

Von Richthofen and Modern Geographic Urban of the Geographic Science -

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Von Richthofen and Modern Geography

—System and Unity of the Geographic Sciences—

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I Introduction

It is generally recognized that Richthofen acted as intermediary between Humboldt and Ritter in the early nineteenth century and between Hettner and Schlüter in the twentieth century, in the history of modern geography (Hartshorne 1939, Dickinson 1969). Marthe (1877), Drygalski (1905), Hettner (1906, 1927), Schlüter (1906) and Lautensach (1933) have already introduced his personality and also evaluated his achievements in geography. In Japan, Noma (1952, 1957, 1963) studied methodological relations between Marthe and Richthofen from the mode of approaches in geography. Recently, Kasai (1974) analysed geographical thought in the early twentieth century from a critical review on Schlüter's theory. Thus, Richthofen's contributions in the history of geographical thought are well known through the medium of these critical reviews. It is much to the point that Henze (1971) says, "Richthofen gab der Geographie, wie A. Penck sagt, den Boden zurück, über den Humboldt sich erhoben und den Ritter verlassen hatte: die Erdoberfläche."

Since Richthofen had indicated a direction of modern geography, nearly one century has run its course. And now modern geography has various trends on the one hand, retains its original condition on the other hand. Under such circumstances, it makes the study on the history of geographical thought more meaningful that we take a new look at some problems of Richthofen's geography. A significance of the study on the history of geographical thought must not only be found in introduction of the individual's geographical thought, but also in its effectiveness to the problems with which geography is now confronted.

The purpose of this paper is to point up a significance of Richthofen's geographical thought and moreover to advance the author's ideas on the methodology of geographic sciences.

II Richthofen's Views about the Problems and Methods in Geography

(1) Geography as a Science of the Earth's Surface (Erdoberfläche)

Richthofen was called to Leipzig in 1883 as Oscar Peschel's successor, and there he devoted himself to the development and presentation of a clearly defined system

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of geography that profoundly influenced geographical thought in Germany (Engelmann 1965). Now, he gave his inaugural address at the University of Leipzig on "Aufgaben und Methoden der Heutigen Geographie" in 1883. The following paragraphs are mainly a summary of its content.

Richthofen recognized "modern" as the very time that many materials are put in order from the scientific standpoint instead of the discovering time of new materials through expeditions, and he set the subject of modern geography being in secure position by discovering of the leading standpoint.¹⁾ From the standpoint of such a recognition, Richthofen intends to present the objects and subjects of geography, moreover the method of geography.²⁾ It is very difficult to classify the objects of geographic sciences among those of other sciences. Generally speaking, the inherent field in most of science may look differently according to each person's subjective point of view. No sciences have such a various boundary domain of science as geography has. Accordingly, conversely speaking, no sciences are under the necessity to look for such inherent domain of science as geography is. What kind of concept lead geographical sciences in the steady position? This difficult problem — according to Richthofen — may be resolved by indicating the principle of the earth's surface (Erdoberfläche) into the domain of geography.³⁾ In short, there is no sciences except geography that concerned with the earth's surface itself. Geography, he says, is the science of the earth's surface and the things and phenomena that are causally interrelated with it.⁴⁾

(2) The Leading Standpoint and the Subjects of Modern Geography

The earth's surface is, first of all, the earth's crust, or the lithosphere. In addition, moreover it also involves the hydrosphere and the atmosphere. That is to say, earth's surface consists of three spheres of the nature. It is three inorganic worlds of nature that are composed of the fundamental domain of the objects of geography.

Now then, what subjects does geographer investigate? First of all, scientific

- 1) Richthofen says, "Wir stehen offenbar noch in einer Zeit lebhafter methodischer Entwicklung, aber es mehren sich die Zeichen allseitiger Klärung."
- 2) He has already declared in few words on these matters in a major work on China's first volume, published in 1877.
- 3) In 1877, Richthofen has already given his opinions on this problem as follows: "Es sollte stets im Auge behalten werden, dass der Gegenstand der wissenschaftlichen Geographie in erster Linie die Oberfläche der Erde für sich ist, unabhängig von ihrer Bekleidung und ihren Bewohnern." It seems to me that the prototype of this inaugural address at the University of Leipzig on "Aufgaben und Methoden der Heutigen Geographie" in 1883 is found in this paragraph. However, he did not offer his opinions on the method of geographic sciences there.
- 4) "Die Geographie gestaltet sich dadurch zu der Wissenschaft von der Erdoberfläche und den mit ihr in ursächlichen Zusammenhang stehenden Dingen und Erscheinungen."

geography must be recognized the material compositions (stoffliche Zusammensetzung) of the area. Geographers should consider the concept of the earth's surface as a developmental and changeable object. Therefore, it is important to study the regional transformation of phenomena and the movement occurring in the lithosphere, the hydrosphere and the atmosphere in correlation with the earth's surface. The first subject in geography makes the spatial form of demonstration of casual relationships among phenomena in the inorganic world clear, from four points of view: morphological, material, dynamic and genetic modes of approach. It is just the fundamental subjects of scientific geography.

In studying of the organic world, especially in the animals and plants, it is impossible to establish the foundation of study till the inorganic world of nature draws close to them. Geographers deal with the following subjects there, for example; establishment of the distribution in the horizontal and vertical terms, in class, order, family and so on; investigation of causes why a group of having different forms live altogether at a certain places over the earth, and why each form can live there. The subjects of geography — according to Richthofen — reach the climax in investigation of the interrelation between man and the five other realms of nature: the lithosphere, the hydrosphere, the atmosphere, the plant and the animal world. Man may be there considered from the view point of the relationships to the regional distribution of the plant and animal, and to the continuously reforming lithosphere, the distribution of the hydrosphere and the drastically changeful atmosphere. In other words, geography deals with each moment of man and his material and spiritual culture.

In summary, geography is concerned with the six realms of nature; the lithosphere, the hydrosphere, the atmosphere, the plant world, the animal world and man. Geography, Richthofen says, is the science of the earth's surface and the things and phenomena that are causally interrelated with it. In this sense, the name of earth surface's science (Erdoberflächenkunde) is most fitted to its content. As far as the things and phenomena concerned with the perceptible relation to the earth's surface, Richthofen makes them the subjects of geography. Through such a procedure, he draws many materials into geography.

(3) Method and System of Geography

Mesurement and observation of phenomena are characteristic of the natural sciences. Geography as the earth surface's science studies many materials by which geography gains from the following point of view. Geography may be pursued through the most detailed investigation of the smallest areas, as well as through the comparative study of larger areas. Thus, there are two approaches according to whether the areas or the things and phenomena are the primary

object of study. The first is primarily descriptive and is special geography (beschreibende oder spezielle Geographie), the second is abstract by means of unity and inference and is general geography (analytische oder allgemeine Geographie). The former is synthetic, the latter is analytical. Moreover, the combination of both methods yields a third method that correlates selected groups of the things and phenomena observed in a particular area with each other, and seeks to understand their interrelationships and causes. This is inductive and is the chorological method.

Descriptive method is based on two axiomatical premises. First, the earth's surface consists of component areas, in other words, the whole can only be recognized by the juxtaposition (Nebeneinanderstellung) of these component areas. Second, anyone of the area is an agglomeration of things and phenomena that consists of the element of the six realms of nature, in other words, it can only be portrayed through the whole of them.⁵⁾

(A) *Chorography and Chorology*

According to Richthofen, the descriptive earth surface's science (beschreibende Erdoberflächenkunde) in the purest form is chorography. It doesn't go beyond the systematic assembly of all the appearances of the individual area. It is namely an encyclopedia concerning with the areas.⁶⁾ Chorography is instructive in way of the description and is progressive in procedure. The synthesis is the keynote here. Chorography must be now strengthened by chorology to put its heart and soul into itself. The chorological method is concerned not only with registering the areal facts that are there, it also attempts to explain the areal distribution of these phenomena through the introduction of causative and dynamic interrelationships of every single portion of the area.⁷⁾ The chorological approach has been facilitated since Ritter's time by the growth of the special disciplines that deal with the explanation of the spatial distribution of all phenomena. Whereas chorology has some shortcomings. This is partly because the area that must be investigated extends far and wide, partly because the purpose of the whole is too much for the individual to do. Chorology, therefore, must depend upon general geography. General geography is an independent division of

5) Richthofen's geographical thought has an influence upon the development of German geography in twentieth century. Hettner's attempt on systematization of earth's surface is based on two axiomatical premises. It seems to me that the systematization of these two premises is the main subject among German geographers.

6) The number of items — Richthofen says — is so great that one is obliged in practice to follow an eclectic procedure. Subsequently, in following paragraphs, he summarizes the objects of chorography.

7) The forerunner of this approach is Strabo, and it is needless to say that Humboldt and Ritter are the leader of this treatment.

geography, but general chorology (allgemeine Chorologie) exists only in ideal forms. Namely, general chorology lies midway. Thus, the chorological method not only has the analytical approach of general geography, but also has the synthetic approach of special geography in approach of description. In the long run, the chorological method comes to chorosophy (Chorosophie) in the most ideal.⁸⁾

(B) *General Geography*

The second approach is the abstract or analytical method. This is usually termed general geography (allgemeine Geographie), a word that is of doubtful propriety. The mode of presentation of chorography is didactic and proceeds from the areal distribution of facts and conditions to their interrelation and causes, and there breaking down the whole area into its component parts. The keynote is synthesis. In contrast with this, general geography receives the things and phenomena from the descriptive geography, namely, both approaches have common things and phenomena, but respectively different methods. Because general geography, needless to say, considers them from the view points of the whole. It is not progressive, but rather regressive, since it passes from the particular to the general, from the effect to the cause, from the individual phenomena to the whole phenomena. The leading standpoint is, here, the morphological (morphologisch), material (stofflich oder hylologisch), dynamic (dynamisch) and genetic (genetisch) modes of approach. Thus, it is the understanding of laws that becomes to the important subject here.

Now then, modern concept of general geography is almost established by Bernhard Varenius (Varenius 1650, "Geographia generalis"). General geography — Varenius says — considers the whole earth in general, and explains its properties without regard to particular countries. Whereas, in the golden age of physical geography after Varenius, Humboldt's analytical method did not become to reach the mode of approach in geography. Ritter handled only in a fragmentary way the areal interrelationships of natural phenomena upon which Humboldt laid so much emphasis, since he regarded the assessment of the influence of the physical forms: for example, natural resources, water supply and plant cover, upon man as the highest goal of the chorological approach. Consequently, the integrating research in physical geography in the early nineteenth century was lost. Physical geography was scatteringly fragmented in the modern times. And, at last,

8) Noma (1952, 1957) pointed out the relation of geographical thought between Marthe and Richthofen. Perhaps his statement is fully justified. In the very paper that Marthe reviewed a major work on "China", published in 1877, he dealt with the concept, the object and the method of geography. It seems to me that Richthofen is much owed to Marthe concerning such concepts of chorology and chorosophy.

geography which was regarded as sister science of history, on the contrary, sank to the serve of a hand-maid. This — according to Richthofen — is mainly responsible for Ritter, for Ritter's chorographic presentations were stimulating in his day. Thus, Richthofen intends to revive the concept of unity of the earth's surface, and to bring the analytical approach into a closer relationship with chorological approach. Richthofen considers all of them as the main subject of modern geography. As we study these problems again, Varenius' general geography revives (Richthofen 1883, 1903). The uplift of the thought in the natural sciences permits the idea of Ritter to be applied. Thus, geography now links the problems of various sciences in a unity. To link the basis of geography in the earth's surface on which the things and phenomena areally are arranged, makes it possible to do this.

Richthofen divides general geography into three divisions: general physical geography, general biological geography and general anthropogeography. These are respectively concerned with the analytical investigation of the earth's surface, the interrelation of the plant and animal world to the earth's surface, the interrelation to above-mentioned five realms of nature. In these fields, there are four modes of approach, namely, the outer form or aspect, the materials, dynamic forces or causal relationships and genetic development.⁹⁾

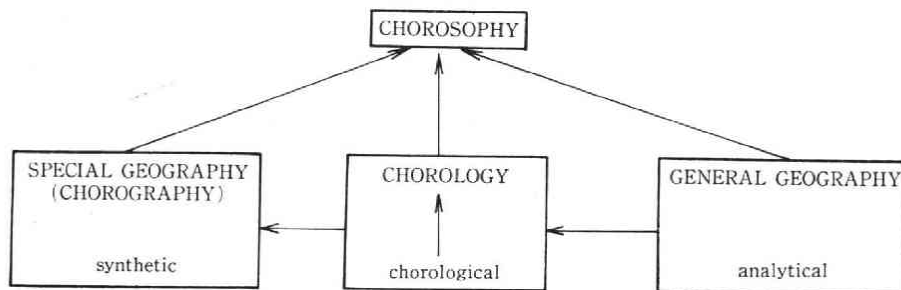
III Reconstruction of Geography as a Science of Chorosophy

Richthofen's significance in the history of geographical thought may be briefly summarized in the following matters; (1) introduction of the principle of earth's surface into geography, (2) placing the two main group of geographical disciplines, general geography and special geography, on a firm basis, (3) reassessment of chorological approach which was inherited from Humboldt and Ritter to Marthe, (4) presentation of the leading principle in general geography: that is, morphological, material, dynamic and genetic modes of approach. Now, the prototype of "classical dichotomy" and "new dichotomy" can be found there. Richthofen correlated anthropogeography with physical geography as well as the relation of general geography and special geography. He also placed geology in a basis of geographical study. This was partly because he introduced the principle of earth's surface to the inherent objects of geographical science, at the same time, partly because he was a great geologist in his day. By the way, the current problem of modern geography in Richthofen seems to me the unity of Humboldt and Ritter. Through the reassessment of the chorological approach, he did that matters on the

9) These four modes of approach are simultaneously most useful among other sciences. It is very important to recognize that they are connected with the development of sciences in the nineteenth century.

basis of the overwhelming prosperity in the natural sciences. Though the chorological approach must depend upon general geography, at that time, it also puts heart and soul into chorography. Accordingly, the chorological approach lies midway between chorography and general geography, and it becomes to chorology. In short, the chorological method comes to chorosophy in the most ideal of forms. This process may be shown as following schema (Table 1).

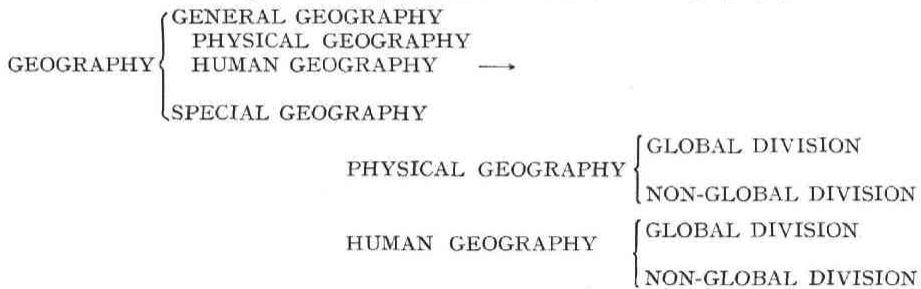
Table 1 Diagrammatic representation of the mode of approach in Geography



In this schema, “geography” is being replaced by chorosophy. It is very difficult — according to Richthofen — to place chorosophy into a position of science. However, when we develop chorosophy to a position of science, “geography” may be revived, and that can be only established by the co-operative investigation of all geographers. Namely, the author thinks that we should not suppose the two major divisions at the beginning. It seems to me that the thought of classical dichotomy can be only as a ideal form. The things and phenomena that we study, lie on the earth’s surface in a concrete form. We have to make start here, thus, geography can be done by the investigation of the things and phenomena on various extensions of the earth’s surface. And there, “general characteristics” and “special characteristics” are in the same instant grasped according to the way of science. The system of geographical sciences is divided first of all into two major divisions: human geography and physical geography. And, for example, human geography consists of global division and non-global division as well as physical geography. In this schema, the global investigates on the scale of the entire terrestrial globe and the production, population and the like as a whole, on the other hand, the non-global does the causes of the similarity or difference of the production, population and the like within individual countries or regions. It is the author’s system of geographic sciences that the former general and special geography can be recognized into human geography and physical geography as a science of chorosophy. This system undoubtedly assures more closely the unity

between general geography and special geography than the former system, for analysis and synthesis always are correlated in all regions. Thus, the system of geographic sciences is shown as following schema (Table 2).

Table 2 Diagrammatic representation of the system of geography



In this schema, next problem is the relationships between physical geography and human geography. Now, it is needless to say that the former is one of the natural sciences, and the latter is one of the social sciences. It is not easy to go to the higher unity beyond the circumstances. Whereas, such a difficult attempt has been actively done among geographers in DDR and USSR (Neef 1963, 1967, 1972, Gerasimov 1969, Isachenko 1971). Isachenko, for example, recognizes the notion of the natural geographical complex (geosystem) to be the core concept of modern geography, and insists as follows; "Any discipline would be geographical only to the extent to which it involved the investigation of geosystems". And moreover, the objects of physical geography — he says — is the impact of human society on the natural complex (geosystems), that of the economic geography is the impact of geosystem on the formation and evolution on the spatial economic systems. Thus, he doesn't consider the man-nature relationship from the man-nature interplay, "in general", but does from the relationships between natural and economic systems.

Isachenko's thought seems to me that the unity of geography should be farthered not through "general geography", but through more closer tie between physical and economic geography both in organizational and methodological terms. Landscape science (*Landschaftslehre*) in USSR and DDR are worth listening to me, however, I think the problem on the unity of physical and human (economic geography in DDR and USSR) geography must be put many hours in it. Since a possibility of the unity doesn't come into being at least in theoretical terms till physical and human geography successfully develops each into the complete chorosophy from which modern geography should be revived.

To Professor Noh this paper is dedicated.

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