

Committee 6
Science and Music: A Unifying Concept

Draft – February 1, 2000
For Conference Distribution Only



A Musical Void in the Surrealist Quest: Encounter with Pacific North West Coast Natives

Guy Buchholtzer
Research Associate
Social Science, CNRS
Vancouver, BC, Canada

The Twenty-second International Conference on the Unity of the Sciences
Seoul, Korea February 9-13, 2000

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Guy P. Buchholtzer

Research Associate, CNRS

1. INTRODUCTION

Today we are speaking about the "Unification of the Sciences". We are also speaking of music and its relationship to the sciences, of the humanities and the social sciences and their relationships to both music and the sciences. And we will be speaking about surrealism and surrealism and art. All these different disciplines overlap in some ways. One may ask if there could be a unified field of underlying concepts.

"Only by the fusion of science and the humanities can we hope to reach the wisdom appropriate to our day and generation" declared the physicist and Nobel Prize laureate Isidore Rabi in 1960.

2. PROLEGOMENA FOR A UNIFYING PROCESS

If by unification we understand a process of reunification which attempts, at the conceptual level, to achieve its goals in apprehending reality through representations based on our immediate experiences of the senses, my contention will be that such an unification will not originate within the established realm of sciences. Those representations are in fact the result of a process which itself bears the inductive and deductive characteristics inherent to that given established realm of sciences. In other words, a reality which we have divided for the purpose of grasping it, for creating some order within its apparent chaos; such a reality cannot become one again by recurring to such a tautological procedure.

We must keep in mind, at the same time, as Albert Einstein said in a letter to his old friend Maurice Solovine, that:

What this all boils down to is the eternally problematical connection between the world of ideas and that which can be experienced (the immediate experiences of the senses)ⁱⁱ.

And he added some time later: "Concepts can never be derived logically from experience and be above criticism"ⁱⁱⁱ.

If there is a possibility for unification of the sciences, it will rather stem from the borderlines of well established concepts, from their limits, from those territories which lie at the threshold of non-accepted ways of reasoning, among those fuzzy logical lands which offer little refuge to the inquiring traveler and where, as the French poet Paul Valéry once said, "To see is to forget the name of the thing one sees".

3. WHERE SURREALISM ENTERS

French surrealist author, André Breton, wrote that we can see the real reality - he called it surreality - only from the perspective of the *pleine marge*, from the perspective of its "full margin", in other words, from its conceptual outer limits. And he claimed that "*a day will come when the sciences will be allied with that poetic spirit which seems, at first glance, to be so contrary to them*".

We know that those fuzzy lands, those uncharted territories are still the so-called social sciences and the humanities. So far, very few predictive models have been established in these fields, although some methodological breakthroughs have been achieved through Structuralism by French anthropologist and academician Claude Lévi-Strauss^{iv}. As a matter of fact, the art of music - which has been classified as belonging to the humanities - is perhaps the closest to what we call science.

It is an art as old as humanity and its various civilizations. I was privileged the other day to look at a plate showing people playing the harp some five thousand years ago in Ur, a city in Mesopotamia. We can concur with musicologist Gerald Abraham that, nothing being inherently improbable, Pythagoras "learned from Mesopotamian astronomy and mathematics the relationships between pitch and length of string, between the mathematical ratio 1:2, 2:3, 3:4 and the intervals of octave, fifth and fourth, even the construction of a universe constructed according to such ratios. We may be fairly confident that the Summerian-Babylonian musical system, whatever it was, had a scientific basis based on a cosmic theory and we may well suspect, from what we know of the Egyptians, that their musical system, whatever it was, was arrived at empirically^v.

And what is to music can be as well to literature, poetry and art. This suggests that one day it will become possible to decipher, within these fields, recurrent phenomena and to formulate descriptive, inductive and deductive strategies once a proper metalanguage has been established. This assumption is especially valid within a positivist view of sciences, a view which is not necessarily at play in the social sciences and the humanities.

But this quest for a fusion of sciences and the humanities, of which Isidore Rabi spoke so eloquently, lies nevertheless at the heart of surrealism, one of the most important movements of ideas of the 20th century in the social sciences, the arts and the humanities.

"Man begins where art begins"^{vi}, wrote Wolfgang Paalen, a surrealist painter and writer who was interested in general relativity and the theory of quanta and who, in 1939, as a refugee from Europe, visited the Pacific Northwest Coast First Nations's communities of Alaska and British Columbia. Later, in Mexico, he published a vivid portrait of the people and arts of the Pacific Northwest Coast at a time when nobody was paying

much attention to artistic achievements which were later compared by Claude Lévi-Strauss (who was a friend of the surrealists) to those of Ancient China, Egypt and Greece for their scope, magnitude and magnificence. This admiration for Oceanic and American civilizations has deep roots in surrealism. Says Breton:

Oceania... this word has enjoyed a tremendous prestige in surrealism. It will have been one of the great sluices of our hearts. [...] I am still as captivated by these objects as I was in my youth, when a few of us were enthralled at the sight of them. The surrealist adventure, at the outset, is inseparable from the seduction, the fascination they exerted over us^{vii}.

4. SURREALISM

As time is of the essence, I will give a very short overview of surrealism and, at the same time, show some almost unknown documents from the Pacific Northwest gathered in 1939 by surrealist writer and photographer, Eva Sulzer.

Surrealism stems from the ruins of the First World War (1914-1918), a reaction to traditional Western rationalism and cartesianism. The surrealists believed that it was this type of rough rationalism which regularly led European countries to war.

Surrealism followed the dada movement, born in Switzerland, which intended to destroy art by means of art. The surrealists opposed these views and began exploring the unconscious side of life and art production, the links between dream and reality^{viii}. They invented a technique they called "l'écriture automatique" (automatic writing) in which you write down without "really thinking" anything passing in your mind. By refining this technique, they hoped to reveal qualitative and quantitative manifestations of a given state of the unconscious, to grasp thematic, semantic or structural lexicographic regularities occurring over time when the experience was repeated under specific conditions. They were as well interested in the new theories in physics, relativity and quanta, and in linguistics. And they were interested in the psychoanalytical research of Dr. Sigmund Freud^{ix}, even paying him a visit in Vienna.

And they were as well interested, for a time, in marxism. They vehemently opposed nazism, its racism, its violence. When Dali showed his sympathy for Hitler and Franco they expelled him from their movement. During the 1935 International Congress of Writers in Paris, Breton slapped the Soviet representative in his face, accusing the Soviets and Stalinists of being against intellectual, spiritual and religious freedom. They believed that the indigenous peoples of the Americas and the Pacific were far more advanced than Europeans in expressing the deep relationship between conscious and unconscious states of mind, and that they had reached a point where the real reality - the surreality - could be better expressed. When nazism took over and war broke out in Europe, the surrealists sought freedom and liberty in America. These are, fleetingly, some of the characteristics of this movement which has influenced (and continues to influence) art, literature, the social sciences and the humanities. Publications about surrealism could fill this room, almost.

In his *Manifeste du Surréalisme* (Manifesto of Surrealism) of 1924, André Breton declared:

[I have] sometimes the illusion of setting out on a great adventure, somewhat like a gold digger: I seek the gold of time. I seek the transcendence of time^x.

And in the same work, he states:

Surrealism. Noun, masc. Pure psychic automation by which one tries to express verbally, in writing, or by any other method, the actual process of thinking. Thought-dictation without any control exercised by reason, beyond any aesthetic or ethical consideration.

Surrealism is based on the belief in the superior reality of certain heretofore neglected forms of associations, in the omnipotence of the dream, in the free-wheeling play of thought^{xi}.

The following statement by Breton is also revealing:

Surrealism, as I envisage it, proclaims loudly enough our absolute non-conformity, that there may be no question of calling it, in the case against

the real world, as a witness for the defense. It could only account, on the contrary, for the complete state of distraction which we hope to attain here below. Kant's absentmindedness about women, Pasteur's absentmindedness about "grapes," Curie's absentmindedness about vehicles, are in this respect, deeply symptomatic^{xii}.

Among the people who were involved in surrealism, in addition to its founder André Breton, are writers, poets, painters and artists like Antonin Artaud, Paul Eluard, René Char, Max Ernst, Picasso, Miró, Masson, Tanguy, Rothko, Onslow Ford, Giacometti, Paul Klee, Frieda Kahlo, Magritte, Victor Brauner, de Chirico, Luis Buñuel, Marcel Duchamp, Shūzo Takiguchi, Kandinsky, Matta, Paalen, Jackson Pollock, Aimé Césaire, Hiroshi Nakamura, Salvador Dalí, photographer Man Ray, composer Erik Satie, to name a few. Writers, poets and artists inspired by surrealism came from every continent.

5. FIRST APPROACHES

The Pacific Northwest Coast is one of the last regions of the Americas to have been revealed to the world. From the first contact with the Americas through Christopher Columbus in 1492 to the middle of the 19th Century, European geographers and navigators believed in the existence of a *Northwest Passage*, a passage which would cross the North American continent and make it easier to communicate with Asia. Spaniards (Pérez, Bodega y Quadra^{xiii}) and Russians (Makarova^{xiv}, Lisianskii^{xv}) soon to be followed by the British (Cook^{xvi}, Vancouver^{xvii}) who arrived there towards the end of the 18th Century, at the beginning of the industrial era.

The First Nations cultures of this region are very distinct from the rest of the Americas. Their cultural area stretches over 3,000 miles, from Alaska to Northern Oregon, and comprises no less than 30 different languages regrouped under five linguistic families^{xviii} making this region a unique linguistic paradise. Their arts, masks and

totem poles are known world wide. Their complex and sophisticated societies and languages have been the subject of studies by scholars like Claude Lévi-Strauss^{xix}, George Emmons^{xx} and Wayne Suttles^{xxi} and, of course, Franz Boas, the father of american anthropology who collaborated for a half a century (he visited the region from 1885 to 1939) with First Nations scholars like George Hunt^{xxii} in order to describe and record Pacific North West cultures, potlatches and oral traditions.

In his book *Captured Heritage*^{xxiii}, historian Douglas Cole shows how these cultural artifacts were collected by Europeans, by Americans, by Canadians and even by Native Americans for museums around the world. We know it all too well: the arts of the Pacific Northwest Coast Amerindians have been widely celebrated. But as musicologist Ida Halpern justifiably noted:

their music has been only scarcely known and has not been musicologically interpreted or analyzed. However, music was, and is, one of the most important forms of artistic expression in the Pacific Northwest Coast Indian communities. As such, it is an excellent indication of the level of sophistication of their cultures. The construction and organization of this music is a significant reflection of the total cultural ambiance. [...] the subtlety and complexity of the music must be completely assessed and exhaustively analyzed if we are to ever truly come to terms with musical style and its role as the central artistic and social expression^{xxiv}.

6. PACIFIC NORTHWEST COAST MUSICAL WORLD

By music we understand all types of manifestations making use of musical instruments and human voice including dance, as dance is not to be separated from music in the Aboriginal worldview.

There is a great diversity between the different Pacific Northwest Coast cultures in terms of languages, social organization, oral traditions, rituals and ceremonies, and the arts. However, these are some characteristics which are more or less common to all these groups. One of these is the institution of the *potlatch*, a public ceremonial and

social event which lies at the centre of dynamic social integration, and during which initiation ceremonies were conducted and goods distributed. The potlatch system attracted the attention of many scholars - Franz Boas and sociologist Marcel Mauss^{xxv} among others - interested in understanding the economic distribution model at work within these traditionally very wealthy societies. It is especially during the ceremonies of the potlatch that music and dances were performed.

The Canadian Government outlawed the potlatch between the 1880s and 1950s. Today, the situation has improved. Some museographic institutions have been established on Native lands, repatriation of artifacts has started, several cooperative treaties have been signed between First Nations and the Federal Government, First Nations have a better say in the education of their children, communities try to heal the terrible wounds of the past, and potlatches are again conducted regularly on the Pacific Northwest Coast.

The type of music which is played and performed during a potlatch depends on the nature of the potlatch. With the revival of the potlatch, Kwakwaka'wakw scholar Gloria Cranmer Webster notes that "Traditional reasons for potlatches, such as initiation of Cannibal Dancers, name giving, transfer of titles, and wiping off shame, may be held together with potlatches given for other reasons"^{xxvi}. Some of these other reasons can be witnessing marriage, birth and death ceremonies (memorial potlatches) or the erection of a totem pole, for example. Some ceremonies common in the region include:

- Spirit Dance: performed on winter nights
- Secret Society: the principal ceremony consists of initiating new members^{xxvii}
- First Salmon ceremonies (generally in the Spring)^{xxviii}
- Cleansing ceremonies

Musicologist Halpern notes that:

Of great importance are their rituals and ceremonies, kept according to strict rules, and resulting in the exercise of medicine-man (shaman) power, the acquisition of supernatural powers, spirit quests, the establishment of direct contact with the spiritual world, and the initiation into secret societies^{xxix}.

Dramatic art, dance and music performance cannot be separated from potlatch. For each type of potlatch there are given dances and music. There are songs for pleasure, gambling songs, spirit dance songs, war songs, shaman songs. Each of these classes of songs is different in style and musical form, and uses different masks, costumes, face paintings and colours. Songs can be divided into ceremonial and nonceremonial ones. Songs are nevertheless private property and are exchanged like any other goods during the potlatch. A strict oral tradition was kept in the teaching of songs. The instruments are principally bellows, bullroarers, drums, hand bells, horns, rattles, rhythm sticks and whistles.

7. CHARACTERISTICS AND IMPORTANCE OF SONGS

During the potlatch, everything has to be repeated four times (four is a mystical number on the Pacific Northwest Coast), including dances and songs. Each ceremonial or social occasion corresponds to a specific set of songs. On the individual level, one can distinguish, as Halpern stresses, "various types of songs by the manner of singing, voice quality, intensity, vibrancy, tremolos, and glissandos, and their individual rhythmic beat or the specific syllables employed"^{xxx}.

Pacific Northwest Coast music is characterized by a great complexity of rhythm. These rhythmic qualities were of first importance to the shaman, for example, and, hence, to the therapeutic power of the music. Psychiatrist Wolfgang Jilek has noted that

Acoustic stimulation: the initiating "workers" chant and pray loudly, make stereotyped songs, sing their songs for hours or even days, continuously shaking their deer roof rattles or beating their sticks. The

monotonous beating on the canoe send the dancers into hypnotic trances^{xxx}.

Following several years of case studies and close cooperation with First Nations specialists, Dr. Jilek concludes that performing traditional dances and songs has a healing effect in helping the performer to re-visit his or her own culture. Similar studies have come to the same conclusions. On the other hand, when such rituals cannot be performed due to cultural estrangement, the consequences can become very serious: "In recent years... several Indians have died, or nearly died, because their songs became confused and could not issue"^{xxxii}. Such conclusions by medical doctors and psychiatrists have been corroborated all along by First Nations scholars and community members. The latter have always claimed that by enacting their own cultural stories, by bringing back rites and ceremonies within their families, by learning again their own languages, their people are regaining the possibility of entering the circle of life, a circle which encompasses the worlds of conscious and unconscious realities. As the surrealists themselves claimed, there is a continuum between the conscious and the unconscious. Such is the power of these songs and rituals.

8. THE SURREALIST PARADOX

It is revealing within this context that the surrealists, and among them writer and painter Wolfgang Paalen who visited the region in 1939, felt regularly compelled to denounce the outlawing of Native cultural traditions:

There remains the question of white influence. Here as everywhere else where it went hand in hand with progressive domination, it rapidly destroyed indigenous life. The tribe of the Haida, which already in 1840 consisted of no more than 7000 members, by the end of the last century had dwindled to less than 1000. [...] For this art was so integral a part of indigenous life that it could not survive the destruction of the social organization from which it sprang. It would be futile to recall old wrongs, or to indulge in sentimental opposition to inevitable developments; but we must not always, in discreet silence, overlook the fact that what remains of these creators of Totem Art in British Columbia live even today under religious persecution. The wider public is not

aware of the fact that in this region no important manifestation of indigenous life is tolerated, that in spite of the intervention in favor of the Indians by one of the greatest anthropologists (Franz Boas), the yearly ceremonial festivals which formed the nucleus of the social life of these tribes are still strictly forbidden^{xxxiii}.

wrote Paalen in 1943. When reading Paalen, Breton and the surrealists, one is nonetheless astonished at how little attention they paid to the musical dimensions of the very cultures they cherished and passionately defended against all odds. Knowing the central importance of music in the Native social and symbolic fabric, the absence of it in the description by surrealists of other cultures and in particular of Pacific Northwest Coast cultures is simply stunning.

How to explain such a paradox? One could be tempted to evade it by standing with Shakespeare's personae Duke declaring peremptorily that "music oft hath such a charm / To make bad good and good provoke to harm"^{xxxiv}? In other words, it would be better, perhaps, to ignore altogether what is not really known within music's reality or effects on reality. In this case, for instance, Pacific Northwest Coast music performance was forbidden when the surrealists came there. Hence, would the surrealists accept to betray scientific principles to which they subscribed so eagerly, especially those of general relativity? Probably not. As Albert Einstein declared: "science is the attempt to make the chaotic diversity of our sense-experience correspond to a logically uniform system of thought"^{xxxv}? And Erik Satie, a French composer of the surrealist era, believed that "in surrealism the disorder of fantasy becomes order, the absurd becomes reasonable". Music and surrealism do what science attempts to achieve: create order within chaos.

It is precisely within this conundrum of the sciences and the humanities - including music and the science of language - that one can find a link that may make it possible to decipher conscious and unconscious representations of reality. This link would fit well

with what science philosopher, Ernst Cassirer, called "the great tradition of sciences to define their object within subjectivity and objectivity of relational concepts"^{xxxvi}.

9. SOUNDS IN IMAGERY

It is within the premises of surrealism itself that we can probably find an answer to this paradox. In one of his major works, *Surrealism and Painting*^{xxxvii}, Breton discusses art perceptions:

To these varying degrees of sensation correspond spiritual realizations sufficiently precise and distinct to allow me to grant to plastic expression a value that on the other hand I shall never cease to refuse to musical expression, the most deeply confusing of all forms. Auditive images, in fact, are inferior to visual images not only in clarity but also in strictness, and, with all due respect to a few melomaniacs, they are not destined to strengthen the idea of human greatness^{xxxviii}.

At least, we cannot claim that the father of surrealism was a melomane nor a musician. It is clear that in its tentative apprehension of reality, surrealism does not explicitly refer to music. The visual arts outmatch the audio ones.

We will see, however, that this voluntary and obvious removal of reference to music is in fact a shift towards a music of another order, a hidden order, which through its subtle reminiscences, shapes the surrealist work. It is a bit like when we speak a language we know: we do not think about its grammar. The music has become the grammar. This is obvious in the form and structure taken by many of Breton's poems. It is even apparent in the way Breton himself depicts his conception of language and use of language.

For instance, for Breton the power of language, its poetry, its music, lies within the sentence, even within half uttered words. These words constitute, as Breton claims in his work *The Automatic Message*^{xxxix}, the *parole intérieure*, the inner word. I entirely subscribe to the claim of Marie-Claire Dumas who examined carefully the semantic

shifts between sound and image in Breton's texts^{xi}, namely, that it is the sentence which remains, in surrealism, at the centre of human experimentation.

In *L'entrée des médiums*, Breton explores states of consciousness occurring between wakefulness and half-sleepiness. Here is what he says:

In 1919 my attention had been drawn to the phrases of varying length that, in complete solitude, as I was falling asleep, became perceptible to my mind, without my being able to find anything that might have predetermined them. These sentences, which were syntactically correct and remarkably rich in images, struck me as poetic elements of the first rank^{xii}.

It is within such half uttered states of consciousness that we can grasp reality, that we can reach beyond accepted ways of conceptualizing, believes Breton. There are similarities to be drawn with research in psycholinguistics and certain techniques used in psychiatry and clinical psychology. As for music, David Gelernter, a computer artificial intelligence expert writes:

Music, particularly pure melody or a chant with meaningless syllables or unnoticed words, produces the sensation of transcending meaning by inducing a sensation of many *meanings*. Music induces a series of emotions and each emotion in the series may induce in turn, via affect link, a kaleidoscope of recollections. Low-focus thought accomplishes the same thing directly^{xiii}.

These low-focus thoughts or states of consciousness belong to the same class as those mentioned by Breton. And if we consider First Nations' s music and songs of the Pacific Northwest, there are more or less similar situations induced by specific ceremonial chants, such as for example those performed during the Kwakwaka'wakw initiation ritual of Hamatsa^{xiiii}.

A bold scientist could be tempted to draw some conclusions about that fussy equation which seems to emerge from the juxtaposition of the humanities, science and music.

I will not try that, even though I should, perhaps. There are still too many underlying presuppositions and hypotheses to be checked against the facts, many investigations to be done. Nonetheless, I will be looking at the nature and structure of relationships which exist between music, science and linguistics. As for the surrealists, who cherished the Northwest Coast peoples and civilizations, their contribution must be considered even if their descriptions account for a musical void, an absence of music. Why? For in surrealism, this musical void, this absence of music, is covered by the utterance of language. For the surrealists, everything converges towards language, be it images or music. And it is only through imagery that we can eventually assign some meaning to them. This is reminiscent of what the painter Miró said once, namely that there is no difference whatsoever between the act of painting and that of writing. And we could claim that, under the circumstances, music has been absorbed by writing, if not by painting, in the surrealist work.

It is a complex network between sound and image which is at play in Breton's ambivalent relationship with music and the word, and the sciences which are relevant to them. "To see is to forget the name of the thing one sees" said the poet. So, even if "reclaiming for art a heavily fortified bit of territory now held by science is not exactly in the spirit of the age", as Gelernter muses, "science and art both aim to give you a harder, tighter grasp of reality."^{xliv} In this respect, investigating music and arts which lie outside traditional or familiar domains of knowledge, like those of the Indigenous peoples of the Pacific Northwest Coast, will open new avenues for science. Or, as Isidore Rabi said:

What I am asking for is a fusion of science and the humanities or, perhaps, I rather mean an interpenetration of the two, from which would result a better understanding of ourselves and of our times, and a more unified culture^{xlv}

10. AFTERWORDS

The poet to come will surmount the depressing idea of the irreparable divorce between action and dream. He will hold out the magnificent fruit of the tree with those entwined roots and will know how you persuade those who taste of it that it has nothing bitter about it. Carried along on the wave of his epoch, he will assume for the first time, free from anguish, the reception and transmission of all the appeals pressing toward him from the depth of ages. He will hold together, whatever the cost, these two terms of human relationship upon whose destruction the most precious conquests would become instantly redundant: the objective consciousness of realities and their interior development, since this relationship, through individual feeling on the one hand and universal feeling on the other, contains something magical for the time being^{xlvi}

NOTES

- ⁱ I. I. Rabi, Science and the humanities, in *My Life and Times as a Physicist*, Claremont College Press, 1960 Quoted in *The World of Physics*, Vol III p.1060, Simon and Schuster, New York 1987.
- ⁱⁱ Albert Einstein, *Letters to Solovine*, p 139, Citadel Press, New York 1993.
- ⁱⁱⁱ Albert Einstein, op cit., p 147
- ^{iv} Claude Lévi-Strauss, *Anthropologie structurale*, Plon, Paris 1958, *Anthropologie structurale Deux*, Plon, Paris 1973.
- ^v Gerald Abraham, *The Concise Oxford History of Music*, p.21, Oxford (1979) 1985.
- ^{vi} Wolfgang Paalen, Prologue, *Dyn* n°4-5, Mexico 1943.
- ^{vii} André Breton, Oceania, in *Free Rein (La Clé des champs)*; Paris 1953), 1984
- ^{viii} "It would surely be of the greatest value to know a priori by what procedure we could discipline the forces constitutive of the dream, so that the affective element which presides over its formation does not find itself deflected from the object which has acquired a particular charm in the previous waking state", in André Breton, *Communicating Vessels*, p. 5, University of Nebraska Press, 1990; translation from the French, *Les vases communicants*, by Mary Ann Caws & Geoffroy T. Harris.
- ^{ix} See the letter exchange between Freud and Breton in *Communicating Vessels*, op. cit. p.149-155.
- ^x André Breton, *Manifeste du Surréalisme*, Paris 1924. [Je cherche l'(h)or(s) du temps]
- ^{xi} André Breton, op. cit.
- ^{xii} André Breton, *ibid.*
- ^{xiii} José Mariano Moziño, *Noticias de Nutka*, University of Washington Press, Seattle 1970.
- ^{xiv} R. V. Makarova, *Russians on the Pacific, 1743-1799*, Transl. R. Pierce, The Limestone Press, Kingston 1975.
- ^{xv} Fedorovich Lisianskii, *A Voyage Round the World in the Years 1803*; Reprint, Da Capo Press, New York 1968.
- ^{xvi} James Cook, *A Voyage to the Pacific Ocean*, 3 vol., London 1784
- ^{xvii} George Vancouver, *A Voyage of Discovery to the North Pacific Ocean*, 3 vol., London 1798
- ^{xviii} William Sturtevant, *Handbook of North American Indians*, Volume 7: Northwest Coast, Wayne Suttles, Ed., Smithsonian Institution, Washington 1990.

- ^{xxix} Claude Lévi-Strauss, *The Art of the Northwest Coast at the American Museum of Natural History*, *Gazette des Beaux-Arts*, ser. 6, Vol. 24:175-182, New York 1943; *The Way of the Masks*, University of Washington Press, Seattle 1982 (transl. *La Voie des masques*, Skira, Geneva 1975).
- ^{xxx} George Emmons & F. de Laguna, *The Tlingit Indians*, AMNH & University of Washington Press, 1945-1985).
- ^{xxxi} Wayne Suttles, *Northwest Coast Linguistic History*, in *Coast Salish Essays*, W. Suttles, Ed., Talonbooks 1987.
- ^{xxxii} There are numerous publications by Franz Boas and George Hunt. A good bibliography of their work is available in the *Handbook of North American Indians*, Vol. 7., op. cit. For a general overview of Kwakiutl (Kwakwaka'wakw) culture, see F. Boas, *Kwakiutl Ethnography*, H. Codere, Ed., University of Chicago Press, 1966.
- ^{xxxiii} Douglas Cole, *Captured Heritage, The Scramble for Northwest Artifacts*, University of Washington Press, Seattle 1985.
- ^{xxxiv} Ida Halpern, *Indian Music of the Pacific Northwest Coast*, Smithsonian Institution (Folkways) 1978.
- ^{xxxv} Marcel Mauss, *Essai sur le don*, *Année sociologique*, Paris 1924.
- ^{xxxvi} Gloria Cranmer Webster, Kwakiutl Since 1980, *The Northwest Coast*, p. 389, Smithsonian, op. cit.
- ^{xxxvii} See for example Franz Boas, *The Social Organization and the Secret Societies of the Kwakiutl Indians*, Washington 1895, Johnson Reprint, New York 1970.
- ^{xxxviii} It is important to note that for Pacific Northwest Coast people, all things animate and inanimate are believed to have spirit owners. For example, salmon were beings living like people in their own world but transforming themselves every year into salmon to give their flesh to humans, who must treat them with respect.
- ^{xxxix} Ida Halpern, op. cit.
- ^{xxxx} Ida Halpern, *ibid.*
- ^{xxxxi} Wolfgang Jilek, *Indian Healing. Shamanic Ceremonialism in the Pacific Northwest Today*, p. 47; Hancock House, 1974.
- ^{xxxxii} Diamond Jeness, *The Faith of a Coast Salish Indian*. *Anthropology in British Columbia Memoir* 3:41, 48, 43; Provincial Museum of British Columbia, Victoria 1955. Quoted in W. Jilek, op. cit.
- ^{xxxxiii} Wolfgang Paalen, *Totem Art*, *Dyn:4-5:17-18*, 1943.
- ^{xxxxiv} William Shakespeare, *Measure for measure*, Act IV, Scene 1. In Shakespeare, *Complete Works*, p. 88, Oxford University Press, London [1905] 1971.
- ^{xxxxv} Albert Einstein, *The Fundamentals of Theoretical Physics*, *Science*, May 24, 1940. Quoted in A. Einstein, *Ideas and Opinions*, p. 323, Crown Publishers, New York (1952) 1982
- ^{xxxxvi} Ernst Cassirer, *The system of Relational Concepts and the Problem of Reality*, in *Substance and Function & Einstein's Theory of Relativity*, Dover, New York [1923] 1953.
- ^{xxxxvii} André Breton, *Surrealism and Painting*, translated from *Le surréalisme et la peinture* (Paris 1928), Icon Editions, Harper & Row, New York 1973
- ^{xxxxviii} André Breton, *Surrealism and Painting*, op. cit., p. 1
- ^{xxxix} André Breton, *The Automatic Message (Le Message automatique, Le Minotaure*, n°. 3-4, décembre 1933), in *Break of Day (Point du jour)*, transl. M. Polizzotti & M. A. Caws, University of Nebraska Press, 1999
- ^{xli} Marie-Claire Dumas, *Le Chant de l'image, André Breton*, p. 229-243, L'Herne, Paris 1998.
- ^{xlii} André Breton, *The Mediums Enter (L'entrée des médiums)*, in *The Lost Steps*; p. 90; transl. by Mark Polizzotti, University of Nebraska Press, 1997. Cited in M.-C. Dumas.
- ^{xliii} Gelernter, David, *The Muse in the Machine*, p. 99, The Free Press, New York 1994
- ^{xliiii} Franz Boas, *The Social Organization and the Secret Societies of the Kwakiutl Indians*, op. cit., and Wolfgang Jilek, op. cit.
- ^{xliv} Gelernter, op. cit. p. 192:

^{xlv} Rabi, op. cit., p.1051

^{xlvi} André Breton, *Communicating Vessels*, op. cit. p. 146-147.