Geographies of Tropical Ecology: Place-Making in William Beebe's Travel and Writing

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ABSTRACTS

Der amerikanische Naturforscher und Reiseschriftsteller William Beebe zählt heute zu den Gründern des Forschungsfeldes der Tropenökologie. Der Beitrag beleuchtet die Strategien, mit denen Beebe dieses Feld erschuf. Ausgangspunkt ist Beebes eigene Beobachtung, dass Repräsentationen die materiellen Erfahrungen, die einen Ort ausmachen, nie vollkommen abbilden können. Peter Turchi nennt dieses Problem „die Herausforderung der Repräsentation" („the challenge of representation"). Für Beebe eröffnete diese Herausforderung einen verzwickten Handlungsraum: An nur einem Ort konnten unterschiedliche Aktivitäten stattfinden und dabei verschiedene Bedeutungsebenen erschaffen – eine erzählte Landschaft, einen Raum der Körpererfahrung und ein Forschungsfeld. Als Beebe seinen wissenschaftlichen Zugang zur Natur formulierte, musste er die Komplexität des Ortes absichtlich reduzieren, indem er die imaginativen und sinnlich erfahrbaren Bedeutungen zum Schweigen brachte. Methodologisch dienen die Reiseberichte von Beebe als Ansatzpunkt, um diese unterschiedlichen, aber verflochtenen Ebenen von „Ort" in der Konstruktion des Forschungsfeldes sichtbar zu machen. Die theoretischen Ansätze von Peter Turchi, Yi-Fu Tuan und John B. Harley leiten die Analyse.

William Beebe was an American naturalist and travel writer, who is nowadays regarded as a founding figure of the scientific field of tropical ecology. This essay understands his contribution to this field in terms of place-making activities. Starting point is one of Beebe's observations that representations can never depict the material experiences that made up the essence of a place. Peter Turchi has called this problem "the challenge of representation". For William Beebe, this challenge opened up a tricky room for maneuver: Various activities can happen in one spot and create different notions of place – as narrated landscape, room for bodily experience and site of research. In framing the scientific approach to nature, Beebe had to deliberately reduce the complexity of the place by silencing its imaginative and sensuous notions. The essay uses

Comparativ | Zeitschrift für Globalgeschichte und vergleichende Gesellschaftsforschung 28 (2018) Heft 2, S. 42–55.

the written accounts by Beebe as keys to disentangle the different notions of place, guided by the theoretical approaches of Peter Turchi, Yi-Fu Tuan, and John B. Harley.

> *These chapters wrote themselves in the intervals of diving, fishing, watching, naming, dissecting – the serious study of the fish of Bermuda. After two seasons* […] *they came to mind and* […] *were put down between July and October, 1931. Colors, odors, sounds, and sights; the island, sea, sky and living creatures, all gloriously interexisting in the three planes of our planet, and in the fourth dimension of enthusiastic human appreciation, – all this has had to be entombed in black type upon flat paper. The chapters abound with I, Me and My, in essence the most impersonal of pronouns, standing solely for a pair of eyes, together with a moving hand whose function is that of a needle on a phonograph record, to record imperfectly what is so perfect before the directing brain begins to distort and depreciate.*[1]

The American ecologist William Beebe addressed a problem that Peter Turchi has called the "challenge of representation".[2] If one considers, like Beebe and Turchi, writing as translation of authentic experiences, text can never depict the materiality of the "real". For Beebe, a place in nature appeared as an entity that would be able to speak for itself, if only the writer was able to understand and translate the message. Beebe, however, did not only lament the impossibility to fully represent the world beyond the text, but also mentioned practices that produced place: diving, fishing, watching, naming and dissecting. They engaged the body, the sensory organs and the brain. This quotation moreover demonstrates how various activities can happen simultaneously but create different notions of place – as imaginative map, room for bodily experience, or site of research. For William Beebe, the situation was even more complicated, and was a room for manoeuvre: The purpose of his travel was field research. He counts as one of the founders of the research field of tropical ecology. However, to him, this was not enough, and he developed ways to combine different notions and representations of place.

This essay investigates the ways in which Beebe experimented with different representations of place. This approach helps to make the contradictions within the concept of place visible: The practices that Beebe conducted (writing, walking, diving, and researching) produced three entangled geographies of the tropics: The imaginative maps of the travel records represented places of encounters, the sensuous geographies of diving opened up rooms for experience, and, finally, the field was a place of scientific insights, for which Beebe had to silence the imaginative and sensuous dimension.

This travel through three notions of place also calls for three analytical approaches that I am following here. Peter Turchi's book on the writer as cartographer is illuminating to understand the first notion, that of Beebe's travel writing as the making of imaginative maps. Yi-Fu Tuan's approach of sensuous geographies unveils the ways in which Beebe's

1 W. Beebe, Nonsuch Island: Land of Water, New York 1932, p. ix.

2 P. Turchi, Maps of the Imagination: The Writer as Cartographer, San Antonio 2004, p. 20.

books speak of the world of odours, colours and sights that the author experienced on his travels. This place-making takes human nature (the body and the senses) of the explorer into account. Finally, in understanding how experiences become scientific representations, a third approach, which the geographer John B. Harley calls "silences" is at play. Making the field silenced the imaginative and sensuous geographies and created place in and through scientific abstraction.

This essay uses the travel accounts as key to unlock the different, but always entangled notions of place Beebe is constructing: His writing produced imaginative maps and connects place-making to moments of encountering the unknown. Using his body and the senses as tools of exploration, he produced another notion of place as sensory challenge: here diving in tropical oceans reinvents the old trope of "first contacts" as inter-species encounter.[3] The third notion of place-making relates to Beebe's actual travel purpose that was field work and science. Here, places are made by abstraction and reduction, thus by a denial of difference and real-world encounters. In considering these contradictory geographies, this essay does not follow beaten tracks of analysing travel literature as culture and science: Neither the institutionalization of tropical ecology as field science or discipline is under scrutiny here[4] nor the question of how Beebe encountered and represented places as *a priori* in contact scenes.[5] It is about the question of how different notions of place are evoked and silenced by certain technologies, aims and strategies of writing, experiencing and observing places.

After a short introduction of William Beebe and the places he built his career upon, this chapter is organized in a chronological and spatial way: It starts with William Beebe's first travels to the tropical jungle, then moves to the underwater world, and finally deals with the construction of tropical ecologies on land and in the sea.

1. Beebe's Sense of Place

William Beebe was born in Brooklyn in 1877. He was accepted to Columbia University in 1896 and studied with Henry Fairfield Osborn, who was President of the American Museum of Natural History. Beebe received a position at the Bronx Zoo as curator of birds. His first travels aimed at collecting and observing these animals in their natural surroundings.[6] For this purpose, he planned to set up a permanent field station in the tropics. The support of influential friends, for example president Theodore Roosevelt

3 For contact scences with respect to the category of "place", see M. L. Pratt, Imperial Eyes: Travel Writing and Transculturation, London 1992.

4 E.g. R. De Bont and J. Lachmund, Spatializing the History of Ecology: Sites, Journeys, Mappings, London 2017; H. Kuklick and R. E. Kohler (eds.), Science in the Field, Special Issue Osiris 11 (1996); K. H. Nielsen et al. (eds.), Scientists and Scholars in the Field, Aarhus 2011; J. Vetter (ed.), Knowing Global Environments, New Brunswick 2011.

5 The otherwise helpful idea of the contact zone would be one example among the vast amount of literature on travel for a concept that considers "place" as *a priori* of encounters: Pratt, Imperial Eyes.

6 W. Beebe, Our Search for a Wilderness, New York 1910.

helped the New York Zoological Society to acquire tropical stations in British Guiana.[7] Beebe wrote about his experiences on the spot in the book "Tropical Wildlife in British Guiana"[8]. Aiming at understanding tropical ecologies on a larger scale, he extended the scope of his travels to other regions on land as well as to aquatic realms, e.g. to the Islands of Galápagos, Haiti and Bermuda.[9] On Nonsuch Island (Bahamas), Beebe and the engineer Otis Barton developed a closed diving machine, the Bathysphere.[10] Beebe lost his research station on Nonsuch during the Second World War. After having built and lost two further research stations in Venezuela, the New York Zoological Society founded the Simla station in Trinidad, where William Beebe died in 1962.

Beebe is significant as field scientist: Although he did not earn a degree from Columbia University, he largely contributed to the invention of "tropical ecology". It is, however, not his career as semi-professional ecologist that makes Beebe's work a good case-study for understanding the making of places in / of encounters. His travels created an imaginative web of places, connecting tropical land- and seascapes to science and society in North America. Beebe wrote about the smell of the tropical flora, the feeling of heat and cold, the noises of the animals, the materiality of the water or the characteristics of the jungle. Walking on land, he reported how he felt the humidity, the wind or the sun on the skin. Diving down, he wrote about the movement of water, "the very slight push and slack of the swell"[11]. Beebe was subjected to impulses from the surrounding environment, and diving with helmet and diving suit transformed his body into a scientific instrument. These experiences point to three notions of place and the different encounters by which they are made: as imaginative maps in travel accounts discovering the unknown, as place of sensuous (inter-species) encounters, and as scientific research field, where those encountered are denied. Place-making hence engages the pen, the body and scientific instruments as well as different ways to conceptualize and deal with encounters.[12]

2. Writing Down the Tropics

In his book "Maps of the Imagination", Peter Turchi draws parallels between writing and exploration: Creating stories is like navigating through uncharted waters or traveling

7 W. Beebe, Pheasant Jungles, New York 1927.

8 W. Beebe, Tropical Wildlife in British Guiana, New York 1917. See also: W. Beebe, Jungle Peace, New York 1919; W. Beebe, Edge of the Jungle, New York 1921; W. Beebe, Jungle Days, New York 1925.

9 See W. Beebe, Galápagos: World's End, New York 1924; W. Beebe, The Arcturus Adventure, New York 1926; W. Beebe, Beneath Tropic Seas, New York 1928; W. Beebe, Thoughts on Diving, in: Harper's Monthly Magazine April (1933), pp. 582-586.

10 W. Beebe, Nonsuch; W. Beebe, Field Book of the Shore Fishes of Bermuda, New York 1933; W. Beebe, Half Mile Down, New York 1934.

11 Beebe, Nonsuch, p. 44.

12 For formula and place, see: A. Rimbaud, Vagabonds, in: Illuminations, New York 1957, p. 67; M. Shapiro, A Sense of Place: Great Travel Writers Talk about their Crafts, Lives, and Inspiration, Berkeley 2004.

through unknown landscapes. Encounters with the blank space of the page require certain techniques and abilities: Writing is compared to an expedition that explores imaginative spaces by inventing them.[13] Turchi uses "mapping" as metaphor for the process of writing generally, and not as a place-making activity *per se*.[14] William Beebe's imaginative map of the tropics was based on real-time experiences, written down in more than fifty travel books and magazine articles. He travelled with his first wife, Blair Niles, to Mexico to watch and collect exotic birds for the New York Zoological Park.[15] "Our search for Wilderness"[16], "Tropical Wildlife in British Guiana"[17], "Jungle Peace"[18] and "Edge of the Jungle"[19] drew upon his extended stays as curator of the New York Zoological Society's tropical research station in British Guiana. His diving books on Galápagos ("The Arcturus Adventure"[20], "Galápagos. World's End"[21]) situated the Island within geographies of adventure in remote regions. The ecology and atmosphere of the Bermuda Islands and Haiti were topics of "Beneath Tropic Seas"[22], "Nonsuch: Land of Water"[23], "Half Mile Down"[24] and the "Zaca Venture"[25]. These books unfold the imaginative geographies of the tropical regions on land and in the sea.

The chapter titles define the coordinates of the stories. The preface serves as an entrance door into the narrative's world. As we can see from the example "Two Bird Lovers in Mexico", it gives the date of the journey and situates the story in time and space: "These chapters on the Nature life of Mexico were written during a trip to that country in the winter of 1903-04. We reached Vera Cruz on Christmas Day[.]"[26] It gives information on the special character of the trip ("The entire trip was so novel"), moves on to the acknowledgement of supporters and ends with explaining the structure of the book. The text itself starts with the transit on ship. Beebe experiences travelling as movement through material space, but also through imaginative maps. The chapters' headings take us to the "Waves of the Sea", "Coast and Tableland" and reach the solid ground of "Cactus Country" or the "Mesquite Wilderness". Beebe's books mix geographies of real environments ("Near the Twin Volcanos", "Nature Near Camp") with magic and mythical lands ("The Magic Pools", "Along the Stream of Death").[27] Beebe told the reader the coordinates, where he entered the tropics in Mexico: "We were about twenty miles

13 Turchi, Maps of the Imagination, pp. 11-25.
14 See the single chapters of the book that deal each with one of these strategies.
15 See W. Beebe, Bird Lovers.
16 W. Beebe, Wilderness.
17 W. Beebe, Tropical Wildlife.
18 W. Beebe, Jungle Peace.
19 W. Beebe, Edge of the Jungle.
20 W. Beebe, Arcturus Adventure.
21 W. Beebe, Galápagos.
22 W. Beebe, Beneath Tropic Seas.
23 W. Beebe, Nonsuch.
24 W. Beebe, Half Mile Down.
25 W. Beebe, The Zaca Venture, London 1938.
26 Beebe, Bird Lovers, p. vi.
27 See ibid., p. iv.

from the Pacific Ocean, over four degrees south of the Tropic of Cancer, and but a few hundred feet above sea-level. Our camp was at the very base of a steep cliff, while the West of the jungle thinned out to low, open bush."[28] In his travel book, he described encounters with the people as part of everyday business. He had letters of recommendation with him that opened the hearts and the doors of the indigenous population, who offered shelter and food.

Beebe's encounters with people resemble the cartographic convention that J. B. Harley called "silences". Harley distinguishes between "silences" and blanks, the "intentional or unintentional suppression of knowledge in maps"[29]. This was part of imaginative map-making. The idea of the (last) blank spaces functioned as almost ontological and self-sustaining motivation for expeditions to remote regions, and silences legitimate and create these playgrounds for adventure. Silences mean deliberate omissions to dislocate people, creatures and things from the narrative, or the place they are attached to.[30] Power relations are part of the process: In Beebe's writing on Mexico, the indigenous people appear not as equal partners in encounters, but as part of the landscape and infrastructure. He withholds their names, personal information on identities and faces, on individual character traits. Generalizations and silences defined Beebe's room for manoeuvre in the cultural realm.

The silences in Beebe's travel account "Tropical Wildlife in British Guiana" made the tropics places of late-colonial interactions. Personal encounters took place within the sphere of the political, scientific and economic elite or with travel companions *en route*. He travelled in a group of six to the Kalacoon river: the research associate G. Inness Hartey, the research assistant Paul G. Howes, the collector Donald Carter, and the artists Rachel Hartley and Anne Taylor.[31] Neither the lure of adventure, nor the sensation of "wild" folks attracted them to South America, but an administrative decision. The New York Zoological Society had decided to establish a tropical field station in British Guiana, with William Beebe as the station's curator. Compared to earlier tales of "first contacts"[32], the late-colonial tropics of the year 1916 were well domesticated: "We found a house and servants awaiting us."[33] The sociocultural landscapes which the American Beebe encountered, were the lands of late-imperial British rule and global commodity capitalism. The assigned spot for the station was a former rubber plantation on the Kalacoon river, stretching from the material infrastructure of civilization into imaginative geographies of virgin lands. The plantation was "situated in the primeval jungle, but free of disturbances

28 Ibid., p. 270.

29 Turchi, Maps of the Imagination, p. 57; J. B. Harley, Silences and Secrecy: The Hidden Agenda of Cartography in Early Modern Europe, in: Imago Mundi 40 (1988), pp. 57-76.

30 Turchi, Maps of the Imagination, p. 57.

31 Beebe, Tropical Wildlife, p. XIII.

32 Classic tales would be Christopher Columbus "discovery" of America or James Cook in the Pacific, see: Z. Dor-Ner: Kolumbus und das Zeitalter der Entdeckungen, Köln 1991; B. Richardson, Longitude and Empire: How Captain Cook's Voyages Changed the World, Vancouver 2005; a recent critical perspective: T. Shellam et al. (eds.), Brokers and Boundaries: Colonial Exploration in Indigenous Territory, Acton 2006.

33 Beebe, Tropical Wildlife, p. 24.

and suitable for long-continued observation". It "was isolated from the sphere of human culture, but offer[ed] facilities of communication with the outside world."[34] Kalacoon was enough of a wilderness, at least for European and American researchers, to be the ideal research site, and simultaneously part of the British colonial infrastructure:

> *No more central spot could be found, nor one more delicately balanced between the absolute primitive wilderness and those comforts of civilization which mean* […] *the ability to use body and brain to the utmost*.[35]

The making of a place as research field, which is analysed later, shows the extent to which even natural places are coproduced by certain human strategies and activities. Furthermore, Beebe's writing engaged power relations by creating his version of tropical landscapes.[36] Nature filled the silences that betrayed Beebe's disinterest in peoples, filled the sketchy maps with words and meaning. Nature and non-human companions appeared as the (new) Other and the partners of encounters. The quotes, representing Beebe's creation of the jungle, show that sounds and tactile experiences framed the land.
The landscapes of the tropics were constructed as the place of sensation and the setting for encounters: "The nights were full of interest and almost every time we rolled up in our blankets for the night, some new creature came to investigate the strange white things which were so tantalizing to the curiosity of the wild kindred."[37] The jungle was charted as experiential space even triggering affect and emotions:

> *[T]he sound of even the lightest breath of wind* […] *was as different as possible from the sighing of pines or the rustle of ordinary foliage. It was a soothing, softly sound which will ever be the background in our memory.*[38]

3. Encountering the Underwater World

The geographer Yi-Fu Tuan argues that every expedition to a foreign land was not only a scientific, but also a sensory endeavour. Before the 18th century, explorers had many reasons for going to remote regions: economic motives and mythical motifs such as finding a path to the land of spices, the legend of the open polar sea or of the wealth of Timbuktu dominated travels to seemingly unexplored countries. During the era of the Enlightenment, science emerged as the most common leitmotif of expeditions. Some travellers shared the opinion, that unfamiliar parts of the word could be understood by close observation on the spot. This "rhetoric of science, however, was not wholly convincing even

34 Beebe, Jungle Peace, p. 141 (all quotes).
35 Beebe, Tropical Wildlife, p. 27.
36 D. Arnold, The Tropics and the Travelling Gaze: India, Landscape and Science, Seattle 2006.
37 Beebe, Bird Lovers, p. 271.
38 Ibid.

to those who made it."[39] The desire for adventure, national ideologies, and the individual ambitions of the explorers stood behind many expeditions, "and something rarely stated in the open – a yearning for sublime experience."[40] This yearning for sublime experience (which William Beebe's quote in the beginning projects), is a genuine part of traveling and travel writing.[41]

The desire for feeling fully alive in nature speaks from William Beebe's accounts. Reading Beebe's nature descriptions, the places abound with the smell of the tropical flora, the tactile impression of heat and cold, the noises of the animals, the texture of the water, or the humidity of the tropical jungle. In the 1920s, William Beebe left the Earth's surface and started to investigate underwater worlds from the tropical Islands of Galápagos, Haiti and Bermuda. Similar to his departure to the tropical lands in the previous chapter, the entrance into the ocean resembled a *rite de passage.* Beebe is standing on a ladder that will take him into the ocean. Beebe describes the transition from land to sea as a shift of body awareness, when he puts on the diving equipment. Speaking directly to the reader, he facilitates the identification with the sensory landscape of diving: "Something round and heavy is slipped gently over your head, and a metal helmet rests upon your shoulders."[42] Still standing on the ladder, Beebe faces the islands of Haiti, and makes the reader part of the scene: "Turning your head you see emerald waves breaking upon the distant beach of ivory, backed by feathery palms waving in the sunlight against a sky of pure azure." The stereotypical description shows the extent to which imaginations of tropical islands are produced by the sense of sight, a sense that creates visions, illusions, vistas and finally postcard motifs. Diving, however, left the beaten tracks of the imagination, by turning the common visual regime upside down. The first step into the ocean already dissolved the illusion of tropical islands: "For a brief space of time the palms and the beach show through waves which are now breaking over your very face." The waves are part of the ocean as material environment, but in the narrative, they work as indicators of a new visual regime: "Then the world changes. There is no more harsh sunlight, but delicate blue-greens with a fluttering shadow everywhere."

Beebe framed the unknown seascapes resorting to terrestrial projections and conventions.[43] These conventions were informed by semantic analogies to the land, as the title "Nonsuch: Land of Water" shows.[44] Projections are important for making "blanks" into regions of the known world. Projecting colonial aspirations onto the underwater world,

39 Y. Tuan, Passing Strange and Wonderful: Aesthetics, Nature, and Culture, Washington, DC 1993, p. 115; see also: Y. Tuan, Romantic Geography: In Search of the Sublime Landscapes, Madison 2013.

40 Tuan, Passing Strange and Wonderful, p. 115. Considering encounters with alien environments as place-making activity takes the human nature (the body and the senses) of the explorer seriously. Y. Tuan, Romantic Geography: In Search of the Sublime Landscape, Madison 2014, pp. 167-177.

41 A. Kraus, Der Klang des Nordpolarmeeres, in: A. Kraus and M. Winkler (eds.), Weltmeere: Wissen und Wahrnehmung im langen 19. Jahrhundert, Göttingen 2014, pp. 127-148; S. Corristine, Träume, Labyrinthe, Eislandschaften: Körper und Eis in Arktis-Expeditionen des 19. Jahrhunderts, in: Kraus/Winkler (eds.), Weltmeere, pp. 103-126.

42 Beebe, Beneath Tropic Seas, p. 3 (for this and all quotes in this paragraph).

43 Turchi, Maps of the Imagination, pp. 73-97.

44 Beebe, Beneath Tropic Seas, p. 3.

William Beebe even presented the ocean as a place to be conquered, "No-man's-land. Five Fathoms Down".[45] Scenes of encounters that resemble the projection of first contacts were still possible in the ocean: "The first little people of this strange realm greet you – a quartet of swimming rainbows – four gorgeously tinted fish who rush up and peer at you."[46] Anthropomorphism (the fish as people) is a common strategy in naturalists' accounts: Encounters became interspecies affairs.[47] The question is raised of how the sensation of "first contact" was defined by experiencing (and, simultaneously, the making of) the place as new.

It was not the uncommon ground of the ocean as scientific field or as narrated place that led to the impression of first encounters. It was the strangeness of the physical and sensuous experience that the ocean offered to the human diver.[48] In the making of the aquatic tropics, diving required the body and the senses. Beebe could feel the movement of the water, "the very slight push and slack of the swell"[49]. The process of disintegration that started on entering the sea continued during diving. Modes of sight and body experiences changed. Odours and sounds were missing that made the sensuous texture of the tropical surface world. The light absorption under water created visual signs that needed to be interpreted anew, since the common modes of tropical colour-sight faded to blue in certain depths (an "ultramarine world"[50]). Although projections and conventions helped Beebe in making the underwater world and its sensuous geographies a place on maps of Euro-American imagination, the newness of the sensory landscapes and the sensation of its inhabitants made it difficult to express the experiences.

Beebe did not have to deliberately silence words for the places and animals he had seen; they were simply missing. His search for semantics, however, was cast in colonial conventions. He used two strategies for framing the ocean as place of first contact scenes: The first one is connected to the traditional exploration narrative as tale of sensations, turning a place into a realm of wonders and marvels with a different sensuous geography:[51]

> *You begin to say things to yourself, gasp of surprise, inarticulate sounds of awe, you are troubled with a terrible sense of loss that (as the case may be) twenty, thirty or fifty years of your life have passed and gone without your knowing of the ease of entry into this new world.* Are *you under water? There is no sense of wetness…. Only a moment has passed since you left the world overhead, or was it many hours?*[52]

45 Ibid., p. ix.

46 Ibid., p. 4.

47 For the recent research branch of inter-/multispecies ethnography, see: E. S. Kirksey and S. Helmreich, The Emergence of Multispecies Ethnography, in: Cultural Anthropology, 25 (2010) 4, pp. 545-576. E. S. Kirksey, The Multispecies Salon, Durham 2014; R. Madden, Animals and the Limits of Ethnography, in: Anthrozoös: A Multidisciplinary Journal of the Interactions of People and Animals, 27 (2014) 2, pp. 279-293.

48 See Beebe, Thoughts on Diving, pp. 582-586.

49 Beebe, Nonsuch, p. 44.

50 Beebe, Arcturus Adventure, p. 36.

51 M. Cohen, Underwater Optics as Symbolic Form, in: French Politics, Culture & Society 32 (2014) 3, pp. 1-23; M. Cohen, Fish Eye Fish: Diver in Fish Bowl, in: WAX 7 (2015), pp. 99-102.

52 Beebe, Beneath Tropic Seas, p. 5 (emphasis in original).

These forms of underwater tropical frenzy were restricted by the material environment. Going native as a diver was a temporally limited affair. Losing one's terrestrial identity underwater, however, led to Beebe's cheerful rebirth when he came up to the land:

> *You exclaim something bromidic which sounds like Marvellous! Great! Wonderful! Then relapse futilely into silence and look helplessly into the distance where the emerald waves still break and the palms wave as if fairyland had not intervened in your life since you saw them last.*[53]

Making a place through the senses created an underwater world of sensation, an experience of being fully alive. Making the place with words helps in locating the region and the experience in the landscapes of late-colonial science. On these imaginative maps, every feature must have a name and not an atmosphere. Beebe had to find words for the sea and started to baptize seascapes and animals: "So Adam-like, I had to give them all temporary names, until I could identify them."[54] This strategy of inventing names like a creator, has been criticized as ritual of colonial power.[55] Evoking mastery over this no-man's-land put the sea into geographies of power. With respect to the category of place, however, Beebe's subaquatic baptism made it possible to find the language to locate the sea on imaginative and sensuous maps. As the quote shows, baptism thereby becomes a synonym of creation, naming is creating a place in encounters. Beebe's diving episode unveils the more general fact that even liquid places do not exist *per se* but are created by certain place-making activities. The body and the senses were tools of this creative power, the language the tool to place the world on imaginative maps and to turn it into the representation that the quote in beginning demonstrated. Finally, geographies of field work combine experience and text to form something new.

4. Mappings of the Fields

The research field is a challenge to the senses and the mind. Entering an area that will become the field puts the scientists first and foremost in an area, where "other activities" are carried out, since the natural site "can never be an exclusively scientific domain":[56]

> *Fields are public spaces, and their borders cannot be rigorously guarded. They are inhabited by very different sorts of people* […] *Although the members of the field's heterogeneous population pursue their separate ends and often resent one another, they also interact with and affect one another in significant ways. Thus cultural translation remains a*

53 Ibid., p. 6.
54 Beebe, Arcturus Adventure, p. 84.
55 A. McClintock, Imperial Leather: Race, Gender and Sexuality in the Colonial Contest, New York 1995.
56 H. Kuklick and R.E. Kohler, Introduction, in: Science in the Field, Osiris 11 (1996), pp. 1-14, at 3.

> *persistent and pervasive possibility in the field sciences, far more than in the laboratory disciplines.*[57]

The field does not exist *per se*, it is made by body techniques and scientific conventions. The written word then translates the place's special ecology into generalized ecological scientific knowledge. Beebe's research sites offered webs of interspecies relations and different (imaginative, sensuous) geographies. He had to read and analyse them to reconstruct the ecology of the place. The jungle and the ocean, however, were different from each other as material environments, as atmospheric places and as biological entities. In his creation of the fields, Beebe used these various geographical layers of the places and turned them into scientific abstractions.[58] In this process, he used the senses as scientific tools. In the chapter "Methods of Research"[59], William Beebe described how he located specific animals by perceiving the sensuous geography of the jungle. Animals, like birds, produced sounds; these, in turn, not only produced an atmospheric soundscape of the jungle, but also provided information on the interspecies relations that made the place and gave some hints on the place's ecology.[60] One sound, for example, led Beebe to a species, and to animals that stood in relation with the sound-maker. On the one hand, following sensory impulses, discovering the web of interrelations and describing the place's ecology, was a process of creation and construction. On the other hand, translating the complex web into scientific descriptions meant reducing the complexity of the field.
Beebe deliberately silenced the senses and sensory impulses that he did not need. Beebe followed scientific conventions of field work and chose his methods.[61] Seeing is associated with thinking and understanding and "sight is coupled with insights".[62] Written handbooks and instructions on scientific observation turned seeing from an unconscious practice into a codified or even ritualized technique.[63] Observation transferred conventions of scientifically motivated cultural encounters to the animal realm: In style and techniques, Beebe's ecological observation resembled the field work of social anthropologists.[64] He and his team settled "down in a strange country" and studied non-human "wild creatures which inhabit it"[65], with one decisive difference: Fields of anthropological observation can be defined by sociocultural geographies of a place. A social anthropologist would, for example, settle down in the meeting place of indigenous societies, if he or she knew where the place was. Beebe, however, first had to find the centre of

57 Ibid., p. 4.
58 Turchi, Maps of the Imagination, pp. 159-213.
59 Beebe, Tropical Wildlife, pp. 147-154.
60 Ibid., pp. 147-148.
61 Ibid, p. XIII.
62 Tuan, Passing Strange and Wonderful, p. 96.
63 F. Richthofen, Führer für Forschungsreisende, Berlin 1886; G. Neumayer, Anleitung zu wissenschaftlichen Beobachtungen auf Reisen, Berlin 1875; F. Dahl, Anleitung zu zoologischen Beobachtungen, Leipzig 1929.
64 R. Renato, From the Door of his Tent: The Fieldworker and the Inquisitor, in: J. Clifford and G. E. Marcus (eds.), Writing Culture: The Poetics and Politics of Ethnography, Berkeley 1986, pp. 77-97; T. Rice and M. L. Berg (eds.), Future Fields, Special Issue Anthropology Matters 6 (2004) 2.
65 Beebe, Tropical Wildlife, p. 147.

the field and to construct the place of observation. He picked one single feature, such as a significant tree, and studied it intensively together with the living beings inhabiting this place.[66] For scaling up in terms of size and abstraction and scaling down in terms of complexity, he used geometrical approaches to place – a (Western) trick of geographical reduction and spatial classification:

> *The area in which we worked during six months of 1916, from March to August inclusive, may conveniently be divided into two very distinct zones; First, the Clearing and the Secondgrowth. Second, the jungle itself.*[67]

Measurements and dimensions made the zones of the field: "Now, for a distance of many acres along the shore, […]. Six hundred and fifty acres of jungle […]. Another five hundred and fifty acres […] second growth."[68] Beebe defined one-half square mile of the jungle south of the station as his main research area, where he worked and observed over months, creating accounts of interspecies encounters and the web of interrelations that made the place's ecology. The article "Studies of a Tropical Jungle: One Quarter of a Square Mile of Jungle Kartabo, British Guiana"[69] is usually read as a pioneer account in tropical ecology and the result of a process of creation. It unfolds the web of interrelations of the place that nature has made: the geological and soil conditions, a monthly analysis of the climate, an overview of the flora, and the description of every animal the team had observed during a five-year period. These descriptions included the number of individuals, their behaviour, and information on their position in the tropical food chain.[70] With regard to place-making activities, however, Beebe produced the research field. This making of the field is another example of the cartographic convention that J. B. Harley called "silences"[71]. Using the geographical abstraction from zones, Beebe had deliberately silenced imaginative and sensuous geographies of the place.

Ecology is place-bound knowledge, but what did he do in the seemingly placeless ocean? Understanding the ocean through the terrestrial metaphor of the field (which is a contradiction *per se*) made spatial abstractions and framing more necessary than on land. Finding the rigorous geometries for the fluid environment makes the extent to which place and fields are being made even more obvious than on land.[72] The sensuous geographies of diving reassured the oceans' division into the horizontal zones of the shallow waters and the abyss. Mapping of the vertical extension of the waves and currents challenged geometrical approaches that were possible on land. Beebe again used the epistemic trick

66 Ibid.
67 Ibid., p. 51.
68 Ibid.
69 W. Beebe, Studies of a Tropical Jungle: One Quarter of a Square Mile of Jungle at Kartabo, British Guiana, in: Zoologica 6 (1925), pp. 5-193. Still quoted in recent literature: e.g. in: D. P. Reagan and R. B. Waide (eds.), The Food Web of a Tropical Rain Forest, Chicago 1996, p. 112. See as well: W. Beebe, Fauna of Four Square Feet of Jungle Debris, in: Zoologica 2 (1916), pp. 107-119.
70 Beebe, Studies of a Tropical Jungle, pp. 5-193.
71 Turchi, Maps of the Imagination, p. 57; Harley, Silences and Secrecy, pp. 57-76.
72 Beebe, Thoughts on Diving, pp. 582-586.

of projection: He projected the natural formation of the island onto the underwater world.

In analogy to his jungle observation at Kalacoon, where Beebe concentrated on one square mile in a close reading of the environment, he thought that investigating one island of water made more sense than investigating a long distance from the surface. The island of water, however, was only a mathematical abstraction and created as scientific imagination through place-making activities, such as dividing places in zones. Thus, Beebe's submarine island was created by sensuous geographies as well as the scientific practices of diving and observation.[73]

Beebe recorded the animals and the web of interrelations in the ocean. Diving down enabled Beebe to examine the tropical coral reefs and to investigate as well as classify the underwater fauna. His observations gave him ideas on biogeography ("the effectiveness of oceanic distribution"[74]) and ecology (the biodiversity and interrelations of species).[75] With respect to the emerging research field of tropical ecology, Beebe's accounts delivered one of the first at-length-descriptions of tropical coral reefs. With respect to the making of places through encounter, Beebe's invention of tropical (maritime) ecologies shows how transient notions of place can be depending on the activity that made the place.

5. Multiple Geographies of Tropical Ecology

What can we learn from Beebe's travels through several landscapes of the real and the imagination? Is the story a success story of how place-bound knowledge contributes to the institutionalization of tropical ecology as a new field of knowledge through understanding the interspecies encounters and relations that make a specific ecological place? Is it a story that tells – from nostalgic perspective – how place-bound experiences were flattened, or certain geographies were silenced, when one thinks of Beebe's lament of the impossibility to depict experiences and the materiality behind the text? According to Beebe, the feeling of being physically and sensuously present and "fully alive" at one place, and of making it by being there, could never be replaced by any kind of representation, as he put it:

> *Books, aquaria and glass-bottomed boats are, to such an experience, only what a time-table is to an actual tour, or what a dried, dusty bit of coral in the what-not of the best parlour is to this unsuspected realm of gorgeous life and colour existing with us today on the self-same planet Earth.*[76]

Beebe's place-making activities gain in importance for understanding the notions of place. Reading William Beebe's travel accounts with a multi-layered understanding of

73 Beebe, Arcturus Adventure, pp.322-323, 327.
74 Ibid., p. 332.
75 Ibid., p. 338.
76 Beebe, Beneath Tropic Seas, p. 6.

"place" unfolds firstly writing, secondly "conscious sensing"[77], and thirdly scientific mapping as three activities that created the different layers of place in his work. The traveller and writer need these diverse geographies to give places meaning and orient himself (or herself). Beebe, for example, needed imaginative maps to locate his new experiences and observations in geographies of (Western) travel. He needed his senses and his body to read and understand the sensuous geography of sea and land, to read and construct the places of ecology. Sensuous geographies are also a crucial part of the scientific process and helped in making abstractions of the places, turning them into zones and maps. Tropical ecology is conceptualized as the science of interrelations at "one place". However, Beebe's works make the interrelatedness of different notions of place visible, as well as the processes of their creation in and through the aims, experiences and encounters behind the scenes.

77 Beebe, Half Mile Down, p. 160.