On the Acquisition of Death’s Concept in Infancy (1) — A Count Result and Consideration for Questions of the Attitude Survey through the Picture Book Reading

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Summary

In this paper I will present the analysis of collated data in the survey of Japanese and foreign infants, and introduce my ideas on the acquirement and the understanding of a concept on life and death in infancy.

I conducted the research on life and death among infants as a member of joint project (Sasada,T. Fujii,E. Miura,M) designated by the Comprehensive Science Research Laboratory affiliated to Hyōgo University. The research is conducted in the following duration; from February to March, 2012 (in Italy and Germany) and from February to March, 2013 (in Japan and Germany). In addition, I conducted additional researches in June and in September of 2013. In this paper, the understanding on death in infancy, I show a summary of the research results through these investigations in accordance with twelve question items.

keywords : Understanding about the death, Feelings for the death, Sympathy to another person

Introduction

Infancy, especially early infancy, is an important time, in which infants meet diverse lives for the first time. In such a time, how they acquire understanding on life and death? Are there any cultural difference in respect of their understanding about life and death?

For us who are engaged in the education of teachers in early childhood, the problems concerning acquisition of life concept in infancy are essential instructive themes. So I will try to consider these questions in this paper.

However, under various circumstances and for limited space I must just refer to the outline of the results of twelve questions in a questionnaire and give comments to those results.

1.1 Method of researches

With the above-mentioned intention, I performed the attitude survey on a view of life and death in infancy by the following procedures in Italy, Germany and Japan.

And the survey provided to an infant was conducted through interview with him/her in person and with the presence of director or teacher of nursery school or kindergarten, a reader and researcher.

[Time and place for enforcement of our research] 1. from February to March, 2012.
In Umbria (Italy) and in Thuringia (Germany) 2. from February to March, 2013.
In Hyōgo (Japan) and in North Rhine-Westphalia (Germany)

[Additional research]
I conducted additional researches for the purpose of sample number adjustment.
On the Acquisition of Death’s Concept in Infancy (1)

[Period of time and place for enforcement of the researches]
1. In June, 2013, in Erfurt (Germany)
2. In September, 2013, in Ilmenau (Germany), in Fulda (Germany)

[The Object of research]
From three years old to the pre-school age (to a primary school).

[An countries and the locations of investigation, and the total number of respondents (subjects),]

[Italy] 68 persons
Umbria (Region): 3 kindergartens, 68 persons.

[Germany] 70 persons
North Rhine-Westphalia: 1 kindergarten, 10 persons.
Hesse: 1 kindergarten, 10 persons.
Thuringia: 4 kindergartens, 50 persons.

[Japan] 104 persons
Hyōgo: 2 nursery schools, 104 persons.

[A picture book for reading]
[The title of a book]

[Original text]

[Translators of picture book for reading]
Italian text: translated by Rie Zushi
German text: translated (interpretation) by Nottelmann-Feil, Marc

[Required time for a questionnaire]
The time required of per person: Approximately five or six minutes.

[The details of time]
The time for reading: Three minutes.
The time for ask a question: Two or three minutes.
In a question and a talk with infant, I used expression such as “a rabbit or a rabbit’s girl” in addition to Miffy inline with the understanding of the infant.

[Readers]
I asked local interpreter and our school student as follows for picture book reading and questions and answers.
In Italy: Zushi Rie
In Germany: Hellrung-Tanaka, Ulrike Nishio-Noetzal,Miyoko Post-Kobayashi, Bettina
In Japan: by three female students of Hyōgo University Department of Early Childhood Education.

[Place for researches]
Kindergarten or nursery school classroom.

1.2 List of question items

Q1 What happened to Miffy’s grandmother? (In two kindergartens of Germany: What did you feel when you heard this story?)
Q2 Why did Miffy’s grandmother die?
Q3 Can Miffy’s late grandmother breathe?
Q4 Can Miffy play with her late grandmother?
Q5 Do you think that sometime Miffy will be like her grandmother?
Q6 What will become of her Miffy’s late grandmother?
Q7 Can Miffy talk with her late grandmother?
Q8 Does Miffy remember her late grandmother
all the time?

[Q9] Do you think that everybody become like Miffy's late grandmother?
[Q10] What kind of feeling do you have when you heard the story? Do you feel sad or pity?
[Q11] Do you want to rescue Miffy's grandmother?
[Q12] Would you be kind to Miffy? Do you want to be kind to Miffy?

1.3 Choices of an responses

The answers were categorized into several types by infants free responds.


2. A result and consideration about the question items

2.1 Infant’s understanding on death through a story [Question 1]

I asked infants about their understanding on the content of a story and about an unforeseen circumstances that have occurred to a “rabbit’s grandmother.”

An infant may understand the matter and the word “death” indicating that the matter in a one-to-one ratio because the situation that has happened to the rabbit’s grandmother is expressed by the word “death” in the story. However I can understand from the infants responses that they deepen the meaning of that occurrence.

I can also judge through the fact that a great number of respondents in each country, nursery school or kindergarten are children of age 4 or 5, a lot of infants of these ages are able to understand the contents of the story correctly.

The percentages of infants who answered “She died.” (C1) in this question 1 are 88.3% in Italy, 72% in Germany, 58.5% in Japan.

One of the characteristics of responses in infants of Japan is a low percentage to the question 1. I further need to analyze on this matter. Moreover, the significant characteristic of the infants in Japan to this question 1 in comparison with those of other countries is that the percentage of “I do not understand.” (C4) shows a high percentage of 24.2% in comparison.
of “She died.” (C1). This result should be considered in the future reach some way.

Because it is seen, many infants hesitate to talk about death, on the occasion a picture book reading to a infant I asked a reciter control of emotional expression. Perhaps the word can be considered as taboo. The hesitation to say the word was also observed among some of the Italian and German infants. On the contrary, there are only a few infants who were not reluctant to talk about death if it is about the popular characters’ story. One infant said, “It is character in the story.” I asked my supporters to restrain from any emotional intonation when reading out a picture book.

2.2 Infant’s surmise on cause of death [Question 2]

I asked infants about their understanding on a cause of death.

Among infant’s responses to the question 2, the high percentages were shown as follows. Infants who responded “She was old.” (C1) are 40.6% in Italy, 32.3% in Germany. And infants who responded “She had illness.” (C2) are 22.0% in Italy, 20.5% in Germany. Furthermore, in Germany, the infants whom responded “I do not understand.” (C4) occupy 32.3% which is same as choices 1. But in Japan response for question 2 shown as extremely low percentage as 4.0% of choices 1 and 5.1% of choices 2.

The infants who answered “I do not understand.” (C4) for question 2 in Japan is high percentage of 66.3%. Then, “Non-response” (C6) shows 16.3%. It may be said that these are characteristic of Japan.

The cause of the rabbit grandmother’s death was not written in the story. But many infants responded from inference by the examples that the storyteller had showed. “She was old.” and “She had illness.” are the examples that the storyteller showed. Of course, some of them responded that “She was old.” and “She had illness.” in every country. A mentioned above, there are also a few infants who hesitated (regard it as taboo) to say about death. On the other hand, I assume that “by aged” and “by illness” are hardly seen in Japan.

2.3 Biological understanding of infants on death [Question 3]

I asked question 3 to infants to in order to grasp their understanding on biological signs of death.

As a result, a great number of infants are able to understand the causal correspondence of breath as a life-phenomenon (bio-phenomenon) and a phenomenon of death (biological sign of death). In the result of questionnaire on the question 3, I could not see a great difference among Italy of 86.4%, Germany of 82.3%, and Japan of 83.8% in response of “No (Impossible)” (C1).

Death is defined by the three signs, i.e. stop of the heart or brain, dilation of the pupil, and stop of respiration. From this result it turns out the next matter. Namely, the stop of respiration, one of the three signs of death, is a physiological phenomenon that infants can most easily understand without the knowledge of complicated biological function of life.

2.4 Understanding of death in social relations (activities) of infants [Question 4]

I asked infants about question 4 to grasp their understanding on death, whether their understanding on possibility of communication between them and a dead person is connected or not with their understanding on phenomena of death. The result is that many infants respond that a rabbit girl “She could not play.” of “No (Impossible)” (C1) with a dead rabbit’s
grandmother. The percentage are 93.1% in Italy, 92.5% in Germany, and 88.8% in Japan. The percentage of denial response in Japan is lower, but I can not analyze any further, because the number of people under the respective ages is not clear. According to my recollection, three years old Japanese children participated more than those in infants of the same age in others countries. I can say that the tendency of the response to question 1 is similar to question 4. However, there can be differences on feelings to death.

2. 5 On the universal and existential understanding about the death of infants [Question 5]

This research went into effect for the purpose of our grasp of “infants’ understanding on the concept of death” through the story.

In this story a process is described in away that the funeral services took place after the death of a rabbit’s grandmother. In the picture book, a coffin with her lying is illustrated. In some countries, the people suggested that the visual impression may be too strong for infants. Under these circumstances, it was a problem when asking questions to infants whether to use the death of a human being or the death of a character in the story. Because the infants are asked questions from strangers. Considering this fact, I limited myself asking the question only on the death of grandmother and the witness of her death are only Miffy and Usakochan. And I would also restrict the contents of questions to the contents of the story. About question 9 on the universality of death I would use somewhat ambiguous expression such as “all (every one) of us (all living things)”.

The percentages of the response of each country to this question 5; “Do you think that sometime Miffy will be like her grandmother?” is as follows. The percentage of the infants who answered “Yes” (C1) to this question are 57.6% in Italy, 67.1% in Germany, 48.4% in Japan. The percentages of the infants who answered “No” (C2) are 33.8% in Italy, 20.8% in Germany, 19.5% in Japan. They are by no means low percentages. Their uncomprehending of the universality of death is, of course, an analysis of each group in necessary. However it is possible to explain that this percentage of “No” respondents came from their understanding about the death in this story alone. However, through, reading to and questioning to infants, I was deeply impressed with very sincere responses from them. Their expression of thinking on death in itself, it seemed as if they understand the actual situation in a story and essence of life. Although questions are restricted the contents there are responses which exceeded the understanding of the story content and comprehended the essence of life.

2. 6 Ideas about the life after death of infants [Question 6]

I asked infants question 6 to examine whether they understood death in biological meaning, and whether they had a view or understanding on death which is the end of life or not. I further asked them how much they acquire the understandings and ideas on the world of after death.

A result, the infants who answered “She rises to the sky.” (C5) after death had highest percentage of 22.5% in Italy. In Germany, infants who responded “She is in the grave all the time.” (C2) are 27.3%. In Japan infants who responded “I do not understand.” (C9) are the largest number of 45.0%, followed by the response, “She in the grave all the time.” (C2) of 12.7%.

In response to the questions I did not give choices. I did so as infants could respond freely. I classified the contents of responses into some
items and got each of percentage per the items. The dead “riese to heaven” choice which one of response to this question 6 has two distinguishing expressions, “She rises to the sky.” (C5) and this “She will go to heaven.” (C3) It is difficult to see the expression of “sky” or “upside” means “heaven”, or can be judged that all these are response of “goes to heaven”. Some infants answered that the dead “went to heaven” and some talked the word “sky” or “upside” in the meaning of “heaven”. These answers are all classified into the answer: “rises to the sky.” There are also many cases that I could not judge that infants’ responses “sky” meant “heaven.” However, I could not put more detailed questions because it would be a burden for infants. In this research I got the impression that most of infants who used a word of “sky” understood the word as “go to the sky (passing away)” vaguely. Many cases are hard to regard infants’ responses included religious meaning. Of course, the reality on religious sensibility among infants should be considered. More detailed analysis is necessary.

2.7 A concept of death in infancy and development of social skill [Question 7]

In order to know the relation between activity of life and understanding of the concept of death in infancy, I questioned to the infants about the possibility of communication with the rabbit’s grandmother in question 7.

About whether the girl of rabbit can speak with the late hers grandmother, the percentage of infants who chose a negative response of “No (Impossible)” (C1) are 74.1% in Italy, 73.5% in Germany, 75.7% in Japan. There is no great difference in their understanding on the loss of personal relationship caused by the death. However the nearly 30% of infants did not deny the possibility of dialogue with a dead person. This is caused by the next reasons. Namely, in question 4, when infant responded that man cannot play with the dead (impossibility of action for the others), that is not directly connected to the impossibility of a dialogue with the dead. The heroine has a conversation with the dead, which is described in the story itself. If I ask the same question to an adult, it seems that I can get the same response. Even if a person recognizes others death, he/she can hold the sense that the existence itself may cease, but the relation itself can not be blotted out from his/her memory.

Even if a person understands the death as a biological phenomenon and even admitted the death of beloved person, he/she never extinguish the existence itself when thinking about others. The real (actual) others and their death belong to a different sphere. The existence of others may be in him/her own-consciousness. Where and how this simple sensation and understanding have developed? Do infants grasp a shade of meaning through a scene of dialogue with a dead person in which heroine muttering to herself a picture book? Is it such feelings and sensations that are obtained through experience and/or observation of others everyday? This problem, however, may require an investigation through another viewpoint and method.

2.8 On infant’s opinion about memory of the deceased [Question 8]

As in question 7, if the heroine can speak with the late grandmother, what kind of existence of a grandmother is concerned in the dialogue? It is very difficult for an infant to respond to this question. In relation to this problem, I asked question 8 to infants, “Does Miffy remember her late grandmother all the time?”

Their responses to this question is as follows. The percentage of infants who responded, she would remember her grandmother (“Yes
(Possible)” (C1), shows high percentage, 78.9% in Italy, 82.3% in Germany. In comparison with this case, however, the number of the affirmative response in Japan is 49.4%. And the responses of the infants who responded that she would not remember her grandmother (“No ((Impossible))” (C2)) is 25.8%, and then infants who responded they did not know is 12.9% in Japan.

This result needs to be analyzed further. Do Japanese infants understand the story deeply? Do they thing too realistically? Or is this caused by the effects of religion, having a habit of a dialogue with religious existence (e.g. the entity like Kami (神), God, Buddha or ancestors) or cultural effect? Or are there other reasons or factors?

2.9 Infant’s understanding about the universality of death [Question 9]

On the infants’ understanding of the universality of death in biological meaning, I questioned infants whether they understand the individual death like the “death of rabbit’s grandmother” or this phenomenon which happens to her alone or not. In other words, I questioned, “Do you think all of you will die like Miffy’s grandmother?” In order to recognize how they understand the death is not just an individual phenomenon, it is a fate which is given to all life. It is proved that most infants are aware of universality of death through this question.

The rate of infants who responded “Yes” (C1) to this question are 67.7% in Italy, 74.9% in Germany, and 47.3% in Japan. The infants who responded “No” (C2) reached only 22.0% in Italy, 17.6% in Germany, 19.9% in Japan.

This may affect how infants understand death. In other words, the infants (do not?) understand the universality of death in biological meaning. Its understanding comes from the accept once of both the spiritual matter, rabbit’s girl can have dialogue after grandmother’s death, and the biological death.

2.10 On emotion which infants hold to death [Question 10]

I asked infants question 10 “What kind of feeling do you have when you heard the story?” with the intention to understand what kind of emotion, sense, impression infants have? But it is difficult to ask infant, because this question is direct and vague content. This question is slightly vague that the infants had difficult time to answer. Their feeling of death can be recognized within themselves by synchronizing the character’s sad words, facial expressions and storyteller’s emotional expressions. For these reasons, I requested story-teller to try neutral reading for emotions so that infants’ impression is not influenced by a tone of voice of readers.

And I showed response examples, “Sad” or “Pity” to infants. Looking at the answer types to this question, it was impossible to clearly differentiate the infants’ feelings, whether they felt pity for the grandmother or felt saddened to the story. About this I asked infants in every possible means.

I also showed opposite examples such as “Pleasant (Be delighted)” or “Happy (Joy)” or “Interesting” etc. to infants at the same time so that examples would not lead to particular response.

Of course, from tendencies and characteristics of infancy, there is fair possibility that infants can not verbalize their own feelings and impressions correctly. For that reason I feel apprehensive about statistical difficulties. Through the personal, one-on-one, reading cases, I could capture various messages from infants’ expressions and verbal answers. The sincere responses of the infants, including diverse responses in the choices 10 “Other reasons”. gave very deep impression to me. Responses to the question 10 are as follows.
Infants who responded "Good" (C5) are 26.6%, next "Sad" (C1) are 21.3%, furthermore "Glad" (C6) are 15.9%, "Poor" (C2) are 13.3% in Italy. And in Germany the order is as follows. Firstly, "Good" (C5) are 33.3%, and secondly, "Sad" (C1) are 26.9%, thirdly "Non-response" (C11) are 14.1%. Also in Japan the result of "Non-response" (C11) are 25.4%, "Sad" (C1) are 22.8%, "Pity" (C2) are 17.5%.

In this result, it can be said that many infants have negative emotion such as "Sad" or "Pity." However, there are about 30% responses of "Good" and "Glad." Of these response I can say that these are not gained from the contents of the picture book but impression which infant received from a reader with a favorable impression. Those positive responses came from the presentation that the death of the grandmother is described in her surroundings by beloved or warmth. The response of "Good" (for reading) can possibly means a vague impression that it is "a good story." Because a happy life is described in a family ties of rabbits, a sense (feeling) of gratitude (respect) to their grandmother and good memories of the family.

It is possible to say that death is not the worst matter in religious or pessimistic state of mind in life. However, even if we know that the truth of grief to death. And we can say that it is surely an expression of an actual feeling of a person who has reached some state of mind that death is not the worst matter, it is difficult to say that an infant understands feeling of "good" or "joyful."

Generally speaking, a person has "deep grief emotion" in facing the death of his/her "close crucial person". How does an infant understand grief? Does he/she come to understanding from the contents of illustration or from the state of grief of the characters (rabbit’s families) who are depicted on this picture book? What is the world of death? Unless we understand what kind of thing it is, it is always difficult to know what is even about the happening in such a situation, namely, "what are they crying for?" Generally, death is “deplorable (grief)” “pity”, and such an emotion shows high percentage in the infant’s response. It is because infants already have existential (individual) and universal understanding of death. The emotions and the fact of death in the story are tied and that emotion was brought about through asking them questions. Therefore I think that an infant is able to understand and grieve death of others. He/she feels the death is a fact which brings grief. However, what kind of thing is that “sense” and “emotion” which wells up in the consciousness of an infant such as “sad (grief)” and “pity” for others? How are these feelings acquired?

In modern brain science, the function of the nerve cells called a mirror neuron is reported. It is the function to tune own sense to a movement and intention of other persons which appeared on their movement. It is “the theory of mirror image that the human knowledge is gained by literally “reflections,” including to read of emotion through other people’s expressions with movements (e.g. sorrows behavior) in the brain. And also it is reported in the results of various experimentation and researches that a stage of infancy especially has sensitive instinctive capacity in expressions, emotions and atmosphere among surrounding reliable adults. For example, the experiment of R.L. Fantz (1925-1981) about a read of look and a selection of likes and dislikes is known as a classical experiment (preferential looking method by Fantz, 1958). According to the experiment, a baby after three months is both able to accept a stimulations from outside and able to read and judge independently about what kind of stimulation is meaningful.

However, in this judgment of an infant, it must be included in the first place that sorrowful
expressions are supported by feelings of “sorrow” and gentle expressions of smile are supported by feelings and sensations of “love,” “tolerance,” and “stability (safety).” And an infant must understand even only vaguely that those are indispensable or helpful (meaningful) to live. However, I think that the most feelings of baby or infants have the instinct of a pleasant or unpleasant feeling (sensation) which wells up inside (interior) the mind. To hypothesize, infants acquire emotion and meanings of stimuli from information through the sense of comfort / discomfort within themselves and pair them with different stimuli and learnings outside of themselves (environment). This process will be reflected to the personal life directly. And thus they picture the meaning of different situation outside of them. They derive from the inside where as the acceptance and the learning of stimulations from the outside world.

However, in a problem regarding the origin of sense and knowledge, difficult and complicated arguments may arise from psychological and philosophical point of view on imminent or external cause of sense and knowledge. Accordingly, I would not involve myself to this argument in this paper. The development of understanding of an infant about the life and death, as an example in a common baby’s play of “peekaboo”, I think that an infant learns that death is “absence” through his/her experience.

He/she realizes in observations of others and things before his/her eyes. It is namely about all the existence in the natural phenomena being or not. In this way, an infant understands about the universality of death. In that way, an infant acquires knowledge of the uniformity of nature. he/she comes to know that natural phenomena which belong to a living thing, should happen to all the living things. Then he/she acquires universal understanding and existential understanding.

2.1.1 Sympathetic and helpful emotion of an infant for the deceased [Question 11]

In order to grasp the infants’ understandings on death of others (grandmother) and the sadness of rabbit girl and her families, the question 11 was raised. In other words, the question was necessary to understand the infants’ sympathy to deceased family/friends and their emotions of helping out others. Namely, through a question “Do you want to rescue Miffy’s grandmother?”, I asked the infants to know that how they understand and sympathize with the rabbit’s girl’s grief and whether they have such emotions or not. The emotion is the assistance to a person who is grieving in the face of death or assistance to the deceased.

“Death” that we experience in everyday life is also “death of others”. Therefore “death” keeps staying outside of ourselves. There is the time that the relaxation of deep grief is brought by the others’ death, too. However, even if death is always the others’, humankind can have respect for the present life and existence. Their feelings with tender loving care for the life through constant “absence of the others” understanding is brought to all the life. The infants can learn those feelings from the general through such an experience. Human beings can learn its existential meaning and social value about individual death which they cannot have experienced.

From results of questionnaire on the question 11 infants who responded “Yes (I wish for rescue her.)” (C1) are 67.7% in Italy, 62.3% in Germany, and 60.2% in Japan. The infants who responded in the negative of “No” (C2) are 22.0% in Italy, 23.1% in Germany, and 13.2% in Japan. Especially, the reason for negative response can be “They cannot understand the circumstances.”
But when we added a question, “Why do you think so?” I got the response from some infants “Because I cannot rescue a dead person.” This is a response by those who understand that human beings are helpless in the face of the biggest hardship called “death.” Therefore I can say that the infants look squarely at the truth of death.

But I suppose that the infant who responded “I wish to rescue her” cannot be negative understanding about the “inevitability” of death and “irreversibility” to life. Those who understand that they cannot rescue her can have the feeling that they want to rescue her vise versa. Then, how does a child acquire such a feeling in infancy?

We have the feeling of pure help to other people regardless of the effect, namely, even if we disregard the outcome of our help. I assume that the origin of this feeling begins from a feeling of “sympathy.” I think that the sympathy makes the beginning of the affection (love) for life of self and others and the understanding for others.

2.12 The sympathetic and helpful feeling of infants for a grieving person [Question 12]

On what kind of feeling infants have for another person who is overwhelmed with grief in the face of (imminent) death of the dearest I questioned in question 12, “Would you be kind to Miffy?” with the intention of understanding the sympathetic and helpful feeling of infants.

In the result the response of “Yes” (C1) showed high percentage, those are 96.6% in Italy, 65.6% in Germany, and 75.5% in Japan. It turns out that most of the infants have sympathetic feeling for a grieving person. They have the feeling that they would be in contact with such a person with tender-hearted and heart of solicitude (care mind). Nevertheless, the negative responses of “No” (C2) are 3.3% in Italy, 22.3% in Germany, 8.1% in Japan, and “Non-response” (C6) are 0.0% in Italy, 5.9% in Germany, 11.2% in Japan. These are responses which allow us to assume that they are lost for a feeling of grieving or they have a feeling of helplessness. When I questioned them about the reason of this negative response, no one has responded. I cannot confirm any more that it is because they cannot express their feelings. They may hesitate to response. On the reason of these negative response I need further analyses. Is it because they do not understand the death? Is it because the bewilderment and the feeling of helplessness for a grieving person? Or they do not they cannot have sympathy?

Conclusion

Through this research on the understanding of the death in infants, I showed the count results of the responses from twelve questions and summarized them.

In this paper, I cannot add further consideration because the space is limited. Therefore, I want to do further research on statistical consideration of the correlation with the understandings in physiological function (breathing) of the death, the understandings in the death and social nature (sociability), and the view of afterlife in the succeeding paper.

Footnotes

1) Mirror neuron is a cranial nerves cell involvement of the motor system is discovered in a subdivision of the monkey’s (and a humans) the ventral premotor cortex, area F5, and the rostral part of the inferior parietal lobule.

Mirror neurons are thinking that participate in human function of recognition: it participate understanding of meaning, intention, emotion and others what involves movements when some individual is observing the other’s movements, and with immediate repetition
(imitation) of an observed action is carried out by the mirror system itself. Mirror neuron system, by providing motor copies of the observed actions is appeared the ideal mechanism for imitation. (Rizzolatti G, Destro MF (2008). Scholarpedia, 3(1): 2055)

2 ) The uniformitarianism is a theory in geology that J.Hutton (1726-1797) advocated in the end of the 18th century. C. Lyell (1797-1875) established the natural laws for the geological phenomena called “The principle of geology” (1830-33). Today it is used as the principle of the uniformity of nature.

3 ) About twelve other responses of the infant that I was not able to place in the text to question item, I add it at the end of article (2). I want you to refer to there.

References

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