

# THE IMPACT OF POLITICAL SYSTEMS UPON GEOGRAPHY: THE CASE OF THE FEDERAL REPUBLIC OF GERMANY AND THE GERMAN DEMOCRATIC REPUBLIC\*

---

There is an enormous information gap, in part unilateral, between geography in North America and in the German-speaking countries. In this report an attempt will be made to bridge this gap, laying stress upon the following aspects in the recent development of German geographical research:

1. differences in development resulting from the dissimilar political systems in the Federal Republic of Germany (FRG) and the German Democratic Republic (GDR);
2. concomitant circumstances of the emergence of the new (theoretical-quantitative) geography in the FRG, the appearance of neo-Marxism, and the rise of applied research;
3. infiltration, and adaptation, of the new geography into the pluralistic structure of research, which is much more diversified than might be deduced from the few reports in American literature (which label German geography as only the „landscape concept“ or „social geography“);
4. institutional allocation of the new geography;
5. barriers to its take-off (as, for example, the dichotomy between research conducted by German geographers abroad and at home);
6. future trends in research.

## **Effects of differing political systems**

The division of Germany and assignment of the two parts to different political hemispheres offer an opportunity to compare the influences of their respective political systems on the development of geography in both countries. The main differences are listed in Table 21.

---

\* In: *Professional Geographer*, 31(1979), 2: 201-211

Table 21: **Differences between geography in the Federal Republic of Germany and the German Democratic Republic**

Aspects	Federal Republic of Germany	German Democratic Republic
The sphere of scientific influence is identical with the political one	United States	Soviet Union
The organization of science corresponds to the state organization	Federal structure; loss of the capital, Berlin, and, thus, of the former leading geographical institute	Centralistic organization like that in other countries behind the Iron Curtain; leading organization: Academy of Sciences
Guidance of research	Indirectly through the German Research Foundation	Directly dependent on decisions at party rallies of the SED
Research perspectives	Extremely diversified	Concentrated on only a few
Regional foci of research	Research abroad predominant	Hardly any research abroad
Research at home	Dichotomy of research for doctoral theses and applied research according to commissions	Almost all of the potential concentrated on domestic research
Applied research	Free market for basic research of private and semi-official institutions in which geography participates	Public commissions to the Academy of Sciences, separation of research and teaching at university level
Publications	Competition of journals, each larger institute having its own journal	Strict definition of task for the few existing journals, all of them supervised organizationally by the Geographical Society of the GDR
Scientific communication	Development no longer capable of being grasped by an individual; complicated three-dimensional information space, with a systematic regional and methodical connective pattern	Transparent information space clearly subdivided into research directions
Influence of political doctrine upon scientific terminology	Infiltration of the terminology of neo-Marxism and the critical rationality	Increasingly separate development as to the basic terms

The situation in the GDR will be discussed first. From 1967 to 1969 the Third University Reform perfected a centralistic research structure. Following the Soviet model, the Institute of Geography and Geology of the Academy of Sciences was given the leading function in geographical research. Moreover, the

number of geographical institutes was limited to five (Humboldt-University Berlin, Greifswald, Halle, and the teachers' training colleges of Potsdam [Geography and Sports Sciences] and Dresden [Mathematics-Geography Section]). The old, established institutes of Leipzig, Jena, Rostock, and at the technical university of Dresden were closed. In 1969 the Geographical Society of the GDR was also attached to the Academy of Sciences. Almost all of the publication activities are concentrated there now.

Research was re-organized according to a system of commissions guided by a central research plan. The granting agencies are the public planning commissions and planning authorities of the districts and of Berlin, as well as the Ministry for Economy and Technics. The development of research in the field of geography is orientated to the main task formulated by the Eighth Party Rally, which consists of participation in (1) formation of an effective territorial structure of the society's productive processes and (2) upkeep and improvement of natural resources for both life and production.

Accordingly, there are two main foci of research at present, namely ecological landscape research and territorial research. In the former subject area a boom started as early as the Fifties, greatly enhanced by generous public sponsorship, especially the provision of laboratories and field stations. During a period of free communication between the two German countries in the Fifties, the GDR even participated in a project for the physical regionalization of Germany.

Since the Sixties, the basic concept of ecological landscape research has changed. It is now expected to provide the geo-ecological data required for an evaluation of natural resources as well as to develop measures required for complex economic planning. Research concentrates on an effective multiform social land use. It involves testing the maximum capacity of land, anticipating the effects of subsequently superimposed land uses, and analyzing various types of possible multiform land uses. This permits identification of the preconditions necessary for planning to meet the requirements of specific types of land use. The presentation of a spectrum of possible variants of future land use and the simulation of development trends is intended to achieve an optimization of land use. This is seen against a background of social criteria, such as the amount of economic input, social effectiveness, protection of the natural environment, and the conservation, regeneration, and possible increase in the potential use of natural resources. The influence of Soviet research into geosystems is clearly apparent. The Soviet research is more advanced with respect to dynamical-functional features of the geosystem than that of the GDR, which stresses the invariant structural elements. The results of GDR research were transferred into the FRG literature by LESER's textbook on landscape ecology.

As to the human sciences, in the late Sixties the then dominant economic geography was integrated into the interdisciplinary field of territorial research. This field aims at providing the foundations and prognostic instruments for a

planned spatial organization of social processes. Having arrived by way of a detour through the Soviet Union, the methods of regional science and, more recently, even the systems approach and cybernetic methods have been adopted. Using a Marxist-Leninist theory of territorial concentration and agglomeration, geography deals especially with the macro-structure of settlement systems, the process of urbanization, and the problems of high density areas and urbanized areas, as well as with selected aspects of the geography of production, of infrastructure, and of communication.

As a great deal of research in the GDR is undertaken exclusively for official purposes, it is difficult to estimate the level of the theoretical and methodological framework of these unpublished studies. One gets the overall impression that theoretical and quantitative geography had been accepted at a later date than in the FRG, namely around 1972, but had spread very quickly during the past few years owing to propagation by central authority.

### **Emergence of theoretical-quantitative geography, neo-Marxism, and applied research in the FRG**

It might be considered a historical coincidence that, almost simultaneously with the institutional reorganization of geography in the GDR, there was a confrontation in the FRG of „classical“ geography with representatives of the „new“ geography as well as with neo-Marxism at the 1969 symposium of German geographers in Kiel. At the same time, however, a few English-speaking geographers were giving up the system of value free logic in favor of Marxism.

Meanwhile, political scientists of the social democratic government in the FRG have joined the ranks of those advocating social relevance in research. At least for domestic research, it will be more difficult in future to obtain grants for studies lacking practical purposes.

Whereas in the GDR the problem of establishing an institutional arrangement for applied research has been solved through centralized authority, there is an institutional pluralism in the FRG. Basic geographical research is not carried out so much at university institutes as by large semi-official institutions and public offices. The reason for this seems quite clear: applied research is no longer possible for the individual scientist. Because of the enormous rise in the number of auxiliary personnel necessary for such research, the *Lebensform* of the scientist is being replaced by that of the research manager. Generally speaking, continuous applied research cannot be maintained at the universities because the staff and financial prerequisites are lacking. Moreover, the problem of inadequate contacts between scientists and representatives of public authorities must not be overlooked.

Inevitably, research is commissioned either according to patterns of personal communication or by mere chance. Because the universities did not recognize in time the demand of public authorities and the private economy for basic research, large institutions outside the universities sprang up. If, for example, all those institutions in Vienna engaged in applied research relating to geography were combined, the result would be a small research university with several hundred experts.

As interdisciplinary applied research requires a theoretical base and terminology common to the various subject areas, and, moreover, because the goal is prognosis, it is understandable that both in the FRG and in Austria the march of analytical geography started in applied research first. In this context, the important change in management of the Institute for *Landeskunde* in Bad Godesberg (with E. Meynen being replaced by R. Ganser) ought to be mentioned. This resulted in shifting research activities from the landscape concept to applied geography and regional planning. The former publications (*Berichte zur deutschen Landeskunde*, *Forschungen zur deutschen Landeskunde*) were replaced by new ones (*Informationen zur Raumentwicklung*, *Forschungen zur Raumentwicklung*).

It must be stressed that there definitely is no direct equivalent of this rapidly developing interdisciplinary field of regional research and regional planning in the English-speaking countries. It has not descended from regional science; instead it bears similarities to developments in the GDR. As problems of the human environment gain even greater importance, it is becoming apparent that research into topics of ecology and socioeconomics cannot be kept isolated but must be combined in some way.

### **The new geography and the pluralistic structure of research**

From the very outset, the new paradigm of analytical geography is confronted with a pluralistic structure of research that is much more complicated than might appear from the English literature. In the following discussion this structure is termed „classical geography“. In order to grasp the pattern of infiltration by analytical geography, it seems necessary to classify geography into „core“ and „frame“ specialities within the usual division into physical and human geography (Table 22).

The core specialities are normally considered the central research fields of geography. Between the two main branches of geomorphology and settlement geography important feedback effects always existed, as a transition from the former to the latter was considered part of the standard career. (Incidentally, H. Bobek, the well-known Austrian social geographer, started his career with pene-

plain-development studies in the late Thirties and undertook his research on desert morphology in Iran during the late Sixties.)

The result was a transfer of geoscientific methods, such as field work and air-photo interpretation on a micro-scale; it also introduced (unintentionally in most cases) an element of true positivism. This brought about a tendency toward formulating hypotheses otherwise unknown in cultural geographic research. The basic approach lay in the perception of physical objects transformed into sets of ideal types (after Max Weber). They comprise soil types, karst types, and types of glacial erosion in physical geography, as well as types of field patterns, building types, farm types, and so forth in human geography. Because of this approach to nomenclature, the problem of an international standardization of terms still remains unsolved.

Table 22: Classification of geographic specialities

	<i>Physical Geography</i>	<i>Human Geography</i>
<i>Core Specialities</i>	e.g. geomorphology	e.g. settlement geography
<i>Frame Specialities</i>	e.g. climatology	e.g. population geography social geography

It is a characteristic phenomenon of German geography that specialists in geomorphology have always looked down upon human geography, owing to the higher level of their methodology and their formation of deductive theories (models of slope, peneplain and valley development, karst water theory). These could be found as early as 1938 in the widely read textbook of O. Maull. There cannot be any doubt that, with respect to its scientific level, geomorphology had an advantage of one generation over the settlement geography. The present importance of physical geography, especially geomorphology, is documented by the proportion of physical to human geography in the projects sponsored by the German Research Foundation between 1961 and 1975, which varied between 1:1.5 and 1:2.2.

The frame disciplines have always been of less importance in geographical research, and at times the question was raised as to whether one or the other discipline should still be considered a part of geography. The following features are common to them:

1. In most cases they have by-passed the dilemma of a terminology based on the ideal types concept by adopting the classification systems of neighboring sciences.
2. They have avoided the landscape concept by means of their functional separatism.

3. The main branches, such as climatology, hydrogeography, population geography, and social geography, have in many cases adopted the theories of bordering sciences and have been established as the geo-branches of those disciplines.

It was only by the historical chance of scientific development in a specific country that such branches either evolved as part of geography or remained within the institutional framework of the respective systematic disciplines. Thus there is no equivalent of German social geography in North America. There, social ecology came into existence as early as the Thirties within the framework of sociology, and it was not claimed by urban geography until fairly late.

The four subdivisions of geography mentioned above offer quite different opportunities for the penetration of analytical geography. Little theoretical progress can be made by applying mathematics to the core disciplines so long as they are preoccupied with ideal types as geographical objects.

Laboratory techniques have made visible progress in certain branches, such as karst morphology and actualistic morphodynamics. Similar development has occurred in settlement geography, into which analytical techniques are increasingly being introduced. Generally speaking, however, a variety of methods are employed. The frame disciplines of physical geography, on the other hand, seem predestined for the invasion of analytical geography. It is an advantage for both climatology and hydro-geography that they can use the extensive sets of data of official institutions. The take-off of these two subject areas is spectacular and is mirrored in the most recent textbooks. A similar trend can be observed in vegetation geography, which imitates the methodology of plant sociology.

It is maintained, however, that, in human geography as well as in physical geography, genuine research work has to be based on original sets of data. Unlike physical geography, human geography is undergoing a change in the spectrum of neighboring sciences with which it maintains ties. It severed its bonds with history and formed new links with economics, sociology, and psychology. The problems and theories of those disciplines (such as economic location theory, the growth pole concept, the concept of cost gradients, and perception research) became integrated into human geography. The most recent developments no longer rely upon direct importation from the geography of the English-speaking world but instead imitate the research strategies of adjacent disciplines such as psychology and sociology in the German-speaking countries. The latter have succeeded in gaining a considerable advantage, both with respect to their theoretical frameworks and their mathematical-statistical methods.

### Institutional allocation of the new geography

As can be deduced from a bibliography and a list of current projects, theoretical quantitative geography is allocated among institutions in the following manner:

1. The new geography is best represented at the new universities and can therefore be considered an element of the institutional growth fringe.

Table 23: Institutional pattern of quantitative projects

	Number of Geographical Institutes	
	With Quantitative Projects	Without Quantitative Projects
Old established universities	9	16
New universities (founded since 1945)	10	6

Source: A. KILCHENMANN (9).

2. The foci of theoretical-quantitative geography are at technical universities, where the necessary technology and hardware are most available. In the FRG there is a technological school at Karlsruhe (9). In Switzerland, B. Steiner, who worked in Canada for a long time, is about to develop computer cartography further.

3. Otherwise, there are one or two quantitative geographers (all young) at about half of the geographical institutes. Of course, this pattern results in a dispersal of the potential, which is accentuated by the time lag in providing computer facilities, as compared with the English-speaking world. It is for this reason that technical methods were in the foreground at the first symposium on quantitative geography (3).

When contrasting English and German research with respect to methodology, the following statements can be made:

1. After an initial phase during which parametric statistical methods were adopted, there is now a marked interest in non-parametric methods, for which adjacent disciplines, especially psychology and sociology, increasingly provide the models.

2. Wherever geographers are engaged in regional planning, economic decision-making techniques are gaining importance (cost-benefit analysis, optimization techniques, input-output analysis). Gravity and potential models have been widely used, normally with original sets of data, for testing various distance concepts (action space, perception space, leisure space, mobility space, diffusion research, etc.).

3. By comparison with the English-speaking countries, very little use has been made of mathematical model theory, with which only a very few German geographers have as yet succeeded in getting acquainted.



### Barriers to the new geography

Ten years ago there appeared D. BARTELS' book on „Zur wissenschaftstheoretischen Grundlegung einer Geographie des Menschen“ [1], which opened up a new era in the history of German geography. Now the question ought to be asked: What barriers are hampering a diffusion of the theoretical-quantitative geography after its take-off in the early Seventies? It would be too simple to refer to language barriers, as reading literature in English is part of the „normal consumption“ of German scientists.

The problems are more profound and, to my mind, are connected with three facts:

1. foreign-area research is fixed in the career norms,
2. the methods of physical geography still retain their long-established importance in human geography, and
3. research perspectives have acquired a high degree of pluralism, as mentioned above.

Table 24: Individual projects sponsored by the Deutsche Forschungsgemeinschaft (German Research Foundation) 1961–1975

Area	Number	Percent
Western Europe	318	22.4
FRG/GDR	237	16.7
Africa South of the Sahara	140	9.8
Latin America	138	9.7
Islamic Orient	132	9.3
North America	90	6.3
Indian Subcontinent	64	4.5
Southeast Asia	48	3.4
Eastern Europe	36	2.5
Australia	28	2.0
East Asia	22	1.5
Soviet Union	15	1.1
General Geography	73	5.1
Others	80	5.6
Total	1421	100.0
Applications in Connection with Joint Projects	475	

Source: Geographisches Taschenbuch 1977/78 (2).

Without doubt, for a number of decades foreign-area research claimed a great deal of the intellectual potential and attracted almost all of the established representatives of the discipline, whereas it was left to graduate students to make

the first attempts at scientific work at home. A list of projects sponsored by the German Research Foundation in the 1961 to 1975 period clearly mirrors the research politics of that country which now leads the European economy as it promoted a „luxurious“ export of scientific potential to all parts of the world (Table 24).

Because of the difficulty of coordinating individual projects, joint programs were started as early as in the Fifties. Before the period referred to here, one of the foci was the project on economic geography. It resulted in the *Atlas of the German Agrarian Landscape*, which, in all respects, both as to cartography and text, is a model of the very best quality of historical cultural landscape research. Five focal programs from the 1961–1975 period have thus far been only partly finished (Table 25). In spite of all the efforts to coordinate research activities, only a fourth (475) of the successful applications belonged to the joint programs.

Table 25: Joint programs sponsored by the German Research Foundation

Subject	Period	Number of Applications	Grants Provided
Urban geography	1963–1968	70	1 million DM
Population geography	1961–1974	80	2.5 million DM
Africa Atlas	1964–	n.a.*	n.a.
Industrial geography	1974–	8 (to date)	n.a.
Geomorphological mapping of the FRG	1976–	n.a.	n.a.

Source: Geographisches Taschenbuch, 1977/78 (2). \*not available

Whereas the list of sponsored projects in Table 25 shows the regional diversity of research, reports of the meetings of German geographers for the same period demonstrate the pluralism of research perspectives in the FRG (Table 26).

The export of scientific potential had consequences, of course. The almost complete absence of geographers at home resulted in a serious loss of prestige for geography in the high schools, as opposed to the situation in the GDR and in Austria, where there are no comparable institutions sponsoring research abroad and where geographers traditionally are engaged in planning and feel responsible for geography in education.

German research abroad cultivates the style developed at home, such as a preference for the micro-scale and intensive use of physical geography techniques (field mapping, air-photo interpretation). As a rule, either the lot or the individual building or household constitutes the basic unit, both in rural and urban areas. Thus there are enormous differences in the research styles of German-speaking and American geographers. For the latter, field techniques had

become exceptions as early as the late Thirties, and nothing comparable to S. Schneider's handbook on air-photo interpretation has been written in English.

Table 26: **Research perspectives at the German Geographical Meetings, 1961–1975**

	Number of papers
Physical Geography	
geomorphology	25
high mountain area research	15
ecology	9
climatology	8
hydrology (oceans)	8
quaternary research	5
vegetation	2
pedology	2
Human Geography	
urban geography	23
central place research	9
settlement geography (rural areas)	15
agricultural geography	24
industrial geography	17
geography of tourism and leisure activities	12
economic geography	16
geography of transport	2
population geography	10
mobility research	3
social geography	8
geography of religion	4
geography of administration	9
Historical geography	4
Cartography (remote sensing)	7
Quantitative methods	7
Underdeveloped areas	10
Report on projects	3
Applied geography and planning	14
Environmental problems	4
Curriculum research	41
Professional geography	4

Source: Tagungsberichte und Abhandlungen des Deutschen Geographentages, Nos. 24–41.

Because of their experiences in the Third World, German geographers have come to distrust (certainly not without reason) the reliability of official statistics as well as the validity of such data for analyzing complicated problems. In this context it is understandable that the introduction of mathematical-statistical techniques has been combined with the acquiring of original data by means of surveys.

Research abroad had consequences not at all intended initially. After a period during which regional geography was neglected, it has now made a comeback, based on the scientific investment of the generation currently working abroad. The basic question of ups and downs in regional geography, as reflected in the publication of textbooks, is of interest. Several periods can be distinguished (see table 27).

Table 27: German textbooks of regional geography (continents, parts of continents, and countries)

Period	Number of Books			Annual Average
	Europe	Other Conti- nents	Total	
1921–1938	34	20	54	3.0
1939–1948	-	7	7	0.7
1949–1954	5	8	13	2.1
1955–1962	-	5	5	0.6
1963–1975	1	30	31	2.4
1976–1978	4	5	9	3.0

Source: Library of the Geographical Department, University of Vienna.

The inter-war period experienced a boom in regional geography as a reaction of changing political conditions. The leading geographers in the German-speaking countries, among them N. Krebs, O. Maull, and F. Machatschek, considered it their duty to write regional geographies. The production of only eighteen years comprised fifty-four books of very high quality. Books about regions of Europe or European countries set the standard.

For the same reasons, the publication of regional texts briefly reached another peak early in the Fifties. Immediately afterwards an anti-regionalism set in, led by exponents of the former Berlin school, who opposed N. Krebs and opened up new directions of research (C. Troll, geocology; J. Büdel, climatic geomorphology; H. Bobek and W. Hartke, social geography). The succeeding generation – today's chairholders, and some of the younger people, who want to profit from their personal scientific investments in foreign countries outside Europe – are once more publishing regional geographies. After decades of complete neglect, regional geographies of Europe have again returned to favor. In

this recent period, only the theoreticians and exponents of quantitative methods have questioned the value of regional geography, pointing to the fast turnover in regional information, but they were not able to stop the boom.

### Future research trends

In conclusion, it can be stated that, whereas geographical research in the GDR, under rigid official guidance, concentrates on a very few aspects, mainly of relevance for planning, the liberalism prevailing in the west has resulted in an enormous diversification of research projects (constitutional law specifies „freedom of research and teaching“). This diversity, which developed in conjunction with considerable increases both in the number of university teachers and in financial means, includes the innovation of theoretical-quantitative geography. All demands within the discipline for a planning of research are therefore to be considered utopian under present conditions.

In the FRG the following trends will be decisive in the future:

1. Increasing independence of the various branches of the discipline.
2. Further subdivision of the field, i.e., the development of a large number of highly specialized „geographies.“
3. Increasing specialization in methods, i.e., a growing methodological monism. This, however, will not be restricted to quantitative-statistical methods only. It is to be expected that remote sensing will continue the tradition of classical air-photo interpretation. In this context it should be mentioned that geographers in the GDR are developing, in cooperation with the Soviets, programs for interpreting satellite photos. Work on similar lines had previously been started in the FRG.
4. A concentration of research in the no-man's land between geography and neighboring disciplines with which there are links in theories, models, and methodology.
5. Without doubt, research abroad will retain its dominant position as long as there are no restrictions instituted by third parties, especially in the Third World.

### Literature cited and additional references

BARTELS, D., Between Theory and Metatheory. In *Directions in Geography*, pp. 23–42. Edited by R. J. CHORLEY: London, Methuan 1973.

FAR-HOLLENDER, U., and EHLERS, E., Geographische Forschung in der Bundesrepublik Deutschland und die Deutsche Forschungsgemeinschaft 1960–1975. In: Geographisches Taschenbuch 1977/78, pp. 241–53. Wiesbaden: Steiner, 1977.

GIESE, E., (Ed.) Symposium „Quantitative Geographie“. Gießen 1974. Möglichkeiten und Grenzen der Anwendung mathematisch-statistischer Methoden in der Geographie. Gießener Geographische Schriften, 32 (1975).

HAASE, G., Ziele und Aufgaben der geographischen Landschaftsforschung in der DDR. Geographische Berichte, 82 (1979), 1–19.

HAJDER, J. G., Towards a Definition of Post-War German Social Geography. *Annals of the Association of American Geographers*, 58 (1968), 397–410.

HAJDER, J. G., Comments. *Annals of the Association of American Geographers* 59 (1969), 596–99.

HELLEN, J. A., The Future of German Geography. *The Geographical Journal*, 144 (1978), 118–21.

JAMES, P. E., The New Geography in Germany. In: *All Possible Worlds: A History of Geographical Ideas*, Chapter 8, pp. 213–41. Indianapolis: Bobbs-Merrill Company, 1972.

KILCHENMANN, A., Dokumentation über Forschungsprojekte aus dem Bereich Theorie und quantitative Methodik in der Geographie. *Karlsruher Manuskripte zur mathematischen und theoretischen Wirtschafts- und Sozialgeographie*, Heft 24 (1978).

LICHTENBERGER, E., Die „quantitative Geographie“ im deutschen Sprachraum. Eine Bibliographie. *Mitteilungen der Österreichischen Geographischen Gesellschaft*, 119 (1977), 114–29.

LICHTENBERGER, E., Quantitative Geography in the German-Speaking Countries. *Tijdschrift voor Economische en Sociale Geografie*, 69 (1978), 362–73.

LÜDEMANN, H., Entwicklungstendenzen der geographischen Forschung in der Deutschen Demokratischen Republik. *Sozialistische Gesellschaft und Territorium in der DDR. Wissenschaftliche Abhandlungen der Geographischen Gesellschaft der DDR*, 9, Leipzig (1972), 9–18.

SPERLING, W., *Geographie und Geographieunterricht in der DDR*. München: List Verlag, 1977.

TROLL, C., *Geographical Science in Germany During the Period 1933–1945: A Critique and Justification*. Translated (in part) by Eric Fischer. *Annals of the Association of American Geographers*, 39 (1949), 100–37.

VAN VALKENBURG, S., The German School of Geography. In: *Geography of the Twentieth Century*, pp. 91–115. Edited by Griffith TAYLOR. New York, Philosophical Library, 1951.

ZIMM, A. und HÖNSCH, F., Entwicklungstendenzen der Geographie in der DDR. *Geographische Berichte*, Gotha–Leipzig (1975), 257–66.