of a peculiar mechanistic symbiosis; the battleship is accompanied by cruisers and over a dozen smaller vessels to altogether form a buffer capable of resisting the enemy. It is worth to mention that the process of expanding the techno-system with new elements is far more dynamic than the tempo of narration. Michener introduces all the elements of the network of naval units already in the "Sea" part of *The Bridges at Toko-ri*. Once interwoven in the structure of the represented world, they keep reoccurring in the two subsequent parts of the novella in constantly changing configurations. And indeed, the entire system is really an *assembly*, a kaleidoscopic structure in its purest sense, featuring not only a large variety of machines as separate units, but also their smaller components, appliances, materials and fluids. The carrier Savo surrounded by a battleship, cruisers, and destroyers, is home mainly to a number of planes, but in fact its deck is teeming with machinery of various kinds:

> Dozens of tough young men in blue leaned their shoulders against the planes, swung them laboriously into position and pushed them slowly into the biting wind. In blazing red uniforms other men checked guns or fuelled empty craft while plane captains in brown sat in cockpits and worked the brakes to prevent accident. Darting about through the milling, pushing, shouting deck hands three-wheeled jeeps of vivid yellow and lumbering tractors in somber gray hurried to their jobs, while over all towered the mighty arms of the enormous black and sinister crane. (Michener 1993b: 12)

The imagery of American naval units heading the shores of Korea, with the machines and people interacting and intermingling into a complex technological community evokes obvious associations with natural ecosystems. Nevertheless, the similarity between eco-systems created by nature and human-constructed techno-systems exists not only at the level of their structure. Describing the work of Beer Barrel, Michener (1993b: 15) compares his technique of bringing the planes safe to the carrier's deck to "the way falconers used to bring back birds they loved". If the accident happens and the

jet manages to catch neither the holding wires nor the safety barriers, a specially designed nylon barricade "would entwine itself about the wings and wheels and tear the jet apart as if it were a helpless insect" (Michener 1993b: 19). In a peculiar variation on Psalm 23 created by pilots, Beer Barrel is entitled the (good) "shepherd" (Michener 1993b: 51-52). When the pilots were commanded to "prepare for windmill" to bring Savo ashore, "one plane mechanic rushed up to the Cag with tears in his eyes cursing and crying" as if the planes were living organisms suffering physical abuse (Michener 1993b: 46). During the air operation above Korea, the American jet pilots are supported by a "a buglike SNJ" (Michener 1993b: 90). Once the task is successfully completed, the planes seek their way back to Savo. Finally seeing the group of battleships from the air, Brubaker finds that they resemble "barns on an open meadow" (Michener 1993b: 94).

Resigning from the representation of the elements of the natural world, while at the same time employing nature-related imagery for the description of military technological developments, Michener makes a significant narrative shift compensating the absent with its opposite. Also, directly proportional to the way machines acquire the features of living organisms, the soldiers administering the entire techno-system adopt the features of the mechanistic environment they are immersed in. This is especially pronounced in the scene of the pilot's preparation for the flight in the "Sky" part of the novella, where the equipment necessary for action creates a peculiar technological microcosm constituting a natural (in the conditions of highly technicized environment of war) extension of human body.

That the techno-systems take the place of the eco-systems in *The bridges at Toko-ri* produces an impression that space-time is not capacious enough to accommodate both the natural and the mechanistic. In fact, even the already present elements of the macro-machine of war seem too heavy for the space to carry them: in his technology-dominated vision of the future Admiral Tarrant dreams of having "rockets or pilotless planes of vast speed" and "young officers trained to command a sea *burdened*[27] with ships and speckled with the shadows of a thousand planes" (Michener 1993b: 54). And when the crew is commanded to make its best efforts to bring all the planes back to Savo in the shortest possible time, Beer Barrel asks sarcastically "'What's the matter?

[27] Emphasis mine.

(...) Admiral running hisself out of ocean?'" (Michener 1993b: 21). In the opening paragraphs of the novella's second part Savo almost eludes control shortly before it anchors in Yokosuka, threatening to crash against the dock. The space-time in which machines operate exhibits vulnerability when under the pressure of technology, appears too small to carry the overbearing weight of steel and concrete. Trampled by herds of aggressive technicized animals, the space-time is forced to reduce itself to bare, transparent manifold, where the natural gives way to the mechanistic. Constantly under the process of conquering, the space-time presents qualities of a simultaneous contraction (when penetrated by massive techno-systems of war), and expansion (through the fluent change-over form one of its instances into another and redundant mirroring of the land into the sea, and the sea into the sky). This relativistic quality of space-time crystallizes under the influence of the machines' mass and speed, which disturb the once stable and firm structure of reality.

With its well-structured imagery of complex mechanistic networks, *The bridges at Toko-Ri* can be read as an expanded literary variation on Einstein's thought experiments explaining the newly discovered qualities of space and movement on basis of fast moving objects in space. During The Disarmament Conference of 1932 Einstein (1949: 60) asks: "Can you (...) condemn war and at the same time leave the individual to the tender mercies of the war machine in each country?". The answer is more than obvious. But these are not only people that are subject to the terror of technology; it is the entire space that is left to more or less tender mercies of the machine.

5.2. "Comically impure travesty of the resurrection" and the microcosm of human body: literary representation of the wounded and the dead in James Jones's war novel *The thin red line* in the light of Relativity Theory discourse series [28]

"What could I have done, Marty? Anyway, you're a woman. You want to make life. You dont understand men" – says Bell to the apparition of his wife, desperately trying

[28] This subchapter constitutes a revised version of an article published in a post-conference monograph *Po mrocznej stronie: Nauki humanistyczno społeczne w obliczu morderstw i strachu* [*On the dark side: Humannities and social sciences in the face of murders and fear*], (2020: 277-292), under the title, "'Comically impure travesty of the resurrection' and the microcosm of human body – literary representation of the wounded and the dead in James Jones's war novel *The thin red line*."

to justify the fellow soldiers' morbid curiosity of death which leads them to the profanation of the enemy corpses by pulling a dead Japanese out of a mass grave (Jones 199: 72). And neither Marty, nor the reader will understand what's incomprehensible even for the characters in the novel – the nature of death in war, the vainest and most ignoble way of depriving a human being of the most fundamental rights, namely, the right to live, to develop, and to decide on how to manage the future awaiting them.

Having gone through what Shaw calls in *The Young Lions* the "theatre of war", Jones devotes the majority of his literary works to the themes connected with war and its bitter aftermath. However, his combat experience, although surmounted with The Purple Heart, the U.S military decoration awarded to the wounded and killed during military operations, brings the author nothing but a profound disillusionment. As a result, Jones's prose of 1950s and early 1960s becomes one of the loudest protests against "those greatest and most heroic of all human endeavors, WAR and WARFARE"[29] as well as the government's right to decide on the fate of its citizens (Jones 1962). In the "Foreword" to James Jones's collected letters, William Styron (1962: xi-xii) with whom Jones developed a lifelong friendship, writes:

> Jones was among the best anatomists of warfare in our time, and in his bleak, extremely professional vision he continued to insist that war was a congenital and chronic illness from which we would never be fully delivered. War rarely ennobled men and usually degraded them; cowardice and heroism were both celluloid figments, generally interchangeable, and such grandeur as could be salvaged from the mess lay at best in pathos: in the haplessness of men's mental and physical suffering.

Styron must have known Jones's first-hand accounts from the battlefront. With his own military experience gathered during the service in the Marine Corps, albeit four years his junior, Styron shared with Jones the knowledge of the American Army and war inaccessible for those, who observed them from the outside. A particular portion of that experience was a profound disillusionment with the generally promoted vision of both the military service and the armed conflict viewed as actions performed for the noble cause. For Jones, the war, at the heart of which lied hypocrisy and political manipulation, was nothing more but a bottomless source of "men's mental and physical suffering" as Styron described it. Whereas the first one is presented in Jones's war novels by means of narrative subtleties, symbolic scenes, or deeply intimate insights into the pro-

[29] "Dedication" in James Jones's (1962) *The thin red line*

tagonists' inner lives, the other is more bold and explicit, includes straightforward narrative treatment of the bodily, and requires taking an uncompromisingly sharp, dissecting-room like perspective on the human body which, when involved in fight, transforms into an unknown object-phenomenon, suddenly displaying uncanny qualities. Jones's anatomy of war mentioned by Styron thus starts at the micro level with an almost literal vivisection of the soldier-protagonist body, that seeks to reveal the shattering truth about man, war and, perhaps most interestingly, the way war conditions disfigure the perception of human body in space.

The micro-perspective assuming a detail-oriented approach towards the topic in Jones's fiction is not mutually exclusive with epic-like narrative proportions of the text. Jones, alongside authors such as Irwin Shaw, Norman Mailer, Herman Wouk or Leon Uris, belongs to the group of the most successful writers of the post war era, whose major aim was to create "the great novel of the war" (Beidler 1998: 86-87). Such was the genuineness of the writers' literary accounts of the atrocities, that the majority of their most remarkable works were soon translated onto the big screen. As Jones's *From Here To Eternity*, *Some Came Running* and *The Thin Red Line* turned into movies of the same titles, the author became one of the creators of what Beidler (1998: 87) calls the new "big-war big-book big-movie genre" that crosses the boundaries of literature, allowing the verbal and literary involve into a vibrant dialogue with the visual and the cinematic as a result gaining widespread popularity amongst the recipients of culture.

Jones's success however was not always synonymous with the uncompromising reception of the author's literary vision of the world. The writer's explicit representation of both American army and the government, led to Jones being advised by Perkins, one of the editors, to re-shape his texts (Beidler 1998: 118). "The Army is something. And I don't think that anyone even approached presenting it in its reality as you have done" says Perkins to Jones, prioritizing political correctness over the literary value of Jones's texts (Mac Shane 83, as quoted in Beidler 1998:118). What is more, Jones's explicit representation of masculine body-at-war in the categories of fragility and vulnerability, sharply contrasts with the traditional vision of combat and war seen as a testing ground for the soldiers' masculinity culturally inscribed in both physical and psychological resilience, courage, aggression, and the ability to exert leadership. According to Goff (2015: 341), any attempts of which the major aim is to present the male body from the perspective of its delicateness, can jeopardize "the carefully constructed social imagi-

nary of the war". This appears to be especially undesirable for the public opinion, as it evokes "a demoralizing and dislocative shock" that affects not only the society, but also soldiers – the subject of the discourse in focus. In this view, Jones's meticulous, sometimes risqué description of male body-in-combat is something more than just a blatant violation of the limits of the acceptable, as it entails an irreversible shift in the cultural meanings conventionally ascribed to (human)[30] body.

Jones however does not belong to the first generation of American authors who openly objected the government's vision of the war as an honorable endeavor serving a noble cause and bringing glory to those who are eager to involve in it. The representation of a military conflict in the categories of what Hemingway (1942: IV) describes as "the most colossal, murderous, mismanaged butchery that has ever taken place on earth" had for a long time been one of the most vivid themes in American literature, brought into the centre of attention and developed mostly by the members of the Lost Generation – a group of American expatriate writers who, overwhelmed with a bitter disillusionment and a pervading sense of brokenness after the First World War could not reconcile with the post-war reality. The parallel between the generation of American writers in exile creating their works at the peak period of modernism in the shadow of the First World War and the generation of authors, who came of age during World War II is more than striking. In the "Foreword" to The thin red line Styron (1989: ix) asks: "If the Armistice of 1918 had permitted prodigies such as Hemingway, Faulkner, and Fitzgerald to create their collective myth, wouldn't our own war produce a constellation just as passionately committed, as gifted and illustrious?". And although the idea of replicating the literary success of the Lost Generation is finally called by Styron (1989: ix) "a dumb notion" due to "the inevitable duplicity of history, which would never allow reassembly of those sovereign talents", the author emphasizes the features such as artistic and personal individuality, and "tremendous excitement about being a young writer

[30] As human body in James Jones's *The thin red line* is frequently reduced to flesh resembling an amorphous solid, a well operating when intact, but chaotically disorganized when harmed mixture of various substances and organs, its narrative representation usually involves a series of acts: deformation, depersonalization, and, most importantly, dehumanization. Human body becomes thus in-human or no-longer-human, since its either active or passive involvement in fight entails a permanent distortion or even loss of the features that culturally defined it as specific-to-man. Additionally, the profound savagery of the body caused by harsh war conditions, leads to further transfigurations of the body into something ab- or in-human. The narrative malleability of its portrayal makes it almost impossible to decide unequivocally whether Jones is exploring human bodies at various stages of transmutation caused by war, or rather displays the body's terrifying capacity to transform into something foreign, uncanny, and, as a consequence, inhuman.

in those days", that made The Greatest Generation authors reach the myth they aspired to. The only similarity between his generation and the one of Hemingway, Faulkner, and Fitzgerald, that Styron does not voice explicitly is the troublesome wartime experience gathered directly at the battlefront – the tremendous load of the distressing knowledge about the nature of man, revealed to the authors such as Jones in the process of both literal and symbolic dismemberment of human psyche and body.

On the background of Hemingway's distressing depiction of both fallen and wounded soldiers in "A natural history of the dead", Faulkner's portrayal of a severely injured aviator escorted home from the European front in *Soldier`s pay* or, finally, Dalton Trumbo's construction of a young amputee figure in *Johnny got his gun*, whom an artillery shell left with no limbs and a shattered face, Jones literary representation of war with all the psychological and physical damage it brings to a human body does not appear as artificial, exaggerated or overdramatized. It is rather the war itself which, described, or even reenacted in a text in words heavy in meaning, discloses inconvenient truths which remain beyond the boundaries of comprehension.

These are to be discovered by Jones's protagonists in the "Resurrection" scene from the novel's second chapter. Driven by perverse curiosity, striving to penetrate the jungle and its secrets, the newly arrived American soldiers perform an all-changing act of the enemy's body profanation:

> Slowly, dreamily, mercifully mudcovered, the body drifted up out of the grave. It was like some mad, comically impure travesty of the Resurrection. First came the rest of the leg; then the second leg, flung out at a grotesque angle; then the torso; finally the shoulders and stiff, spreadeagled arms which looked as though the man were trying to hold on to the dirt and keep himself from being dragged out; and lastly the mudcovered head. (…) The helmeted head was so covered with mud it was impossible to distinguish its facial features as such. Indeed, the whole body was so mudsmeared that it was impossible to tell whether it wore any equipment in addition to its uniform or not. (Jones 1962: 73)

The soldier's initial exploration of the jungle marked by an unexpected discovery of the mass grave is a double journey into the unknown resulting in a serious violation of both the laws of nature and the universal moral code. What underlies the twofold breach is the common denominator of intrusion into a forbidden space, as in either of the cases the transgression performed by the characters is the one that involves gestures in, and at the same time, against space. The soldiers' surreptitious escapade into the unknown is therefore not only an encroachment into the hostile jungle striving to keep its own se-

crets but also involves a gratuitous distortion of the existing order of things: the upper layer of the ground is disturbed, as is the natural process of body decomposition. Since the dead soldier belongs to soil, the profanation of the enemy's corpse is tantamount to the profanation of the rules governing the organization of the natural space.

But the abhorrent act of "opening" the mass grave by pulling out one of the dead bodies, when analyzed within a broader context of the representation of Guadalcanal as the foreign and the strange in the novel, is something more than just the contravention of the unwritten rules. The image of the enemy's all "mudcovered" and "mudsmeared" corpse found in the middle of the jungle characterized by "that eerie, other planet look" (Jones 1962: 63), evokes obvious fear of contact with various pathogenic germs. The odor of the body already in the stage of decay, forces the protagonists to flee the place in panic. This, however, does not protect them against the sense of contamination. In the lyrics of the song composed impromptu to a popular melody of the time Bell warns himself against trifling with death:

> "Dont monkey around with death,
> It will only get you dirty;
> Dont futz around with the Reaper,
> He will only make you smell.
> (…)
> Dont monkey around with death;
> You will only wind up soiled." (Jones 1962: 74)

The imagery of the soil and mud reappearing in Jones's description of the corpse profanation act is complete only when juxtaposed with the mudplaying scene preceding the soldier's exploration of the jungle. The protagonist's dialogue on the exotic dangers hidden in soil can be viewed as a peculiar gloss to the "travesty of the Resurrection" performed on the enemy's body by American soldiers:

> "Look, Mazzi." Tills still did not move. "I want to ast you somethin. You think there's any fucking germs in this mud?"
>
> Mazzi stared up from where he squatted by the tentsite, momentarily surprised into speechlessness. "Germs?" he said finally. "Germs." (…) "Sure there's germs. All kinds a germs."
>
> "You really think so?" (…)
>
> "Why, hell yes. Dont you read the papers? This island's loaded with all kinds a germs. Any kind a germ you want this island's got it. What kinds a germs you want?" he held up a hand and began ticking splayed fingers. "Malaria germs –" (…) "And there's dinghy fever germs, and jaundice germs, black water fever germs, jungle rot germs, dysentaria germs –" (…) "hell, what kind a germs you want? You name it this island's got it." (Jones 1962: 55-56)

With the overabundance of the microforms of life, all of which present a serious safety concern for human health, the omnipresent, never drying-up mud puddles of Guadalcanal become a new source of danger for the soldiers. The disturbing microbe imagery from *The thin red line* appears particularly interesting when read within the context of the scientific advancement in the field of biology, boosted by the construction of the first electron microscope in the early 1930s and its considerable improvement in the subsequent years. The work on the new type of microscope takes place at the crossroads of biology and physics, as its prototype was built with an aim to study the photoelectric effect (Rasmussen 1997: 30) – the physical phenomenon Einstein sought to explain in one of his four famous *annus mirabilis* papers published in "Annalen der Physik". The exploration of the world in the macro-scale (the cosmic) is counterbalanced by the scientific examination of the micro-dimensions of reality (the atomic). The micro perspective is therefore common to physics and biology, and serves both as a point of departure for the scientific reflection on the substances filling space, and its actual subject matter. Amongst the scientific and technological novelties brought by the 1940s and 1950s are nuclear imagining techniques that involve the use of nanoparticles (Berezin 2015: 6). The study of the smallest components of matter provides a unique insight into the dimensions of reality otherwise unavailable to human perception, so strange and foreign they cannot be equated to any everyday life experience.

The preoccupation of the protagonists of *The thin red line with* "all kinds a germs" living on Guadalcanal and potentially able to threaten their health or even life can be thus analyzed with relation to the altered perceptual sensitivities of the 1940s and 1950s. With (popular) science opening new realms of reality for more or less professional exploration by various academic and non-academic subjects, the world unexpectedly broadens to reveal new, unobvious layers of reality. As the macro and the micro perspective remain beyond the range of human perceptual faculties, they both fall into the symbolic category of the cosmic, culturally understood as foreign, mentally and/or physically distant, and incomprehensible.

5.2.1. The thin red line between the subject and object in space: war, (dead) body, and the notion of abjection

The terrifying scene of pulling a body of a Japanese soldier out of a mass grave, one of the most striking symbolic depictions of the loss of human dignity sketched by Jones in *The thin red line*, is only a gloomy harbinger of what is yet to be seen and experienced by the soldiers. Referring to Kristeva's notion of 'abjection', understood as "phenomena that threaten the distinction between subject and object" and, thus disrupt the delicate symbolic balance of power and subjection, Goff (2015: 341) suggests that the corpse from the distorted resurrection scene should be viewed as a symbol of the ultimate and irreversible distortion of the formerly set boundaries and distinctions. The body reveals a terrifying prophecy which ,according to Goff, (2015: 341) can be encapsulated in the following words: "As you are, I once was; as I am, you shall be". The corpse, thus, introduces the soldiers into the world of relativity, to which the pre-war values do not apply. As a result, the protagonists cross the thin red line between life and death at the very beginning of entering the war-space time, embodied by a nameless island on Guadalcanal, as every living individual, the subject, may soon turn into what the dead Japanese soldier epitomizes, "a decaying object" (Goff 2015: 241).

Another scene from the novel, which emphasizes the disturbed balance between the subject and the object, is the one in which the soldiers find a khaki shirt during their first walk through the jungle. The shirt is marked with "a crusty, black stain" which leaves no doubts on how the soldier wearing it died (Jones 1991:66). This seems to be the first scene evoking uncontrolled, formerly unknown emotions in the protagonists:

> There was a peculiar tone of sexual excitement, sexual morbidity, in all of the voices—almost as if they were voyeurs behind a mirror watching a man in the act of coitus; as though in looking openly at the evidence of this unknown man's pain and fear they were unwillingly perhaps but nonetheless uncontrollably seducing him. (Jones 1962: 64)[31]

[31] The above quoted excerpt from *The thin red line* evokes strong associations with Freudian psychoanalysis. Jones's representation of the characters' post factum experience of an unknown fellow soldier's death is based on a dialogue between the straightforwardly perceived and the subconscious. The explicit and directly observable, supplemented with the implied, produces disturbing interdependencies with the suppressed. What arises from the tensions between the voiced and the silenced is a whole range of correlations with the sexual, involuntarily ascribed by the observing to the observed. The absent dead body and the present stain of blood on the unknown soldier's shirt, a persuasive evidence of the man's undeniable past existence, suffering, and death, perplex the late witnesses of the scene with the situation's deep intimacy. And it is perhaps the now-absent-once-present injury, a wet and pulsating tearing of tissues

The distressing discovery makes the characters realize that their situation may soon shift. As the subject-object positions are no longer secured, distanced and self-contained binary oppositions, but rather appear as fluid concepts, that can easily flow from one into another, the soldiers partially deliberately and partially unintentionally cross the boundary of the other person's intimate experience of pain and death.

The material presence of suffering and dying embodied by a khaki shirt makes death and pain exist beyond time and concern both those who have already fallen from innocence to experience, and those who are still awaiting their rite of passage between naivety and knowledge. According to Boulting (2010: 117) the shirt may be perceived in the categories of a "psychic archeological find" that "necessitates not only a reconstruction of the recent past, but also private contemplations of a certainly violent future". In this way, the shirt stained with blood, a present evidence of past suffering and death becomes an uncanny object belonging simultaneously to the past, present, and the future. All the temporal aspects of reality thus melt in the shirt into one unclear instance of time. As there is no differentiation between the foregone, the current, and the forthcoming, time becomes a relative phenomenon, no longer useful for the purposes of organizing reality and experience. Finding the very personal evidence of a fellow soldier's death in the middle of Guadalcanal's hostile jungle evokes a largely undefined feeling of concern in the protagonists who, having accidentally reconstructed another man's last moments of life, start to worry about their own future. Under the weight of the past, the

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through which life seeps away to finally leave the body and reduce it to a form of an object, a suggestive bullet, bayonet, or knife inflicted wound, that, when placed in the tensions between the conscious and the suppressed, starts to produce sexuality-related meanings. "Sexual morbidity" and "sexual excitement" are therefore generated during the act of the penetration of the opening in the dead/dying soldier's body with the protagonists' mind's eyes. Witnessing the implied, very personal moment of the wounded soldier's suffering and death is tantamount to entering into a very intimate relationship with the dying person. For Jones, this awkward moment resembles amorous advances, here of homosexual nature. Freudian theories however provide more opportunities of decoding the wound's symbolic meanings. These can be analyzed also with reference to the notion of castration; the opening in the body, most probably filling with blood (fluids) in a pulsating rhythm of the wounded soldier's heartbeat, and revealing delicate red-colored flesh constitute a vulnerable, post trauma spot on the body. As such, the wound may be viewed as an evidence of castration, something that constitutes a direct mirroring or a replication of the bleeding feminine genitalia marked by an indelible stigma of loss, incompleteness, and lack. As Freud's theories offer a broad repository of methodological tools which, when applied to the analysis of literary texts generate a dense network of meanings, the above discussed constitutes only a limited sample representing the workings of Jones's text within Freudian contexts. Nevertheless, since the main objective of the study is to analyze the way Jones constructs the imagery of the (wounded) human body in space in *The thin red line*, with particular attention paid to the body's material dimension and its object-like characteristics, the psychoanalytic perspective on the selected fragments from the novel will be reduced to the brief commentary in focus.

present undergoes a far-reaching decomposition, which makes its elements blend with the upcoming and the seemingly bygone. Time, thus becomes unreliable and, as a directly experienced phenomenon shaping reality, does not lend itself to any reasonable arrangement.

What Boulting calls a "psychic archeological find" can be further specified by the use of the concept of Eternalism, a philosophical outlook on time that, according to Donati and Gozzano (2022: 60) "clearly fits into Einstein's Relativity theory and, in a sense, can be considered as a natural consequence of Einstein's Relativity theory". Since Eternalism views the past, present, and the future as "equally real and ontologically on par" despite the three basic temporal dimensions occupying different "spatiotemporal points" in the continuum, none of them should be viewed as more important than another (Donati and Gozzano 2022: 60). Yet, it is crucial to note that the regional differentiation of the previously mentioned instances of time make them appear as "relative to the entities that occupy a certain location within the manifold" (Donati and Gozzano 2022: 60). And indeed, the distortion of the perspective caused by the soldiers' involuntary identification with their potential comrade in arms, the sudden confusion of distinctions between the two divergent orders ascribed to subject and object, entails far reaching consequences. These include the perceptual inability to categorize the directly experienced within any available frame of reference (does the experience belong to the past? If so, why does it so aggressively invade the present? Should the blood stained shirt be seen as a gloomy harbinger of things to come, a an object from the past, persistently rooted in the present and willfully fore- and forth-telling the future?), and the perceptual distortion of the overall image of reality.

As time becomes incomprehensible due to its deformity, so does space. After the horrifying discovery nothing can be certain concerning the protagonists' condition on Guadalcanal, since all the distinctions according to which they used to organize their reality in America from before the war prove no longer relevant when applied to the wartime conditions on Guadalcanal. Found accidentally in the jungle, the evidence of someone else's death prompts a sudden, subconscious revelation of what awaits soldiers during the Guadalcanal campaign; the anonymous soldier's death may as well become their own, as the characters' close interaction with the evidence of the atrocities makes them trespass the formerly discussed delicate boundary of intimacy. From that moment forward, they share the nameless soldier's pain, struggle and death, internalize them and

make them become a part of their both individual and collective memory[32] of the war-time experience. In a spontaneous act of unification with the unknown soldier's figure, one of the characters, Bell, experiences the transcendental power of death, which permeates the soldiers in a "collective and collaborative hallucination" (Boulting 2010: 117):

> Quite without preparation he had found himself staring at a horrible, hallucinatory double-image of himself and that shirt. He was both standing upright wearing that pierced, lifesoaked shirt and at the same time lying pierced and lifesoaked himself on the ground after having flung it away from him, while somewhere up behind him out of eye range he could nevertheless see a weird, transcendental image of his wife Marty's head and shoulders superimposed among the foliage gloom of the trees looking down at the two images sadly. The blink did not help. The images did not go away. (Jones 1962: 65)

Once death touches one fellow soldier's body, although nameless and distanced in time-space, nobody is safe. The above-quoted scene may be understood in the categories of an extension to Campbell's (1999: 204) notion of 'combat gnosticism' – not only does the common war experience unify the soldiers in a purely psychological dimension, but also makes them create strong physical bonds, as their bodies become primary receptors of their shared experience. In a complex net of incomprehensible, transcendental bonds, all the wounded and the dead will remind the protagonists about the disturbed death-life balance. Additionally, in the light of the previously discussed changes in space percep-

[32] At this point it perhaps worth making a brief remark to the concept of the memory of the body, a widely researched topic discussed in the field of biology, psychology, history, and literature as well, especially in the context of various trauma-related studies. Body memory is a hypothesis assuming that memories can be successfully stored not only in the brain, but also in the body, mostly due to the phenomenon known as cellular memory. Although the issue is relatively new and not yet adequately examined, its origins can be traced back to the works of Marleau-Ponty, and the philosopher's idea of habitual body memory, discussed on the example of the phenomenon of the phantom limb (1962: 85). "How can I perceive objects as manipulable when I can no longer manipulate them?" asks Marleau-Ponty (1962: 84) in his *Phenomenology of perception*, first published in 1945. The revolutionary changes in the perception of space brought by the development of science in the first half of the twentieth century inspires a comprehensive philosophical discussion on the nature of space and the way human body mediates between its outsides and mind. Applying the concept of body memory to the analysis of the scene provokes a number of additional interpretational questions: How can the soldiers, through the identification with another man's pain, remember the indirectly experienced? Can somebody's else suffering be imprinted into the protagonists' memory as, at least partially, their own, just by means of an unintentional assimilation of the unknown soldier's bygone pain, fear, and death? If so, should the body, with its unpredictable, almost boundless capacity of absorption of the external stimuli, be viewed as a complete or rather a processual object, constantly in a dialogue with its surroundings and therefore, in its very present form always something else than it was a moment before? All of these questions constitute departure points for new lines of discussion and open interesting interpretational possibilities. Nevertheless, due to the character of the study, they cannot be explored in depth in the dissertation, as this would require transferring the focal point of the analysis from the influence of Einsteinian new physics and the general change in the perception of space it inspires, to the topics of human body, trauma, and memory.

tion inspired by the reversal of the natural division between the subject and the object, the hallucination scene can be viewed as the culminating point of the process of the disarticulation of the organizational framework of reality. Once its internal skeleton is deconstructed, the real blends with the illusory in a rapid and irreversible process of absolute fusion, in view of which neither time nor space can be viewed as reliable.

5.2.2. Opening bodies, multiplying spaces: the invasive insides of the wounded body in *The thin red line*

While the preceding subchapters focused on exploring the narrative relationship between human body and the microcosm of microbes in *The thin red line*, discussed the way the distortion of the generally accepted divisions organizing space contributes to the perceptual deformity of space-time, and analyzed how the disturbed subject-object relations influence the overall appearance of reality in Jones's novel, this section aims at extracting the correlation between cosmos-related imagery and the narrative representation of (a wounded) human body in the book.

The formerly mentioned concept of abjection and the confusion between the subject and the object the protagonists experience, make it difficult to unequivocally identify the actual position of the human body, as its status is highly changeable depending on the external conditions, and varies from subject to object. Since all the military actions undertaken during the war target the body, its role in the space of the material world should be considered as by all means special. Put in the centre of attention, the body in the *Thin red line* acts as a focalizer, a peculiar sort of filter influencing the way both the story and the space-time within which it functions is narrated in the novel. The attempts to wound, annihilate, or at least incapacitate the enemy' body, contrasted with the other side's endeavors to keep it in motion and preserve its integrity, result in an intensified interest in human physicality. Contrary to appearances, violence in the novel is not limited to its purest and most obvious form of physical acts of aggression, usually associated with military actions, but is treated as a complex, multidimensional issue, embracing all kinds of abusive behaviors against the body and its carrier. Jones's literary representation of wartime acts of brutality thus includes the exploration of its

many possible incarnations and the influence it exerts in the first place on human body, and only then on psyche.

For the reasons discussed above the multifacetedness of aggression is perhaps most comprehensively embraced by the notion of perversion. Calling war "a complex of sexual perversions", Jones (1962: 277) casts a new light on the nature of the military conflict and the way it uses or rather abuses male body, becoming an igniter which plays a critical role in the process of its de- and/or trans-formation. As Williams (2026: 107) notices, the sexual dimension of war evinces itself not only in a profound satisfaction derived from hurting the enemy (which, if analyzed through the prism of Freudian theories, brings obvious associations with the act of penetration), or perverse employment of human instincts, but also from what Jones describes as an "almost sexual fantasy of comradeship" (Jones, as quoted in Williams 2016: 107-108). What should be also added to the list is the soldiers' curiosity and unexplainable (sexually explicit, if read from the Freudian perspective) fascination with their fellow soldiers' wounds received during the military operations:

> The man old Doc was working on was a young man with a slim, handsome, well-muscled back except for the fact that there was a hole the size of the mouth of a water tumbler just beneath his right shoulderblade. He sat on the edge of the table while Doc Haines working his cigar butt back and forth in his mouth cut loose strips of skin and flesh from the edge of the hole with tweezers and a pair of surgical scissors. The hole fascinated Fife and he could not take his eyes off it. Very slowly blood would well up in it until it overflowed in a slow-moving, thick, dark rill down the handsome back. When it had nearly reached his waist, Doc Haines would casually wipe it right back up to the hole again with a gauze swab and go on cutting. Frustrated but undaunted, it would prepare itself to start again. (Jones 1991: 311)

The wound appears as the central part not only of the injured soldier's body, but also of the entire scene sketched by Jones. The blood-filled hole of ragged edges, attracting the attention of the doctor, Fife, and finally, of the reader, becomes the center of gravity of the composition, acting as a synecdoche for the whole body, as both its insides and its outsides concentrate and intensify in the blood-filling wound. Its dominating presence introduces a peculiar sense of tension that stems from Fife's prurient curiosity of the intimate insides of the fellow soldier's body. As a witness of a medical procedure performed on another soldier, Fife becomes an intruder, a voyeur, a third-party to the intimate and delicate procedure reserved for two: the doctor and the patient. Consequently,

Fife's interest in the wound acquires features of perverse curiosity that violates the boundaries of intimacy and becomes a source of a forbidden, uneasy pleasure.

The scene, although embedded in a military context, is powerfully evocative of conventional religious imagery of Christ's crucifixion wounds, usually represented as deep, blood-marked holes that, intentionally well-displayed and vividly outlined against the rest of the body, are primary attention localizers for the viewer. Their predominance over the rest of the elements constituting the crucifixion scene becomes an immediate stimulus for visual contemplation and visual penetration of the wounds. Once opened with wounds and sanctified by misery, the body reveals its most precious and intimate insides, becoming a separate, mystic space, that should be admired, contemplated and adored. Introducing intertextual links to Christian religious depiction of the body, Jones represents traditional values in a distorted mirror creating "psychopathologised bodies"(Mangham, Lea 2018: 85), a travesty of not only the resurrection scene, where Christ's figure has been replaced with a dead Japanese soldier's body, but also of the idea of martyrdom no longer viewed as sacred, ennobling and honorable.

Intentional derangement stemming from the author's reinterpretation of Christian body imagery in a new context of military operations, combat injuries and (de)sacralization of human body, makes Jones's representation of the wounded and the dead fall into broader categories of Biblical and religious imagery. An interesting analysis of the aforementioned themes has been conducted by Parker (2018), who explores the motif of the male wound. Although the major focus of Parker's (2018: 90) study is fin de siècle poetry, with particular emphasis put on literary representation of the figure of Saint Sebastian, whose body "furnished a series of imagistically dynamic associations for the scientific conceptualization of the male homosexual", the ideas presented by the author are of a more universal overtone and can be applied to Jones's literary representation of wartime injuries as well.

Linking Parker's (2018) analysis of John Gray's use of religious imagery connected with wounds in poems such as "My Patron came to Heaven", "Saint Bernard" or "Saint Bernard. To the stabbed side of Jesus" with Jones's representation of the soldier's wounded body in the above-quoted scene, allows for finding a common interpretational ground for these texts. Mesmerized by the sight of the fellow-soldier's wound, Fife submits to the rhythm of the wound's self- filling with blood and the blood's obstinate outward expansion unavailingly stopped by the doctor. The source of the protagon-

ist's deep, unexplainable fascination with the abovementioned cycle of repetitions, is to be found not in the image of the injured body treated as a coherent whole, but in the injury itself. The entire scene of wound contemplation is organized according to a symmetrical pattern of penetration and expansion, the onlooker's infiltration of the body with sight and thoughts from the outside and the body's unnatural flowing through its own physical boundaries from the inside.

As the wound takes the dominating position over its bearer's body, at the same time becoming the primary centre of the onlooker's focus, the scene bears compositional similarity to the image of Saint John of the Cross reuniting with Christ in Gray's "My Patron Came to Heaven", where Christ's figure has been reduced to the Holy Wounds. According to Parker (2018: 95), the wound's representation "through images of fecundity ('torrent'), refuge ('mansion') and healing ('balm')" makes Saint John's encounter with the wound acquire a peculiar undertone of a primeval, "homoerotic desire" not only to visually penetrate the insides of the wound, but also to find a secured shelter within it. In this view, the lyrical subject's religious inclination for a final and complete unification with Christ's suffering embodied by Holy Wounds becomes the expression of a primitive, subconscious longing for a "return to the womb, the original home", that offers "succor, refreshment and (if only temporarily) unity with God" (Parker 2018: 95). A direct link between the soldier's injury and female sexual organs is explicitly made by the doctor, who, having successfully completed the surgery states: "I've given you the best-looking cunt between here and Melbourne" (Jones 1991: 311). In this view, Fife's fascination with the sight of the wound acquires features of a not fully recognized (homo)erotic desire, which seeks fulfillment in the visual penetration of the wound. The symbolic act of perforation takes the form of a silent contemplation of the formerly inaccessible neither to sight nor to thought insides of the human body.

The perverse curiosity of the microcosm of the human organism hidden beneath the thin layer of skin should be therefore viewed as an irresistible need to explore the unknown and the incomprehensible, to penetrate the inaccessible space and to wrench every secret from the insides of the newly discovered realms, to posses the knowledge of the long hidden from sight. As a result, the desire to penetrate the body through its wounds becomes a double perversion; first because of its erotic undertone, second due to the profound disruption of the order of material reality by changing the position of the body from an object in space to space itself. This causes obvious cognitive confu-

sion, as the alternation in the perceptual labeling of the body entails further changes in the perception of reality as well as in the sensory and mental processing of its composing phenomena.

Taking into consideration the above discussed it can be stated that the uncanny feeling accompanying both the direct and indirect experience of the wound stems not only from the primitive instincts awaken by the sight of the injury that suddenly disrupts the integrity of the body, but is also rooted in the discovery of the body's formerly unknown dimensions. Since the wound dominates the body, its overbearing character makes it appear as abnormally big, separate space, with an ability to expand, to deepen, and to invade the outside. As a result, the body can no longer be perceived as a coherent entity, a self-contained object, operating in a three or four dimensional reference system; it starts to function as a separate galaxy-like space-time with its own relative frame of reference. Both the psychological aspect of the subconscious, erotic urges and the new vision of the body viewed as a reality distinct from the external world within which it is embedded can be found in the scene of Bell's looking in and being observed by a dead soldier's eyes:

> Bell could not help staring fixedly at them, and they stared back with a vastly wise and tolerant amusement. The more Bell stared at them the more he felt them to be holes into the center of the universe and that he might fall in through them to go drifting down through starry space amongst galaxies and spiral nebulae and island universes. He remembered he used to think of his wife's cunt like that, in a more pleasant way. Forcibly Bell shut his eyes. But he was afraid to move his head, and whenever he opened them again, there Kral's eyes were, staring at him their droll and flaccid message of amiable good will, sucking at him dizzyingly. (Jones 1962: 187)

The paralyzing fear that makes Bell unable to take any action is not necessarily a direct result of a close proximity of a dead soldier's body, but is rather inspired by the sudden uncanny experience of the corpse's transfiguration from an object in space into a space itself. Perceived as "holes in the center of the universe" the dead soldier's eyes open up a new, formerly unknown reality of incomprehensible qualities. Once complete and finite, human body transforms into an infinite space-time with an unhindered capacity to expand, to invade the external world and to beset the observer. Visual penetration of the wound discussed by Parker (2018) becomes now a bidirectional action; the galaxy-like insides of the dead soldier's body are both explored and exploring, as the new, aggressively expanding space almost permeates the protagonist threatening to absorb him.

Interestingly enough, the experience of the dead body as a microcosm is directly followed by a distorted perception of time. “My God! Was it only 7.45?” thinks Bell clearly astonished by the deformation of the time flow he unexpectedly experiences during fight (Jones 1962: 188). The thirty-second time period measured by his watch proves flexible enough to embrace the conglomerate of “spiral nebulae and island universes”, providing them with enough time to unfold and threaten the outsides.

Bell’s traumatic experience of teetering on the verge of the terrifying microcosm of the human body is immediately linked to and compared with the sexual act. In Jones’s novel male body at war is thus frequently subjected to fetishization, as the hostile war environment leads to the wake of primitive instincts, bringing into consciousness previously suppressed erotic desires. “Could it be that all war was basically sexual?” “Were their reactions sexual too?” asks himself sergeant Bell, trying to unveil the hidden powers forcing his comrades to follow primitive impulses and primordial instincts, to shorten both physical and psychological distance between them and their fellow soldiers, to focus on physical prowess, and function as a single body to physically overpower the enemy (Jones 1962: 277). Emphasizing the peculiar cult of the male body in combat, Jones “illuminated the culture of ‘depravation’ or ‘situational homosexuality, in later parlance, as well as ‘overt’ homosexuality” (Huebner 2008: 162). The writer’s literary exploration of homoeroticism amongst American soldiers, along with a pronounced sexual undertone accompanying the construction of the imagery of male body, places *The thin red line* not only in the categories of a literary study on male psyche under dramatic wartime conditions; it also makes the novel appear as a new, experimental study on war viewed as a complex of deviations based on a perverse cult of the physical subjected to abnormal exploitation and abuse.

5.2.2.1. The terror of the blue-veined nebulae of intestines: the insides of the wounded body as an expanding microcosm

Either being wounded themselves or inflicting injuries to their enemies, the characters of *The thin red line* have to face the paradox of both resilience but at the same time vulnerability of human body. Captured by ruthless war machinery, beset by the enemy on the island and the government in their own country, the newcomers to Guadalcanal ex-

perience the uncanny, trespassing the boundaries of forbidden knowledge. As death and wounds open the terrifying microcosm of human body, it turns from the precious and well known to the hostile and uncanny inner space that invades the outside, appalling both its bearer and casual observers, leading to the loss of physical and spiritual integrity. Once the body is opened by war wounds, its well-balanced construction becomes irreversibly deranged. As a result, the body ceases to be a secure shelter, becoming foreign and unbearable for its owner.

The theme of the body's dramatic outward expansion, that jeopardizes its bearer is perhaps most vividly presented in the scene of Tella's slow and painful death under Japanese fire. The rest of C company members, although watching the fellow soldier's tragedy from a distance, cannot withstand Tella's horrific screams. An attempt to cease the soldier's pain is taken by a volunteer corpsman. Unfortunately, the try leads to the man's futile death, and Tella's screams continue to permeate the space with sheer terror. In order to stop the spread of paralyzing fear, which disempowers others in action, sergeant Welsh takes up the risk to help the fellow soldier. Reaching the colleague, Welsh experiences a peculiar sense of surreality of the sight:

> It had no reality to Welsh. Tella was dying, maybe it was real to Tella, but to Welsh it wasn't real, the blue veined intestines, and the flies, the bloody hands, the blood running slowly from the other, newer wound in his chest whenever he breathed, it had no more reality for Welsh than a movie. (Jones 1962: 234)

Tella's lethal abdominal wound, that exposes to the sight the most delicate and intimate insides of the organism opens the microcosm of human body, which appear as an unknown, inner space. Once the boundary between the outer and the inner space is violated by a terrible injury, the microcosm of human body appears to expand, invading the outside and spreading a peculiar sense of dismay stemming from the uncanny. As the wounded body becomes another hostile space to its bearer, both the soldier and the witnesses are succumbed to the feeling of being beset by the unbearability and treacherousness of what was formerly perceived as familiar, precious, and highly personal. Especially within the context of the previously quoted fragment on the microcosm behind the dead soldier's eyes, the "blue veined intestines" resemble the "spiral" nebulae, frequently of cyanic pink, purple, and blue color. The imagery of the deadly wounded body in *The thin red line* enters into a ongoing subliminal dialogue with the (visual) representation of space, usually portrayed in the popular scientific discourse of the time

as mystic strange realms of the universe, mesmerizingly beautiful in the terror of their foreignness.

Having reduced their lives to the simplest mechanical activities tinged with various shades of fear, the soldiers soon realize that the clear distinction between life and death has been irreversibly blurred; the wounded seem to carry death within them as if it was a terrible illness, the still alive anxiously await it, and the dead become an unbearable reminder of what is yet to come. The acts of killing and/or inflicting wounds on the body as depicted in Jones's *The thin red line* show that war not only takes away the right to live, to decide for oneself and one's future; they also emphasize that the physical brutality inscribed in a military conflict contributes to the irreversible destruction of one of the most precious and intimate bonds – the bond between the self and the body. Once the delicate microcosm of human organism is opened with war wounds the body becomes yet another hostile element of war space-time, transforming from an object into a foreign, unknown and unknowable, uncanny space which invades the outside world, threatens its integrity, and oppresses its own bearer.

For the reasons discussed above, Jones's portrayal of the human body at war in *The thin red line* should be viewed as rooted in and deriving from Relativity Theory discourse series. The author's sharp eye for detail followed by the roughness and explicitness of his narrative vision results in an increased interest in the most obvious but at the same time most important aspect of war – the deeply physical dimension of fight that prompts an obsessive concentration of almost all the undertaken military actions on the human body. The bitter awareness of the real nature of war comes to Jones with the wound sustained during the Guadalcanal campaign. "I lie thus – and keep on lying/ That which is me stands apart – a me that is not me – (…)" writes Jones (1989: 32) in "The hill they call the horse", a poem created during the War in the Pacific. The text's strong anchorage in Jones's real wartime experience makes it acquire a highly personal character of a confession finishing with a litany like enumeration of the soldiers whose death at the battlefront the lyrical subject has witnessed and now recounts the specific circumstances of each and every demise. The poem can be treated as an extremely condensed, proto-version of the author's war narrative, a nucleus already containing all the elements to be developed in the second part of the war trilogy. Nevertheless, the way the theme of the body grows mature entails not only the proper evolution of Jones's literary vision of his combat experience, but also includes the shaping of his narrative

perspective on the body-in-combat by the outside influence of Relativity Theory discourse series. Since their proliferation in American popular culture is particularly intensive in the 1950s due to the Renaissance of Relativity Theory inspired by the fiftieth anniversary of Einstein's revolutionary findings, Jones's literary ideas born already in the 1940s are filtered through and verified by the re-discovered perspective on space and matter offered by the achievements of Einsteinian physics. And it is under the influence of the rich and diversified (popular) scientific context of the decade that Jones's vision of the human body as a foreign, always able to expand space whose uncanny universes threaten the integrity of the world external to it, that the literary vision of human body acquires the proper shape. "From his central position man can survey the grandest works of Nature with the astronomer, or the minutest with the physicist" states Eddington (1927: 9). Jones's narrative vision of man-at-war can be seen as an extended commentary to Eddington's observation; from his central position man can have insight in the deepest insides of his body which although in many respects closer to him than the stars and atoms will remain equally incomprehensible to human cognition.

Conclusion

> It is strange how the time sense changes with different peoples. The Indians who sat on the rail of the *Western Flyer* had a different time sense – 'time-world' would be the better term – from ours. And we think we can never get into them unless we can invade that time-world, for this expanding time seems to trail an expanding universe, or perhaps to lead it. One considers the durations indicated in geology, in paleontology, and, thinking out of our time-world with its duration between time-stone and time-stone, says, 'What an incredible interval!' Then, when one struggles to build some picture of astro-physical time, he is faced with a light-year, a thought-deranging duration unless the relativity of all things intervenes and time expands and contracts matching itself relatively to the pulsing of a relative universe. (Steinbeck 1990: 147-148)

The above quoted excerpt from Steinbeck's *The log from the Sea of Cortez* is of particular importance to the present study not only due to the fact that in its pronounced linkage to the fragment on relativity from the dissertation's opening section it provides a certain form of a framing device, but also because of the complexity of the message, intricacy of the discourse used, and the position from which Steinbeck formulates his observations. Within the context of the problems considered in the study, Steinbeck's reflections on 'time-worlds' and their relativity serve as a voice from the outside, an external commentary by made by a writer who takes a step further and adopts a perspective that allows him to be in-literature-and-beyond. This is from where Steinbeck risks an experiment of communicating abstract truths using a largely heterogeneous discourse that constitutes a unique blend of the scientific and the literary. In the light of the considerations presented in the study, the fragment from *The Log from the Sea of Cortez* in which Steinbeck explicitly mentions the ideas originating in the field of relativistic physics, constitutes a conditional point of suspension for the discussion undertaken in this dissertation, at the same time serving as a convenient stopping place from which to adopt a summarizing perspective.

Since the linkage between science and American modernist literature is usually illustrated by the case of high modernist literary texts created during the first two decades of the twentieth century, or focuses entirely on the works of fiction representing science-fiction genre, there is a considerable research gap in the studies on American late modernist fiction. The influence of science on American prose from the 1940s and 1950s is frequently treated as one of the minor factors shaping literary works of the period. The analysis of the current state of the field demonstrated that the impact of the paradigm shift dictated by Einstein's discoveries and related scientific findings on American late modernist prose classified beyond the genre of science fiction has not been analyzed with due diligence and sufficient detail. Forasmuch as the context of Einsteinian new physics and the Theory of Relativity appeared as a set of ideas of paramount importance for the development of science in the twentieth century, the prospect of analyzing their influence on the creation of literary space-time imagery in selected works of American late modernist prose appeared particularly promising. Therefore, the thesis has sought to address the research gap specified above and in the introductory section of the study.

Due to the character of the study bridging two divergent fields, of particular importance was to provide a detailed and precise reconstruction of the evolution of Einsteinian thought with reference to the two waves of popular science craze in America. Tracing the development of Einstein's Relativity Theory from its early beginnings in 1905 to its fiftieth anniversary in 1955 entailed addressing the ideas central to the research in a broad and diversified context of science and culture from the first half of the twentieth century. Due to the scope of the topic, the discussion on the contextual background for the study was carried out in a separate chapter, with its some of its elements being transferred to the interpretational parts of the dissertation. This allowed for maintaining the continuity of the main research line and contributed to a greater cohesion between the theoretical and the interpretational layers of the study.

With its multifacetedness and internal diversification, the context of relativistic physics and related scientific findings from the first half of the twentieth century proved methodologically challenging as it required adopting a multifocal perspective, flexible enough to grasp the subtleties of the mechanisms of its influence on American late modernist cultural landscape, of which literature is an obvious part. For this reason, the analysis was carried out based on the repository of methodological tools provided by

Foucauldian discourse analysis. Foucault's theory of discourse creation, dissemination, and control presented in "The order of discourse" (1981) provided a capacious and internally varied conceptual framework for the exploration of Relativity Theory discourse formation in the early years of Einstein's academic activity, its development during the subsequent decades within the strictly regulated discursive environment of the academia and, finally, its leakage into popular culture resulting in its numerous uncontrolled takeovers by various speaking subjects which lead to its modification and further spread. Foucault's "The order of discourse" (1981) thus allowed to account for the deformations Relativity Theory discourse was subjected to in the course of its dissemination, at the same time emphasizing the possibility of its peculiar condensation or diffusion depending on the conditions determining its usage and spread at a given point in time.

Whereas some of the authors, whose selected works constitute the main subject of present research, make explicit references to Einsteinian physics, the exploration the effects of Relativity Theory discourse series on American late modernist fiction from the 1940s and 1950s was based on the assumption that, due to the discursive character of the scientific contents affecting literature from the outside, the influence is rather osmotic and does not manifest itself straightforwardly in the texts. While this can be considered as the limitation of the study, it is worth to mention that the implicitness of the impact forced both intensive searches within the texts and induced extensive exploration of the literary works' (pop)cultural surroundings. As a result, the analysis lead to the exposition of relativistic patterns of reality representation which, underlying the altered perceptual sensitivities regarding space and time, can be considered as inscribed in the cultural and literary landscape of the era.

The analysis of selected American late modernist texts has shown that Relativity Theory discourse series infiltrate literature at an almost subconscious level, and the foreign sediments from the field of physics found in literature, mostly by means of close reading and detailed exploration of the text, influence the construction of literary space-time imagery, forcing a departure from absolute space and time in literary representation of the spatio-temporal dimensions of reality. Although the discussion on space-time imagery has been carried out in three separate chapters, every part of the dissertation assumes a firm linkage between all the elements of the spatio-temporal constructions explored in the study. The analysis of the literary representation of space in Ernest Hemingway's *Islands in the stream*, James Jones *The thin red line*, and Flannery

O'Connor's "The displaced person" from Chapter 3 proves firm anchorage of the texts in the relativistic perceptual sensibilities that allow to treat space(-time) as a highly malleable, internally heterogeneous construct governed by its own relativistic dynamics of deformation, de-construction, and delamination. Additionally, both Hemingway's novel and O'Connor's short story feature either the models of reality representation or images directly related to the conceptualization of the outer space. Jones's war novel, in turn, deliberately misrepresents geographical spaces, negotiating the limits of the absolute and the verifiable in favor of the non-existent or the imaginary.

Chapter 4 was devoted to the discussion on (narrative) time as entangled in space on the example of Norman Mailer's *Barbary shore*. The interpretational analysis of the text was preceded by an introductory discussion on the notion of time understood within the framework of Einstein's Relativity Theory and its literary realizations in the poetics of distorted time popular during the first wave of popular science craze in America. With his unique treatment of both personal and historical time, the protagonist of Mailer's novel deconstructs the commonly accepted rule of time linearity to create his own, alternative dimension of time, and explore the "transient *now*s" in the face of his (spatio-)temporal dislocation.

The last chapter explored literary representation of the material dimension of reality on the basis of James A. Michener's *The bridges at Toko-Ri*, and James Jones' *The thin red line*. The analysis of Michener's text focused on the techno-systems of wartime machinery whose intrusive presence and high speed motion distort the conventional image of reality causing it to expand, contract, or delaminate. The second section of Chapter 5 was aimed at analyzing Jones's literary representation of human body with reference to the notions of microcosm and space relativity.

In the light of the above discussed, the fragment from Steinbeck's recount of the 1940 sea voyage with Ed Ricketts should not be viewed as an attempt to summarize the considerations presented in this study with a universal and, to some extent, all-embracing example that would encapsulate all the ideas discussed in the thesis within a uniform framework. To state that Steinbeck's fascination with relativity can be treated as a representative example allowing to view the influence of Einsteinian physics on American late modernist literature of the 1940s and 1950s as universal, ubiquitous, and always as explicitly stated as in *The log from the Sea of Cortez* is more than sure to fall into the category of an exaggeration or at least an oversimplification. Instead, Stein-

beck's direct reference to relativistic physics in his expedition journal should be viewed here as yet another example of Relativity Theory discourse takeover. Therefore, the fragment opening the conclusion neither ultimately recaps on the problems discussed in the dissertation nor is the final word on the subject. The present study sought to provide a comprehensive research perspective on the influence of Relativity Theory discourse series on American late modernist literature of the 1940s and 1950s. Nevertheless, despite its relatively broad scope and corresponding complexity, what it casts light upon is only on a clipping of a broad, diversified, and rich literary and discursive landscape of the time. For this reason, let Steinbeck's words serve as a signpost indicating still unexplored 'time-worlds' and new research directions in the field.

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