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C o n t e n t s

Inhaltsübersicht

History of Geology at the XVIth International Congress of the History of Sciences (Bucharest 1981)

The XVIth International Congress of the History of Science was held in Bucharest between August 26 and September 3, 1981. It was organized by the International Union of the History and Philosophy of Sciences/Division of the History of Science (IUHPS/DHS) and the Academy of Sciences of the Socialist Republic of Romania. More than 1.000 scholars from 50 countries participated in the congress. More than 1.000 papers were announced the abridged versions of which had been published in four volumes (2.036 pages) by the organizers. The congress comprised 14 sections, 12 symposia, 7 special discussion meetings and four commemorative meetings.
Section A9 dealt with the history of earth sciences. The papers delivered and discussed were on the history of geography and geology. 41 papers had been announced in the programme; some were, however, not read at the congress. Co-operation of historians of geography and geology has proved effective. Apart from a mutual exchange of research results there were also fruitful discussions, which gave rise to the wish to continue keeping in touch in an appropriate way.
The papers on the history of geology mainly dealt with subjects covering the period from the 18th century to the present. They touched on some general problems of the development of geological knowledge, reported on the history of geological exploration in particular regions and paid tribute to the scientific work of geologists. Ju.A. Anisimov (USSR) spoke about the significance of mineral raw material for the development of the productive forces, and in this connection discussed some problems resulting from the relationship between the demand for raw material and industrial production in the past and today. Questions concerning the exploitation of mineral recources were also raised by A. Lundgren (Sweden). In particular, he analyzed the manner in which this question was approached by geologists and miners in the period between

1850 and 1900. Of a more general character were also some papers which took up the question of the history of ideas in the development of geological knowledge. O. Reinhardt and David O. Oldroyd (Australia) spoke about Kant's theory of the Earth, M. Guntau (GRD) about the idea of development in geological cognition in the 19th century. I.A. Rezanov delivered an interesting paper on the history of studying problems of the formation of mountains. Based on the analysis of the works of Russian, Soviet and American geologists the author divided the development from the eighties of the 19th century to the present into three stages and considered it necessary to interpret the different phenomena in a differentiated way. R. Haret (Romania) presented a topic that has been little investigated so far: history of the investigation of the thixotropy of clays.
As to be expected, several papers dealt with the history of geology and geography of the host country. C. Diaconu (Romania) spoke about the development of hydrology in Romania, P.Gastescu (Romania) about limnology as an interdisciplinary science and its history in Romania, and S. Czarniecki (Poland) about Wawryniec Teisseyre's geological work in Romania.
Several papers paid tribute to the significance of the work of other scholars for the development of geological sciences. H. Nobis (FRG) dealt with Albertus Magnus' influence on earth sciences, J. Haubelt (Czechoslovakia) gave an interesting account of Ignatz Born's contribution to geological sciences, and R. Porter (Britain) discussed different aspects of Charles Lyell's work and its reception by the scientific public. G. Csiky (Hungary) dealt with the significance of the torsion balance invented by L. Eötvös for the exploration of deposits. H.G. Körber (GDR) spoke about Alfred Wegener's contribution to the development of modern meteorology.
Striking information about less known details of the history of earth sciences was given by E. Pennini de Vega (Argentina) in his paper on palaeontology in Argentina in the 18th and 19th centuries and by M. Bassin (USA) on the geographical exploration of the Russian Far East in the fifties and sixties of the

19th century. J. Babicz (Poland) made a constructive attempt to stimulate discussion among historians of geology and geography with his paper on differentiated studies and integrated ideas in geography and geology at the turn of the 19th century. It would be a good idea if other historians of both sciences seized the opportunity of taking up similar topics and presenting them for discussion in appropriate publications.
An informal meeting of INHIGEO was held during the congress which was attended by members and corresponding members of INHIGEO as well as other people interested in the history of geological sciences. Dr. T. Poka informed about the preparation and programme of the Xth International INHIGEO Symposium to be held in Budapest in 1982. Prof. V.V. Tikhomirov gave preliminary information about the activities in the field of geological sciences at the 27th International Geological Congress in Moscow in 1984.

M. Guntau

History of Geology in Britain (1976 - 1981)

Only one conference entirely devoted to the history of geology has been held during this period. It was entitled "New Perspectives in the History of Geology" and was held in Cambridge in April 1977 under the auspices of the British Society for the History of Science. The proceedings have subsequently been published as a volume, "Images of the Earth", edited by L.J. Jordanova and R.S. Porter. Many other conferences have included papers on the history of geology, including those organized in 1977, 1979 and 1981 by the Society for the Bibliography of Natural History, and those organized each year by the British Society for the History of Science.
Among the very large number of books and papers published by individual historians during the period "The Making of Geology" by R.S. Porter, 1977, may be singled out as an important survey of Earth Science in Britain from 1660 to 1815. Among the journals carrying papers in our field the Journal for the Society for the Bibliography of Natural History has changed its name to

Archives of Natural History, partly for the sake of brevity and partly to indicate a widening scope. Similarly, the Geological Curators' Group newsletter, a periodical full of historical interest, is now called "The Geological Curator".
The History of Geology Subcommittee have held four meetings during this period and are considering producing a directory of research on the history of geology in the UK, and organizing a field excursion seminar dealing with the history of geology in Scotland. A bibliography of the history of geology in Britain, 1895 - 1980 has now been prepared and should be published before too long.

J.Ch. Thackray

History of Geology in the Soviet Union (SUHIGEO)

In November 1980, two meetings were organized by the Moscow Society of Naturalists together with the Geological Faculty of Moscow University to remember the 100th anniversary of A. Wegener's birth and the 50th anniversary of his tragic death. 400 people participated in the meetings, and 13 papers were read. A special exhibition was organized during the meetings which was devoted to A. Wegener's life and work and to the development of his scientific ideas.
Special mention should also be made of other anniversaries devoted to the memory of outstanding Russian geologists. Meetings were held, for example, on the occasion of the 125th anniversary of the birth of the famous geologist, palaeontologist and lithologist A.P. Pavlov, the 125th anniversary of the birth of the well-known expert in the field of the palaeontology of big mammals, M.V. Pavlova, and the 100th anniversary of the birth of the outstanding tectonist, lithologist and stratigraphist A.D. Arkhangelskij.
In January 1981, Soviet geologists and representatives of the GDR Society of Geological Sciences discussed questions concerning the preparation of the 3rd Bilateral Symposium (USSR - GDR) on the history of geological sciences. Decisions were taken on the topic, time and place of the symposium.

In April 1981, a session was held of the Geological Division of the National Soviet Union of Historians of Science and Technique. A study group was formed which was given the task for 1981 to deal with the organization of research in the field of geological sciences in all national Soviet republics. The ultimate aim was to prepare a series of publications on this question. In the process of realizing this plan a meeting of the Ukrainian group of historians of geology was held at which the proposal was made to write a threevolume book on the history of geological research and the development of geological sciences in the Ukraine.
Three Soviet historians of geology delivered papers at the XVIth International Congress on the History of Science (Bucharest, August/September 1981).
In September 1981 preparations have started to organize section 21 (history of geology) of the 27th International Geological Congress (Moscow, August 1984). It is planned to form two sub-sections:

1. History of sciences of the material structure of the Earth.
2. Development of ideas about processes taking place in the Earth's crust and its upper mantle.

It is also intended to hold a symposium on the history of mineralogy.

V.V. Tikhomirov

History of Geology in China

The inaugural meeting of the Chinese Society of the History of Science and Technology coincided with the National Symposium on the History of Science held in Beijing between October 5 and 11, 1980. Section 6 of the symposium dealt with the history of earth science. 14 out of the 31 participants are members of the History Division of the Geological Society of China (HGGSC). 19 papers were read in this section, five of which dealt with the history of geological sciences.

A special course of lectures on the history of geological sciences was given in Beijing from May to July 1981. It was mainly intended for post-graduate students and was sponsored by the Post-graduate School of the Chinese Academy of Sciences (Academia Sinica). Wu Fengming, head of the 5th editorial staff of the Science Press of China and a member of the HGGSC Commission, was the lecturer at this course. The course, which was attended by 50 people, consisted of five lectures with a total amount of 30 teaching hours. This course will also be given at Nanjing University from September to December 1981.
A textbook entitled "Outline of the History of Geology" is being prepared by Sun Ronggui, associate professor at the Geological Department of Beijing University and a member of HGGSC. Next term, he will also hold lectures on the history of geology for senior and research students. The lectures will be published by Beijing University Press in 1982.
On the occasion of the 60th anniversary of the Geological Society of China (GSC) a special meeting will be held in Beijing between August 25 and 29, 1982. At this meeting, prominent geologists will deliver special addresses on the development of modern geological sciences in China and on the history of the society.
In addition to this meeting the GSC is organizing a symposium on Mesozoic and Cenozoic geology to be held in Baidahe, Hobei, between August 31 and September 4, 1982. The symposium will include field excursions. Geologists from other countries are invited to participate in the celebration ceremony, the symposium and the pre- and post-symposium field excursions. In accordance with the subjects to be discussed at the symposium and the salient geological features of China a two-day pre-symposium field examination of geology in the Nankou-Badaling area will be organized including a sightseeing tour to places of historical interest. One of the three post-symposium excursions will include visits to two famous ancient mines, viz. the Daye iron ore deposit and the Dexing copper deposits in the Hubei and Jiangxi provinces. As to the latter, large quantities of metallic copper were extracted from numerous solution

springs containing chalcanthite by using the wet method as far back as the Song Dynasty (approximately the 11th century). Recently, during detailes explorations, it has been ascertained a rich perphyry copper deposit.

Xia Xiangrong

History of Geology in Hungary

Report of the "History of Geology" Section of the Hungarian Geological Society (Sept. 1980 - Oct. 1981)

1980

SEPTEMBER: International Conference "On the Problems of Scientific and Technical Development in Central Europe between 1848 and 1918 (organized by the Hungarian Association of Scientific and Technical Societies - MTESZ - in Budapest). Six lectures dealt with the development of geological sciences.
OCTOBER: Lecture: "Historical Evolution of the System of Earth Sciences", by T. Póka.
DECEMBER: Secretary's annual report, by G. Cziky.
Report on the IXth INHIGEO Symposium and the 19. (Geohistorical) Section of the 26th International Geological Congress, Paris July 1980, by E. Dudich.

1981

JANUARY: Lecture: "L.F. Marsigli - an Early Explorer of Hungary", by G. Csiky.
FEBRUARY: Celebration of the 10th Anniversary of the Section. Full-day session ("Geohistorical Day") on "The History of some Geological Disciplines in Hungary from the Beginning till 1945" (Mineralogy, Petrography, Paleontology, Applied Geology, Hydrogeology, Engineering Geology.) Secretary's summarizing and evaluating report on the past ten years results and problems.
MARCH: Approval, by the General Assembly of the Hungarian Geological Society, of the re-elected Board of the Section (for 5 years).
Lectures: "History of Rock Chemistry from 1830 on", by T. Póka; "In memorian A. Wegener", by P. Müller; "P. Teilhard de Chardin

and the Theory of Evolution", by Cs.H. Detre.
APRIL: No. 7 of the "Annals of the History of Geology" left the press.
AUGUST: Two lectures delivered at the International Congress on the History of Science (Bucharest, Romania): "The Importance of L. Eötvös' Torsion Balance for Geological Exploration", by G. Csiky, and "Genetical and Structural Systematization of Sciences", by T. Póka.
OCTOBER: Secretary's annual report, by G. Csiky.

On the sessions, birth anniversaries and life works of several prominent Hungarian geologists were commemorated. In this year, two memorial tablets were placed and inaugurated (to J. Vitális, coal geologist, in Nagyegyháza and to F. Pávai-Vajna, pioneer of oil exploration in Hungary, at Hajduszoboszló).
An Organizing Committee has been active during this period to prepare the Xth INHIGEO Symposium to be held in Budapest, August 1982, "On the Development of Geological Mapping and Geocarthography in Connection with Progress in Geological Thinking". The First Circular was sent out in January and the Second will follow in December this year.

G. Csiky

The return of catastrophism and saltatory development

The historian of geology must have an open eye for the limitations imposed on the forebears: the facts available to them and the external influences, in particular through education, which they had undergone. He should also have an eye for his own limitations: his tendency to sit in judgment of the ancestors and also the influence of the scientific education he received.

Not so long ago textbooks of geology told us about people full of metaphysical prejudices, the catastrophists, who were overthrown by the torchbearers Hutton and Lyell, who brought us the light of uniformitarianism which then became and will always remain the true doctrine. The protagonists of discontinuity, the geneticist R. Goldschmidt (1878 - 1958) and the palaeontologist O.H. Schindewolf (1896 - 1971) were perhaps in a more lonely position than the adherents of the theory of continental drift. The narrow-minded among their opponents

rashly used more or less abusive terms ("miracle-mongering", "fundamentalism") about those who were bold enough to prick holes in the doctrines they had imbided in their university days and who disturbed the feeling of security implied in belonging to a majority. Adherents of minority standpoints are easily looked upon as cranks, and in many cases such an imputation turns out to be true. It is, however, difficult to establish the borderline between genius and fool: Copernicus feared not without reason that his theory would be ridiculed because of its "absurdity", and Wegener's theory was dubbed "unscientific" and "written in a state of auto-intoxication" (1928).

The historian as such has not the task of taking sides in scientific controversies. First of all he has to register, in as fair a way as possible, situations and events; in the second place he evaluates ancient observations and theories as to their conformity with facts known in their time, and as to their being reasonable in the context of their time, and as to their critical function with regard to established doctrines.

Trying to do this I have in the 1950's evaluated more positively than was usual in those days the catastrophists, progressionists and adherents of saltatory evolution. It was made evident also that catastrophists, whether they were right or wrong in their interpretation of the facts, were at any rate methodologically sound, and that metaphysical apriori conceptions did not play a preponderant role in the controversy between uniformitarianism and catastrophism. Both conceptions could work in favour of either side, so that there were catastrophists among freethinkers and uniformitarians among orthodox-religious scholars.

As the reconstruction of past events in the palaetiological sciences leaves a greater freedom to human imagination and thus admits a greater variety of theoretical interpretations of more or less probable imagined events, than is the case in experimental sciences, it lies at hand that certain patterns of thought come back, albeit with modifications due to the increase of factual knowledge and the refinement of theoretical thought. "History repeats itself" and "History does not repeat itself" are both true in a certain sense.

The historian who does not restrict his field of research to one subject, will feel some reservations about the finality of the prevalent ideas, and he cannot help to see with some satisfaction that in the interplay of ideas some thoughts that he has shown to be quite sensible in the past but had become obsolete since then, now meet again with a positive appreciation by workers in the field. At present several outstanding scholars admit catastrophic events in geological history and macro-evolution (saltatory development) in palaeontology. The fact that within a short period several publications on geological and biological "catastrophism" came on my desk, is

a reason to draw the attention to this historical phenomenon, that has been going on already during a whole decade, and this not in the form of isolated incidente but as a rather strong current.

Prof. J.B. Waterhouse, in his inaugural address(1975), reminded his audience that the gaps in the palaeontological record have not been plugged by one hundred and fifty years of research, but rather widened: "It is special pleading to rely on gaps (in the record), and it is special pleading to propose inadequate preservation. We would do better to look at what the record really says. The cline hypothesis of gradualistic change is based mainly on palaeontological assumptions, and nearly all of the examples are discredited, as almost any professional palaeontologist knows" (22). This latter phrase refers to a publication of N. Eldredge and S.J. Gould: "Punctuatet Equilibria: an alternative to Phyletic Gradualism" (1972).

Waterhouse states that "for moments of earth history, change did occur, abruptly and simultaneously" (22); "during stable times ... uniformitarianism was applicable, although Darwinian gradualism was less obvious" (23). His conclusions are based on his own research of the abrupt change in fossil life (brachiopods) at the end of the Permian period (17), when "60 - 80 % of all life of land and sea died out" (17; 21). The fact that there are periods with almost constancy of species, which change episodically into other species (24) needs an explanation, and this must be (in his opinion) an outside interference, viz. a drastical change of climate in a glaciation period (24) (migration catastrophe).

Prof.S.J. Gould (Harvard Univ.), in a recent publication "Is a new and general theory of evolution emerging?", gives an affirmative answer to this question. The Neo-Darwinian "synthetic theory" implies 1^{o} extrapolationism (gradual allelic substitution as a model for all evolutionary change), 2^{o} nearly exclusive reliance on selection leading to adaptation. In Gould's opinion, "if Mayr's characterization of the synthetic theory is accurate, then that theory, as a general proposition, is effectively dead, despite its persistence as textbook orthodoxy" (120). There are two discontinuities: speciation and macroevolution ("the Goldschmidt break" and the "Wright break"). Goldschmidt (1940) is approvingly quoted (124), when saying that "the species limit is characterized by a gap, an unbridged difference in many characters ... Subspecies are ... neither incipient species nor models for the origin of species. They are more or less diversified blind alleys within the species. The decisive step in evolution, the first step towards macroevolution, the step from one species to another, requires another evolutionary method than that of sheer accumulation of micromutations" (1940). It is evident that such a statement is in flat contradiction to the main thesis of "The Origin of Species"!

In Gould's opinion, "at a higher level than speciation" are the macroevolutionary trends which might be called the "Wright break" (126). He points to the lack of fossil evidence for intermediary stages between major transitions in organic design: "indeed, our inability, even in our imagination, to construct functional intermediates in many cases, has been a persistent and nagging problem for gradualistic accounts of evolution" (127).

This latter objection was often made already in Darwin's time, and Darwin recognized that he could not imagine how an eye could arise, but he concluded that "reason should conquer imagination". But was it Reason that revolted and gave him "a cold shudder" when an opponent suggested the possibility of an evolutionary jump? At any rate, Gould's "reason" does not try to conquer imagination but to cooperate with it. Yet, his statement that "perhaps, in many cases the intermediates never existed", is immediately qualified by saying that he does not "refer to the saltational origin of entire new designs, complete in all their complex and integrated features - a fantasy that would be truly anti-Darwinian in denying any creativity to selection and relegating it to the role of eliminating old models" (127). Is this a protestation of loyalty to Darwinism? I should say: if the fantasy were true, it would not matter whether it was anti-Darwinian or not. Nevertheless, he does not leave it at that, but puts forward an alternative: "a potential saltational origin for the essential features of key adaptations". He admits, however, that Darwin "wrongly proclaimed that any such discontinuity, even for organs ... would destroy his theory" (Darwin: "my theory would absolutely break down").

Gould does not revert to Geoffroy St Hilaire's "saltations", but - like Geoffroy - at least he does hope that some light will be received from teratological experiments (127).

The references in Gould's article show that he is not alone in USA in his expectation of a new general theory of evolution. Quite recently a Netherlandish biologist, dr H. van Waesberghe, advocated similar ideas. As a specialist on ammonites, he was struck by the "excessive accumulation" of their change after the Trias period (53). He states that "Lamarckists and Darwinists avoid problems of evolution on supra-specific level, because they have nothing to offer in these regions" (55). "Neo-Darwinism remains strictly within the bounds of genetics" and this yields only micromutations. Palaeontology, however, shows macromutations and a third evolution model has to agree above all with palaeontological data (55).

Palaeontology has always been the mainstay of the protagonists of saltatory evolution, and it is a happy circumstance in the whole debate that as to the relevant facts there is no quarrel between the two schools (See Hooykaas (1), pp. 121 - 133). One of the foremost Neo-Darwinists, G.G. Simpson, fully recognizes that there are gaps in the record: "the regular absence of transitional forms... is an almost universal phenomenon" (1944). The real problem then is the interpretation of these gaps. The gradualist supposes that the gap is not in the palaeontological series but in the palaeontological record of it (in certain periods the rate of change was very high, so that the chance of finding transitional forms is very small). As to the "punctuationalists" (the protagonists of abrupt changes), some of them concentrate their attention on internal causes (genetic change); others have also an eye upon external causes of these changes, either those which open the way for rapid genetic changes, or those which actively force it upon the organisms. To some of them the external cause is "climatic change", to others the cause is even more catastrophic. Whereas Waterhouse's "abrupt" change was supposed to last 10.000 to 100.000 years, a recent Netherlandish palaeontologist assumes "less than 200 years, but it (the great dying) may as well have taken place in few hours or days" (Smit, p. II).

Dr J. Smit's dissertation (1981) on "a catastrophic event at the Cretaceous-Tertiary boundary" states a sharp discontinuity of the lithological boundary in layers deposited (in Southern Spain) at the time mentioned in the title. They give evidence of an abrupt extinction of Cretaceous zooplankton, which points to a catastrophic event. The abnormally high concentration of iridium in the boundary clay leads to the supposition that the catastrophe was due to the impact of some extra-terrestrial body: the ensuing formation of dust in the atmosphere and the rise of atmospheric temperature then are the causes of the "great dying". The author recognizes the speculative character of this explanation and he points out that at two recent symposia devoted to the subject (Ottawa 1977; Copenhagen 1979) there was disagreement about the cause of the extinction. In 1979 the majority of the palaeontologists supported gradual extinction, whereas at the 1977 symposium of mainly "catastrophists" the approach of a supernova to the earth as cause of a sudden extinction of life found most favour (12). The confidence in such explanation is not heightened when the author enumerates a great variety of causes (19) suggested since 1959 (8).

Nevertheless, from the historian's point of view, it is interesting that scholars of high repute (e.G. L. Alvarez) now unblushingly advance catastrophic external causes, which seemed hardly possible some decades ago. May this still be calles "uniformitarianism"? I do not think so, unless one deprives the term of any meaning. Is it actualistic? Certainly, in so far as only natural causes are introduced. But this was also done by most catastrophists of the early 19th century (Sedgwick, Conybeare, etc. See Hooykaas (3), pp. 25 - 35). These natural causes were either similar to those at work now, or they were analogous to them, or they were illustrated by "actual" model experiments. In the course of history an exclusive appeal to metaphysical causes was only rarely made.

In general, even medieval philosophers made a distinction between a creative First Cause (standing above nature), and the natural means used to realize his plans. Such a conception was also put forward by such staunch Darwinists as Asa Gray and Charles Kingsley (Hooykaas (1), pp. 212 - 218, 225 - 226). The same metaphysical conceptions may go together with geological uniformitarianism and catastrophism, just as the metaphysical sense of the beauty of music is independent of the physical conception of sound (undulatory or corpuscular) of the hearer. Similarly, the modern conceptions of "punctuational" change in nature have nothing to do with religious or agnosticist or atheist convictions of their protagonists yet. All of them reject uniformitarian systems, and all of them are actualistic in their explanations.

Both Waterhouse and Gould had to free themselves from the indoctrination they had undergone ("If we set aside what we have been taught to accept ...". Waterhouse, p. 22). Gould tells how much he was under the spell of it: "I well remember how the synthetic theory beguiled me with its unifying power, when I was a graduate student in the mid-1960's. Since then I have been watching it slowly unravel as a universal description of evolution ... I have been reluctant to admit it - since beguiling is often forever" (120).

Both have discovered, that indoctrination often goes together with distortion of rivalling views. Waterhouse points out that Darwin and his staunch propagandist Huxley claimed that their opponents were out simply to prove the Bible instead of to evaluate critically the record for its own evidence. "Now this imputation was bad science, and certainly inaccurate history, but it was good politics" (6). However, the Sedgwicks and Bucklands were "essentially men of integrity". "They repeated what they had found"; they leaned on the Bible "only as an extra prop." The record of the Biblical flood, which killed off so much life, was of particular interest, for they also were finding a record of life destroyed and fossilized. They indeed went beyond what the Bible recorded, and recognized instead of one Noah flood a series of deluges ..." (5). It may be added that, consequently, the ultra-orthodox were sometimes more annoyed by such inundation theories than by uniformitarianism. John Fleming, Prof. nat. phil. at Free Church College, who greatly encouraged Lyell, was a severe critic of Cuvier and Buckland.

It should also be noticed, that they used to refer as well to similar stories of the Greek and Babylonian traditions as testifying to the last great flood, the only one "durch Überlieferung nachgewiesen".

Gould gives another example of distortion of historical truth. As a graduate student he was told that Richard Goldschmidt "had gone astray because he had been a lab man with no feel for nature, a person who had not studied the adaptation of local populations, and could not appreciate its potential power, by extrapolation, to form new species" (124). But afterwards he discovered that Goldschmidt had spent much time in studying geographic variation, and turning to "The Material Basis of Evolution", he found "that his defense of saltational speciation is not based on ignorance of geographic variation , but on an explicit study of it" (124).

These autobiographical details clearly show how much a historical-critical approach in teaching is needed. In particular the palaetiological sciences, which inevitably contain a considerable element of speculation, have a tendency to form dogmatic schools. In the approach that we advocate the question is not in the first place whether gradualistic or punctuational evolution, uniformitarianism or catastrophism, will be right in the long run, but whether both are legitimate instruments for trying to find increasingly correct answers. It may be that evidence against discontinuity becomes stronger, but it should never be silenced and ridiculed: scientific "heresies" are useful, if it were only for keeping a self-satisfied orthodoxy away.

It is a good thing that on the occasion of the meeting of the American Association for the Advancement of Science on Jan. 7, 1982 in Washington a symposium has been prepared, in which several speakers (prof. Ernst Mayr and S.J. Gould amongst them) will discuss the question "What happened to Darwinism between the two Darwin Centennials 1959 - 1982?" and that on the same day is planned a symposium "What happened to the Idea of Moving Continents after Wegener proposed it?". Symposia sometimes make history like that of 1928 in which (with a few exceptions) the participants tore Wegener's theory asunder. His posthumous rehabilitation warns us that majorities of symposia do not always decide what is finally true: if the continents are drifting, no statement of scientific gatherings will prevent them from doing so.

- J.B. Waterhouse, What's the Time, Mr Wolf?. Inaug. address Univ. Queensland, 1975.
- S.J. Gould, Is a new and general theory of evolution emerging? Palaeobiology, 6 (1), 1980, pp. 119 - 130.
- H. van Waesberghe, Naar een derde evolutie-model. Vakblad Biol. 3, 61, 1981, pp. 50 - 56.
- J. Smit, A Catastrophic Event at the Cretaceous-Tertiary Boundary, Thesis Univ. of Amsterdam, 1981.
- R. Hooykaas, (1) The Principle of Uniformity, Leiden 1959[1]. 1963[2];
- (2) Continuité et Discontinuité en Géologie et Biologie, Paris 1970;
- (3) Catastrophism in Geology, its scientific character in relation to Actualism and Uniformitarianism, Amsterdam 1970 Medeal. Kon Ned. Ak. Wetensch.) (also in: C.C. Albritton, (ed.), Philosophy of Geohistory, Stroudsberg Pa, 1975).
- "American Assoc. Advancement Science", in: Newsletter The History of Geology Division. The Geol. Soc. of America, vol. 5, no 2, Aug. 1981, p.3.

R. Hooykaas

Kazimierz Maslankiewicz

Professor Kazimierz Maslankiewicz, first General Secretary of INHIGEO, dies in Cracow on August 21, 1981.

K. Maslankiewicz was born on June 9, 1902. After graduating in mineralogy and petrography from the Mathematical and Science Faculty of the Jagellonian University of Cracow, he received his Ph. D. in 1927 based on the thesis "On the petrography of exotic boulders in the northern part of the Central Flysch Carpathians". For several years he worked as a senior assistant at the Department of Mineralogy and Petrography of this university, the head of which was the prominent mineralogist Stefan Kreutz. Dr. Maslankiewicz then became a teacher in a secondary school, at the same time working as an expert in precious stones in the Assay Office in Cracow. He was later appointed head of this office. During World War II, when Poland was occupied by the nazis, he was actively engaged in secret university teaching.

In 1946, Prof. Maslankiewicz began to set up the Department of Mineralogy and Petrography as well as the Mineralogical Museum at the University of Wroclaw. He was later appointed head of this Department until he retired in 1972. For several years he was head of the Institute of Geological Sciences and provicechancellor of the University of Wroclaw. In the same period, between 1955 and 1968, Prof. Maslankiewicz was head of the Department of Inorganic and Analytical Chemistry of the Pharmaceutical Faculty of the Medical Academy Cracow, and was also appointed dean of this faculty. Finally, he held lectures on earth sciences at the Academy of Mining and Metallurgy in Cracow for some years.

Prof. Maslankiewicz produced a large number of publications on mineralogy, gemmology, volcanology and, above all, on the history of geological sciences. His interest in the latter became already obvious in the inter-war period when he co-operated with the editors of "Polski Slownik Biograficzny" (Polish Biographical Encyclopedia) and other periodicals. His first

historical articles were devoted to outstanding Polish geologists and mineralogists of the 19th century (Stanislaw Borkowski, Stanislaw Staszic and Ignacy Domeyko). In later publications, he presented some new data on Domeyko's work in Chile. The number of his post-war publications on the history of geological sciences amounts to approximately 300. They were mainly published in the following periodicals: "Kwartalnik Historii Nauki i Techniki", "Studia i Materiali z Dziejow Nauki Polskiej", "Monografie z Dziejow Nauki i Techniki", "Przeglad Geologiczny", "Kosmos - Series B, Inanimate Nature", and "Wszechswiat", a scientific monthly for the general public whose editor he was for many years. Among his most important works several monographs should be mentioned, e.g. "On the history of mineralogical and geological sciences until 1914" (1959), "Georgius Agricola /1494 - 1555/. Life and work" (1957), "On the history of salt mining in Poland" (1965), and the biography of Jan Nowak, professor of geology at the Jagellonian University (1964).

Prof. Maslankiewicz, who was a very talented organizer, took an active part in the work of many Polish and international societies and committees. In his capacity as INHIGEO's first general secretary he participated in the congresses of the history of science held in Warsaw (1969), Moscow (1971) and Leningrad (1972) as well as in those of INHIGEO held in Freiberg/Saxony (1970), Montreal (1972), Madrid (1974) and London (1975) where he presented the results of his research work.

Special mention should be made of his contribution to the development of the history of science in Poland. He was president or a member of several scientific councils in institutions engaged in this field, such as the Institute of the History of Science, Education and Technique (Polish Academy of Sciences), the Museum of Salt Mining in Wieliczka, the Museum of the Earth in Warsaw and others. Prof. Maslankiewicz was an honorary member of the Polish Geological Society and the Mineralogical Society of Poland after he had been their president and vice-president for some time. He was also president of the

Polish Copernicus Society of Naturalists for many years. He was awarded several high decorations in Poland and abroad.
To evaluate the comprehensive scientific work of this versatile scholar in an appropriate way would require a much more detailed analysis than can be given here. The value of his works manifests itself not only in his publications and administrative activities, Prof. Maslankiewicz was also a constant inspiration to his students and greatly stimulated research groups working in the field of the history of science. His death is a heavy loss not only to Polish science but also to his numerous friends at home and abroad.

Wojciech Narebski, Zbigniew Wojcik

Demjan Ignatjevich Gordeev

Prof. D.I. Gordeev, corresponding member of INHIGEO, prominent Soviet scholar and outstanding expert in the history and methodology of geological sciences, died on May 12, 1981.
Prof. Gordeev was born on July 14, 1903. He graduated from Moscow University in 1925. He was then engaged in geological and hydrogeological research of the central regions of the European part of the Soviet Union for 20 years. In 1944, he began to deal with the history of geological knowledge and devoted the remaining 35 years of his life to this subject.
He was the first scholar in the Soviet Union to start holding lectures on the general history of geological sciences at Moscow University in 1948. The teaching programme he prepared on this subject was used as a basis for lectures on the history of geology at other geological faculties in the Soviet Union.
Prof. Gordeev published nearly 100 works on the history of geology, among them an important two-volume textbook. He also wrote a groundbreaking monograph on the history of hydrogeology in Russia which shows the succesive accumulation of knowledge about underground waters as well as the development of the theoretical statements which became the basis of hydrogeology

as an independent science. Gordeev's great scientific interest manifests itself in his books on the contribution of M.V. Lomonosov, the famous encyclopaedist of the 18th century, to the development of different fields of geology, and on the scientific work of the Russian geologist A.D. Arkhangelskij and the Soviet hydrogeologists F.P. Savarenskij and N.N. Slavjanov.
During the last years of his life, D.I. Gordeev paid more and more attention to questions concerning the methodology of geological research, particularly to problems of the periodiza - tion of the history of geology.
Prof. Gordeev took an active part in the work of national and international organizations dealing with research in the history of geological sciences. He delivered papers at the XIth and XIIIth International Congresses on the History of Science and at many symposia held in Poland, the GDR and different parts of the Soviet Union. His books, articles and lectures still play a decisive role in propagating ideas about the history of geological knowledge. D.I. Gordeev's death is not only a great loss to the International Commission on the History of Geological Sciences and to Soviet historians of geology, but also to those organizations dealing with general problems of the history of science.

V.V. Tikhomirov

Information

- Status of INHIGEO
  INHIGEO is a body of the International Union of Geological Sciences (IUGS) and was given the status of a committee on the basis of the resolutions passed by this Union in 1967. INHIGEO is affiliated to the International Union of the History and Philosophy of Sciences, Division of the History of Science (IUHPS/DHS). The IUGS Council adopted new statutes and bye-laws in Paris in July 1980 according to which INHIGEO now has the status of a commission (Statutes: 37 - 39, Bye-

Laws: 20 - 23). The term Committee is therefore no longer appropriate. The new term to be used is International Commission on the History of Geological Sciences. The abbreviation INHIGEO will not be affected by the change of name.

- INHIGEO Symposium Budapest 1982
The Xth International INHIGEO Symposium will be held in the capital of Hungary, Budapest, between August 18 and 23, 1982. The topic of the symposium is "Development of Geological Mapping and Geocartography in Connection with Progress in Geological Thought". Apart from the lectures geological and historical excursions will be organized.
More than 100 scholars from 20 countries have announced participation so far. About 70 participants intend to deliver papers. The second circular will be dispatched in the beginnung of 1982.
All those interested in the symposium still have the opportunity to contact the organizing committee in Budapest:

Hungarian Geological Society
" INHIGEO '82 "
H - 1061 Budapest VI
Anker Köz 1

- Publication of papers read at the IXth INHIGEO Symposium
The IXth International INHIGEO Symposium "The Development of Geology up to the Death of Cuvier (1832): Works in the French Language in the International Exchange of Ideas" (prepared by Prof. F. Ellenberger) was held during the 26th International Geological Congress in Paris in 1980. Some of the papers read at the symposium will be published in the periodical "Histoire et Nature" in 1982. According to Prof. Ellenberger they are as follows: R. Hooykaas: Pitfalls in the Historiography of the Geological Sciences; K. Bork: Cross-Channel Currents: Eighteenth-century Frenchlanguage Responses to British Theories of the Earth; C.J. Schneer: Voltaire, the Sceptical Geologist; K.L. Taylor: The Beginnings of a French Geological Identity; G. Gohau: Dolomieu et les idées de son temps sur la formation des montagnes; M. Guntau: Die Beziehungen von Geologen und Mineralogen der Freiberger Schule zu französischen Gelehrten; G. Laurent: Lyell et Lamarck (Manuscrit en course d'achèvement).

- Conference on the History of Carthography in Cracow (Poland)
A conference on the history of carthography in Poland was held in Cracow between September 15 and 17, 1981. It had been prepared by Prof. J. Babicz, corresponding member of INHIGEO. Several papers dealing with the development of geological and geomorphological maps were delivered at the conference.

- On the history of geology in the 18th century (USA)
In October 1981, the "Northeastern American Society of Eighteenth-Century Studies" together with the Department of the History of Geology at MIT held a conference chaired by Prof. R. Rappaport, corresponding member of INHIGEO. Papers on the history of geology were read by Joseph M. Levine, Alexander M. Ospovat (corresponding member of INHIGEO), Kenneth L. Taylor and others.

- COFRIGEO
Chaired by its president, Prof. F. Ellenberger, the French Committee on the History of Geology held three scientific meetings (December 1980, March and Juni 1981). Among others, F. Ellenberger and G. Gohau read papers on Jean-Andre De Luc (1727 - 1817) and palaeontological stratigraphy, B. Bousquet on questions of seismics in antiquity and geomorphology, J. Vogt on problems of the methodology of historical seismics, and M.A. Cailleux on the concept of the magnetic field and its application to the Earth in Faraday's and Kelvin's work and today.

- In 1979, the "Society on the History and Theory of Sciences" was founded in Bulgaria. In his capacity as a member of the council of this organization Prof. G.K. Georgiev (member of

INHIGEO) makes every effort to further encourage work on the history of geology and mining industry of his country.

- Eduard Suess 1831 - 1914
On the occasion of the 150th anniversary of Eduard Suess' birthday several meetings were held in Vienna (Austria). In November 1981, a commemorative exhibition was opened at the Museum of Natural History on the iniative of the Geological Society of Austria. Various papers at several meetings were devoted to E. Suess' life and work. Prof. A. Tollmann, for example, read papers on "Eduard Suess as a geologist" and "Suess and the modern world of geology", and Dr. B. Hamann on "Eduard Suess as a liberal politician". The Austrian Society of the History of Natural Sciences recognized Suess to be the originator of Vienna's first water pipe from the mountains. On Prof. Tollmann's initiative, volume 74/75 of the "Mitteilungen der Österreichischen Geologischen Gesellschaft" was published as a commemorative volume in honour of E. Suess. A large number of hitherto unpublished documents about Suess from the archives of geologists of the Geological Institute of Vienna University has been used in preparing this volume.

- Ami Boué 1794 - 1881
In October 1981, the Austrian Geological Society remembered the outstanding geologist Ami Boué on the occasion of the 100th anniversary of his death. The meeting was held in Bad Vöslau near Vienna, where A. Boué lived from 1835 until his death. It paid tribute to a scholar of the 19th century who made important contributions to the geological exploration of Austria, the Balkans and Turkey.

- Newsletter USHIGEO
The Division of the History of Geology of the Geological Society of America (GSA) publishes two newsletters each year (1981 vol. 5) in order to keep in touch with those members interested in historical problems. About 350 scholars and students have more or less close contacts with this group. The

newsletter reports on activities related to the history of geology and draws attention to meetings, scientific projects and new publications in this field. It contains a lot of useful information and gives evidence of the numerous activities in the field of the history of geology in the USA. Newsletter editor: Clifford M. Nelson, U.S. Geological Survey, 904 National Center, Reston, VA 22 092.

- Bulletin of the history of geology in Spain
In Spain, a study group of the history and epistemology of geology (Grupo de Trabajo de Historia y Epistemologio de la Geologia) has been formed which will publish its own bulletin. The first issue (8 pages) has come out recently. It contains the addresses of the colleagues contributing to the bulletin, and recommends publications on the history and philosophy of geology. All those interested intheir work are kindly requested to contact: Leandro Sequeiros, Dep. de Paleontologia, Fac. de Ciencias (Geologicas). Universidad. Zaragoza - 9, Spain.

- Changes of addresses
The following addresses given on the list of members and corresponding members of INHIGEO in Newsletter No. 14 (pp. 21 - 30) have been changed:

No 11: Dr. E. Dudich, Deputy Director,
Hungarian Geological Institute
H - 1142 Budapest XIV
Nepstadion ut 14
Hungary

No 16: Dr. J.P. Portmann
Université de Neuchatel, Faculté des Lettres
Institut de Géographie
CH - 2000 Neuchatel
Avenue Clos-Brochet 30
Switzerland

Bibliography

Bibliography of publications on the history of geological sciences by members and corresponding members of INHIGEO (1980/81)

The list only includes those books and articles published in 1980 or 1981 that were mentioned to the secretary of the Commission in the annual reports of 1981.

Albritton, C.C.: The Abyss of Time: Changing Conceptions of the Earth's Antiquity after the Sixteenth Century. San Francisco 1980, 251 pp.

Batjushkova, I.V.: Alfred Wegener (k 100 - letiju so dna rozdenija), "Zemlja i Vselennaja", Moskva, 1980, Nr. 6, s. 42 - 45.

-- Kosmogeotektoniceskie gipotezi konza XIX - nacala XXv. - V sbornike: Meshdunar. i geologiceskij kongress sessii. Dokladi sovetskich geologov. "Nedra", 1980, s. 44 - 51.

Carozzi, A.V.; Zenger, D.H.: Sur un genre de pierres calcaires très peu effervescentes avec les acides, et phosphorescentes par la collision. - In: Journal of Geological Education, 1981, V. 29, pp. 4 - 10.

Davies, G.L.H.: Geology in Ireland before 1812: A bibliographical outline. - In: The Western Naturalist, 7, 1978 (published 1980), pp. 79 - 99.

Davies, G.L.H. and Mollan, R.C.: Richard Griffith 1784 - 1878. - Royal Dublin Society Historical Studies in Irish Science and Technology, Number 1, Royal Dublin Society, Dublin 1980, pp. VI + 222.

Davies, G.L.H.: The history of Irish Geology. - In: Charles H. Holland (ed.): A geology of Ireland. Scottish Academic Press, Edinburgh 1981.

Ellenberger, F.: Jean-André De Luc (1727 - 1817) et l'aurore de la stratigraphie paléontologique. - Tx. du Comité francais d'histoire de la Géologie, n°32, séance du 10 déc. 1980.

Ellenberger, F. (en coll. avec G. Legee): "Aux sources de la géologie francais". Guide de voyage à l'usage de l'historien des Sciences de la Terre sur l'itinéraire Paris-Auvergne-Marseille. - Livret-guide de l'excursion 138A, 26ème C.G.I., Paris 1980, Histoire et Nature, N° 15, 1979.

Ellenberger, F.: Un exemple d'éclatement sémantique: origine et histoire du terme Horizon. - C.R. somm. Soc. Géol. Fr., 1, 10 - 13.

-- Coup d'oeil rétrospectif sur le dernier demi-siècle écolé. - Mém. h. sér. Soc. Géol. de France, n° 10.

-- De l'influence de l'environnement sur les concepts: l'èxemple des théories geodynamiques au XVIIIème siècle en France. - Rev. Hist. des Sciences XXXIII/1.

-- Une théorie de la connaissance méconnue: la métaphysique de James Hutton (1726 - 1797). - A paraitre dans le volume (multigraphié) des Séminaires et Tables rondes du Centre Interdisciplinaire d'étude de l'évolution des idées des Sciences et Techniques, ORSAY.

-- Premiers travaux méconnus consacrés au problème des Grés de Fontainebleau. - Tx. du Comité francais d'histoire de la Géologie, séance du 10 Juin 1981.

Ellenberger, F.; Gohau, G.: A l'oeuvre de la stratigraphie paléontologique: J.-A. De Luc - son influence sur Cuvier. - Sous presse à la Rev. Hist. des Sciences, IV.

Ford, T.D.: The economic geology of Derbyshire: report of field meeting. - In: Proc. Geologists Association. Vol. 91. pp. 229 - 234, 1980.

Ford, D. et. al.: The history of Magpie Mine. - Peak District Mines Historical Society. Special Publication N°. 3. 56 pp. 1980.

Gordeev, D.I.: Andrej Dimitrievic Archangelskij. - Moskva: Nauka 1981, S. 96.

Guntau, M.: Physikotheologie und Aufklärung in ihren Beziehungen zur geologischen Erkenntnis im 18. Jahrhundert. - In: Ztschr. f. geolog. Wiss. 8 (1980), 1, S. 87 - 106, Berlin 1980.

-- Die Bedeutung von Gangvererzung und Gangtheorie im sächsischen Erzgebirge für die Entwicklung der Lagerstättenlehre.- In: Ztschr. f. geolog. Wiss. 8 (1980), 10, S. 1335 - 1342. Berlin 1980.

-- Bergbauproduktion und geologische Erkenntnis in der Geschichte. - Protokoll des ICOHTEC-Symposiums Freiberg 1978. Bd. 1, S. 91 - 100, Freiberg 1980.

-- Entwicklungsdenken und geologische Erkenntnis im 19. Jahrhundert. - Beiträge der DDR-Delegation zum XVI. Internationalen Kongreß für Wissenschaftsgeschichte in Bukarest 1981, S. 95 - 100, Berlin 1981.

Hercko, I.: Die Entwicklung der geologischen Kenntnisse im Bergbaurevier von Banská Stiavnica. - In: Ztschr. geol. Wiss., Berlin, 8 (1980), 7, S. 905 - 919.

-- Z cinnosti clenov Mineralogickej spolocnosti v Jene, posobiacich na Strednom Slovensku. (Über das Wirken der Mitglieder der Mineralogischen Gesellschaft Jena, die in der Mittelslowakei tätig waren). - In: Dejiny ved a techniky (Geschichte der Wissenschaften und Technik), Praha, 13 (1980), 1, S. 1 - 17.

-- Z cinnosti profesora Banskej akadêmie Frantiska Reichetzera (Über das Wirken des Professors der Schemnitzer Bergakademie Franz Reichetzer). - Sammelband des Slowakischen Bergbaumuseums, X. Jg., Martin 1981.

-- Seminár k dejinam geologickych vied na Slovensku. - In: Mineralia slovaca, Bratislava, 12 (1980), 2, S. 191 - 192.

Hercko, I. et al.: Z dejin geologických vied na Slovensku. - (Aus der Geschichte der Geowissenschaften in der Slovakei), Martin 1981.

Hercko, I.: Mineralogický lexikon V. Zepharovicha a jeho prispevok do topografickej mineralógie Slovanska (k 150. výrociu narodenia). - In: Mineralia slovaca, Bratislava, 13 (1981), 2, S. 191 - 192.

Hölder, H.: Zur Geschichte der Geologie und Paläontologie II. - In: Zbl. Geolog. Paläont. Teil I, Stuttgart (1980), 11/12, S. 970 - 1024.

Hooykaas, R.: Science in Manueline Style. - Coimbra (Portugal) 1980, pp. 199.

Langer, W.: Gedanken zu Ibn Sinas (Avicennas) Fossil-Interpretation. - In: Paläontolog. Ztschr., 55, 3 - 4, S. 179 - 184. Stuttgart 1981.

Lopez de Azcona, J.M.: Luis de la Escosura y Morroch. - Jorn. Minero-Metalurgicas de Huelva Sept. 1980. VI-3, pgs. 253 a 265.
-- La Academia y Escuela Teorico Practica de Metalurgia de Ptosi. - Ind. Minera. N°199 , Mayo 1980, 17 - 26.
-- Henning Koehler. - Ind. Minera, No 200, Junio Julio 1980, 51 - 52.
-- Enrique Christobal Storr. - Ind. Minera, No 201, Agos. Sept. 1980, 43 - 44.
-- Juan Maria Hoppensak. - Ind. Minera, No 203, Oct. 1980, 45 - 46
-- Fausto de Elhuyar y de Zubice (1755 - 1833). - Ind. Minera No 206, febrro 1981, 60, 601
-- Francisco Carlos de la Garza (1757 - 1832). Ind. Minera, No 209, 1981, 17 - 20.
-- La geologia en el Mundo Hispanico hasta la muerte de Cuvie. Bol. Geol. Minero, 1981, XCII, 240 - 258.
-- Un madrileno de adoptcion ilustre - D. Fausto de Elhuyar y de Zubice. - Inst. de Estudios Madrilenos, No XVIII, 20 pgs. (1981).
Malchassjan, E.G.: Istorija issledovanija po mineralogii i petrografii Armenii (1961 - 1965). - "Geologiceskaja isucennost SSR", t. 48, 1980.
-- F.J. Levinson-Lessing v Armenii (ko dnju ego 120 - letija so dnja rozdenija). - Priroda Armenii, N. 3, 1980.
-- Issledovateli mineralnogo syrja (posvjascen 50-letiju Kavkazkogo instituta mineralnogo syrja - KIMS). Promishlennost Armenii, N. 1, 1981.
Milanovskij, E.E.: 26 - ja jubilejnaja sessija Meshdunarodnogo geologiceskogo kongressa (Paris, ijul, 1980g.) Soavtore: V.V. Belousov, I.V. Vorobev, V.A. Magnickij, V.V. Menner, E.M. Sergeev, V.I. Smirnov, V.E. Chain. - Vestnik Moskovskogo Universiteta, serija 4, Geologija, 1981, N.2, s. 3-31.
-- Slavnie godovscine v istorii otecestvennoj geologii (k 125- letiju so dnja rozdenija A.P. Pavlova i M.V. Pavlovoj i 100-letiju so dnja rozdenija A.D. Archangelskogo). Soavtor: B.P. Nazarevic. - Vestnik Moskovskogo Universiteta, serija 4, Geologija, 1981, N. 3, s. 99 - 100.
-- Naucnaja sessija, posvjascennaja stoletiju so dnja rozdenija A. Wegenera. Soavtore: B.N. Golubov, L.I.Filatova• Vestnik Moskovskogo Universiteta, serija 4, Geologija, 1981, N. 3, s. 102.
-- Alfred Wegener i ego idei. K 100-letiju so dnja rozdenija. - In: "Priroda", 1981, N. 11, 52 - 66.
Narebski, W.: I.J.T. Krause (1887 - 1987). - In: Ann. Soc. Geol. Polon. 50, 3, 4, 487 - 489.
-- E.K. Lazarenko (1912 - 1979). In: Mineralogia Polon., 10, 2, 107 - 108.
-- W. Pawlica (1886 - 1919). - Polski Slownik Biograficny / Polish Biographic Encyclopedia. 25, 3, f. 106, 421 - 422.
Ospovat, A.M.: M. Guntau (Ed.): Biographien bedeutender Geowissenschaftler der Sowjetunion. Berlin 1979 (Rezension). - ISIS, 72, 3, 263, p. 505, Philadelphia 1981.

Portmann, J.-P.: Notice historique sur les roches moutonnées, polies et striées. - In: Gesnerus (Aarau), 1980, pp. 142 - 144.
-- Un siècle d'observation des glaciers suisses (1881 - 1980).- In: Geographica Helvetica, 1981, 1, Pp. 1 - 8, 2 fig.
Prescher, H.: Georgius Agricola (24.3.1494 - 21.11.1555). Leben und Werk. - Wissenschaftl.-Method. Material der Urania Berlin, Schriftenreihe für den Referenten, Heft 8, 1980, S. 1 - 51.
-- Johannes Kentmanns Mineralienkatalog aus dem Jahre 1565. - Unter Mitarbeit von J. Helm und G. Fraustadt. In: Abh. Staatl. Mus. Mineral. Geol., Dresden, 30 (1980), S. 5 - 152.
-- Gedanken zum Verhältnis Erfahrung - Wissenschaft, dargestellt an Beispielen von Bildern in Agricolas De re metallica 1556. - In: ICOHTEC - Symposium Freiberg 1978. Vorträge Bd. 1, (1980), S. 345 - 356, Freiberg 1980.
Rappaport, Rh.: The liberties of the Paris Academy of Science, 1716 - 1785. - In: The Analytic Spirit. Essays in the history of science in honor of Henry Guerlac. ed. by Harry Woolf, Ithaca 1981, pp. 225 - 253.
Sabaris, L.S.: Vida atzarosa d'un geòleg barceloni del periode de la II. lustració. Memoir of antry in the Real Academia de Farmacia de Barcelona (Wide study on the life and main publications of Carlos de Gimbernat, his relationship with Werner and Dolomieu).
Sabaris, L.S.; Wiedmann, M.: La première carte géologique de la Suisse (1768 - 1834). Handed for publication in Eclogae Geologicae Helvetiae on the geological map of Switzerland of 1803 by Carlos de Gimbernat.
Sabaris, L.S.: Els estudis geològics a la Universitat de Barcelona. L' Aven 1981, Barcelona. (Report on the development of the geological studies in the University of Barcelona, since its foundation in 1910 and report on its lectures).
-- Geòlegs i excursionistes primiciers de la geologia catalana. Bull. Centre Excursionista de Catalunya. Barcelona. - Munbnya. Nr. 709, Pp. III - 123.
Sarjeant, W.A.S.: An Irish Naturalist in Cuvier's laboratory. The letters of Joseph Pentland 1820 - 1832. -In: Bull. Br. Mus. nat. Hist. (hist. Ser.), Vol. 6, no.7, Pp. 245 - 319.
-- Some reminiscences of Herbert Leader Hawkins. - In: Reading Geology Newsletter, Feb. 1980, no 18, Pp. 5 - 9.
-- Harold Sarjeant 1906 - 1980, Honory Member of the Peak District Mines Historical Society. - In: Bull. Peak District Mines Hist. Soc. Pp. 60 - 63.
-- Leonard Johnston Wills (1884 - 1979), Honorary Member of the East Midlands Geological Society. - In: Mercian Geologist, Vol. 8, no. 2, Pp. 143 - 146.
-- William Howson Wilcockson (1891 - 1976): His life and his geological achievements. - In: Sorby Record, no 17, Pp. 8 - 13
-- Harold Sarjeant 1906 - 1980. - In: Sorby Record, no 19, Pp. 24 - 25.

Schneer, Cecil J.: William Maclure's geological map of the United States. - In: Journal of Geolog. Educ., Vol. 29, No 5, pp. 241 - 245, Lawrence 1981.
Shafranovskij, I.I.: Istorija Kristallografii XIX veka. Tom II. - Leningrad: Nauka 1980, 324 S.
Shafranovskij, I.I.; Shaskolskaja, M.P.: R.J. Hauy (1743 - 1822). Moskva: Nauka 1981, 200 S.
Thackray, J.: R.I. Murchison's Siluria (1854 and later). - In: Archives of Natural History, 10, 37 - 43, 1981.
Tikhomirov, V.V.: O sbornike biografii russkikh geologov, isdannom v GDR. - In: Izvestija akademii nauk. Seria Geologiceskaja, Moskva 1981, No 2, S. 156 - 157.
Urban, J.: On the history of Geol. Mapping in Czechoslovakia. - In: Annals of Science, 37, 1980, London.
-- K historii Prvniho mezinárodniho geologického kongresu v Parizi v roce 1878. - In : Vestnik Ustredniho ústavu geologického, Praha 56 (1981), 3, S. 181 - 184.
-- Montanhistorische Studien im Komplex der geologischen Erkundung. - In: Acta historiae rerum naturalium necnon technicarum, Special issue 11, Prague 1981, S. 471 - 495.
Vallance, T.G.: Joseph Carne (1855 - 1922). - In: Australian Dictionary of Biography ed. by B. Nairn and G. Searle Vol. 7, pp. 565 - 566. Melbourne: Melbourne University Press. 1979.
-- The start of government science in Australia: A.W.H. Humphrey, His Majesty's Mineralogist in New South Wales 1803 - 12. - In: Proceedings of the Linnean Society of New South Wales. Vol. 105 (1981), Pp. 107 - 146.
-- The fuss about coal. Troubled relations between palaebotany and geology. In: Plants and Man in Australia ed. by D.J. and S.G.M. Carr. Sydney: Academic Press 1981. (Pp. 136 - 176).
Xia Xiangrong, Li Zhongjun and Wang Kenyuan: Historical development of the Ancient Mining Industry. - Geological Publishing House, Beijing 1980, pp. 1 - 442, 87 figs.
-- Paragenetic Formation of the Metallic Minerals as Recorded in Historical Documents before the Quin Dynasty (221 - 207 B.C.). - In: Collected Papers on the History of Science and Technology. Vol. 3, pp. 93 - 99, Shanghai 1980.

Annotations

- H. Hölder: Bericht Historische Geologie. Zur Geschichte der Geologie und Paläontologie II. In: Zbl. Geol. Paläont. T. I, 1980, H. 11/12, 970 - 1024.

As a sequel to an earlier publication (Zbl. 1974,: 1 - 27) prof. Hölder gives a survey in a systematic way, comparing the different views on a certain topic with each other. In his opinion historiography of geology has a critical task with regard to empirical and theoretical research; consequently, th this survey bears a character transcending a simple enumeration. "Externalist" and "internalist" conceptions in geological historiography are discussed: is geology mainly a pure science taking its origin in a desire of knowledge, or does it find its inspiration mainly in practical aims (e.g. mining)? The report on publications based on these opposite standpoints is interspersed with the author' own, in general conciliatory and intermediate, remarks (972 - 975). The problem uniformitarianism-catastrophism, in particular with relation to the Lyell commemoration (1975) gets full attention (976 - 978; 995 - 997). Several pages are devoted to Ellenberger's publications on Henri Gautier (979 - 981), to the period of the Enlightenment and Goethe's time (982 - 989), to the controversy on evolution, (in particular in North America)(990 - 991) and Darwin (997 - 998) and to geosynclinal research and plate tectonics (999 - 1003).
Next follows a review of works connected with type-localities or -regions, a topic in which prof. Hölder is particularly interested and which was the theme of the INHIGEO-Symposium he organized in Münster (1978). Regional geology, sourcebooks, geological and palaeontological illustration (1009 - 1011) and, finally, geological and mineralogical collections, are not forgotten.
The author ends by stating that his survey is a "higgledy-piggledy" (ein Durcheinander), and he asks who among "its few readers" can suggest another method. We deny that the review

is chaotic: the author himself rightly claims to have shown how many connections of internal an external character hold geology together. And who could do this better than the author of a "Geologiegeschichte" which, in the present reviewer's opinion, is the profoundest and most comprehensive history of geology at our disposition?
The impressive list of literature (1013 - 1024) at the end is "without any claim of completeness". This allows us to mention some titles which he probably would have inserted if they had come to his knowledge in due time. Of course, this addition, too, is incomplete, and even rather haphazardly selected: M. Guntau, ed.: Biographien sowjetischer Geologiewissenschaftler (Berlin 1979), C.C. Albritton, ed.: Philosophy of Geohistory 1785 - 1970 (Stroudsberg, Pa, 1975),(a collection of 16 facsimile reprints); W.O. Kupsch and W.A.S. Sarjeant, eds.: History of Concepts in Precambrian Geology (Ontario 1979), (containing communications made at an INHIGEO-symposium in Canada 1972); H.G. Körber: Alfred Wegener, Biographien hervorragender Naturwissenschaftler ... (Leipzig 1980); V.V. Tikhomirov a.o.: History of the Geological Institute of the USSR Acad. of Science (Moscow 1980; in Russian); S.I. Romanovski: N.A. Golovkinski. 1834 - 1897 (Leningrad 1979; in Russian); Shafranovski, I.I. and V.F. Aljardin: Anatoli Kapitonovich Boldyrev, 1883 - 1946 (Leningrad 1978; in Russian), (About a disciple of the great crystallographer E.S. Fedorov); A.S. Kleczkowski et al.: Stanislaw Staszic, Geology-Mining-Industry-Metallurgy (Warsaw 1979; in Polish).

R. Hooykaas

- T.W. Freeman, Marguerita Oughton and P. Pinchemel (Eds.): Geographers. Biobibliographical Studies, vol. I, on behalf of the Internat. Geogr. Union Commission on the History of Geographical Thought. Mansell, London 1977. XII + 124 pp.

This issue contains the biobibliographies of 18 geographers (15 of them born in the 19th cent.; one in the 18th, and 2 in the 20th cent.). Each biography is followed by a bibliography

and a chronological table of the geographer's life and publications. The articles are in alphabetical order, from Blache to Yamasaki. Evidently the editors wisely did not wait till all contributions were available, so that more issues will follow.
The biographies are well-written and they give a clear impression of the widely divergent origin and character of geographers. J. Blache (1893 - 1970) and N. Yamasaki (1870 - 1928) were professional geographers, but (Sir) George A. Smith (1856 - 1942) a theologian and Old Testament scholar who played an important role in the university life and in the Free Church of Scotland. E.G. Ravenstein (1834 - 1913), a German who lived most of his life in England, was a cartographer (maps of Abessynia, Equatorial and East Africa), but also a historian of exploration of international reputation (primarily Russian exploration in the Far East and North America) and he wrote also books on Vasco da Gama and Martin Behaim, and essays on the spread of the Celtic language in the British Isles and on laws of human migration.
As many topics in geography touch geology, it is interesting to read that Yamasaki studied and taught geology before turning to geography and that the influence of A. Penck (1858 - 1945) in Vienna was instrumental in turning his attention to glaciation in Japan.
One of the contributors is a corresponding member of INHIGEO: J. Babicz, who wrote on the Polish geographer E. Romer (1871 - 1954) (again a geographer covering many divergent fields of research: climatology, geomorphology, anthropogeography, cartography).
It should be noticed that a similar plan for geologists could berealized in cooperation with prof. V.V. Tikhomirov, who has built up an extensive archive of biographies of geologists.

R. Hooykaas

- W. Blei: Erkenntniswege zur Erd- und Lebensgeschichte. Ein Abriß. Wissenschaftliche Taschenbücher, vol. 219. Berlin: Akademieverlag 1981. Pp. 433 (in German)

323 quotations from predominantly older but also modern sources, 264 notes, and critical comments expressing the author's agreement or disagreement are combined in this stimulating outline of formulations of knowledge which is undoubtedly worth reading. The book is a welcome supplement to geological textbooks; the author was himself a lecturer at the College of Mining Engineering in Zwickau for many years.
Mineralogy and its history are not dealt with in this book, which many readers will probably regret. "Fossils" and the development "from lower to higher forms" are, on the other hand, treated exhaustively, including "endogenetic" and "exogenetic processes" as well as the development from "exceptionalism to actualism". Severe criticism is expressed of Cuvier's catastrophism and some of K. v. Bülow's comments on this theory.
Blei looks at the subject from a scientific-historical and ideological-political, perhaps too little from an economic point of view. Nevertheless this book adds to the geologist's cultural understanding. He might read it on the way to a borehole and be grateful to the author. What makes the book particularly worth reading is the author's way of bringing the voices of the far past to the present. In contrast to many other books on the same subject he also includes Stille, Wegener, Cloos, Kossmat, v. Bülow, Carey and even more recent authors. There has been no such outline in the GDR so far; it should, however, also find many readers outside this country.

R. Daber

- Ernst Friedrich von Schlotheim 1764 - 1832. Beschreibung merkwürdiger Kräuterabdrücke und Pflanzenversteinerungen 1804. Facsimile print ed. by the Society of Geological Sciences of the GDR. Berlin 1981. Pp. 68, 14 illustrations (in German)

1982 marks the 150th anniversary of Ernst Friedrich von Schlotheim's death, the founder of palaeobotany. In 1832, his collection was taken over by the Mineralogical Museum of Berlin University (now the Palaeontological Museum at the Museum of Natural History of Humboldt University Berlin). In his book published in 1804 he came to the conclusion that 'plant fossils' "are relics the originals of which can no longer be found"; he made reproductions of 27 numbered finds were given a (binary) scientific nomenclature in his "Palaeontology" published in 1820. The specimen still existing in the Berlin Museum are as follows: No 2, 5, 6, 11, 13, 14, 15, 16, 17, 18, 19, 22, 25, 26, 27 b, c.
The present publication is intended to draw the attention of palaeobotanists and museum experts to the Schlotheim collection in Berlin, and possibly help to find the missing specimen in other museums. It also aims at supporting a proposal made in the February issue of "Taxon" and directed to the nomenclature committee of the International Botanical Congress in Sydney in 1981 asking to regard the year 1820 as the starting point ofpalaeobotanical nomenclature.
The partly coloured copperplate prints I - XIII are reproduced in good quality.

R. Daber

- Mary C. Rabbitt: Minerals, Lands, and Geology for the Common Defence and General Welfare. Volume 2, 1879 - 1904. A History of Geology in Relation to the Development of Public-Land, Federal-Science, and Mapping Policies and the Development of Mineral Resources in the United States During the First 25 Years of the U.S. Geological-Survey. - United States Government Printing Office: 1980. Pp. 407 (in English)

In the second volume of the history of the U.S. Geological-Survey (cf. Newsletter No 13, pp. 18 and 39) the author gives

a detailed account of the scientific and practical activities of this institution during the first 25 years of its existence. In this period, development in the U.S. changed from predominantly agrarian to industrial production which required to pursue specific goals in geological sciences. This led to changes in geology itself. Emphasis was no longer on merely utilizing geological knowledge of a general character. Economic geology and related fields of geological research such as petrography and petrology, geological mapping, stratigraphic classification, hydrogeology, geophysics and geochemistry were considered to be more and more important. One further characteristic of this period was that technical and laboratory instruments were increasingly made use of in geological research. Mary C. Rabbitt describes this development in connection with the concrete tasks of the U.S. Geological-Survey in a chronological way.

M. Guntau

- I.I. Shafranovskij: Istorija kristallografii (History of Crystallography). - Part I: From ancient times to the beginning of the 19th century. Leningrad: Nauka 1978. Pp. 297, 58 illustrations. - Part II: The 19th century. Leningrad: Nauka 1980. Pp. 324, 70 illustrations (in Russian).

These two volumes give an excellent account of the development of crystallographical knowledge from the first observations of crystals in ancient times to the end of the classical stage of this science at the end of the 19th century. The author, who is professor of crystallography at the Mining Institute of Leningrad and corresponding member of INHIGEO, is undoubtedly one of the greatest experts in the history of crystallography at the present time. His comprehensive presentation of the subject is based on all important original works on crystallography and on a detailed analysis of the large amount of scientific historical literature. The author starts from the following classification of periods in the history of crystallography: 1. Early history (from antiquity to Steno); 2. Foundation of crystallography as a science

(from Steno to Hauy); 3. Development of classical (geometrical) crystallography (from Hauy to the turn of the 19th century); 4. The modern period of crystallography (from Fedorov and the discovery of x-ray structural analysis to the present). The present two volumes deal with the first three periods, the last period is intended to be dealt with in a third volume (in preparation).
The two volumes are a remarkable achievement considering the fact that the author had to use publications not easily accessible and those of many languages in order to give this conscientious analysis. He proves himself to be an excellent expert in the historical material investigated. Emphasis is on the essential facts which are classified in a convincing manner. No scholar seriously engaged in the historical development of crystallography up to the beginning of the 20th century can afford to ignore Shafranovskij's excellent books.

M. Guntau

- S. Stefanescu et al. (eds.): Istoria Stiintefler in Romania. Geologia, Geofizica, Geodezia, Geografia. Bucuresti 1977. Pp. 323 (in Romanian, with English summaries)

This collection of articles on the history of earth sciences is part of a series on the history of sciences in Romania published by the Academy of Sciences in Bucharest. The articles, which are confined to the development of these fields in Romania, deal with the following branches of earth sciences: 1. mineralogy, geochemistry, petrography; 2. sedimentology; 3. palaeontology; 4. stratigraphy and tectonics; 5. deposits of mineral raw material; 6. deposits of petroleum and natural gas; 7. hydrogeology; 8. geomathematics; 9. geophysics; 10. hydrology; 11. meteorology and physics of the atmosphere; 12. geophysical prospection; 13. geography. Summaries in English and bibliographies containing the most important works are given for each article. The book is a welcome source of the history of earth sciences in Romania which more or less started in the 19th century and has been more intensified only in recent decades.

M. Guntau

- V.I. Vernadskij: Selected works on the history of science (ed. by S.R. Mikulinskij). Moscow: Nauka 1981. Pp. 359 (in Russian)

There are only few scholars of earth sciences that have concerned themselves so much with the history of their field and the history of science in general as one of the founders of geochemistry, V.I. Vernadskij. The present collection contains manuscripts of his unpublished works and other 'hidden' articles on problems of the general history of science. The "Outline of the history of the modern world of science" (pp. 32 - 185) of the years 1902/03, which consists of 12 chapters, has been published for the first time. Special mention should also be made of the articles on Kant and on natural sciences and his notes on Goethe as a naturalist. Several documents give evidence of Vernadskij's contribution to the development of scientific historical research in the USSR Academy of Sciences between 1921 and 1939. The author of this volume, who pays tribute to this historian of science in the introductory part, in the preface announces a further edition of Vernadskij's works on the general history of science.

M. Guntau

- Albritton, Claude C.: The Abyss of Time. Changing Conceptions of the Earth's Antiquity after the Sixteenth Century. San Francisco 1980. Pp. 251, 30 illustrations (in English)

Claude C. Albritton's numerous works on the history and philosophy of geological sciences have been enriched by a further interesting book. Based on various lectures and papers it summarizes the conceptions of the Earth's antiquity developed from the 17th century to the present. The author thereby has made one of the crucial questions of geology the subject matter of a scientific historical investigation. In 17 chapters the conceptions of the Earth's antiquity of all important geologists are described including a periodization of the history of the Earth and the different methods of determining the age of geological phenomena from N. Steno to A. Wegener.

This well-written book contains an interesting bibliography as well as an index of names and terms.

M. Guntau

- R. Hooykaas: Science in Manueline Style. Coimbra: Academia International da Cultura Portuguesa 1980. Pp. 199, 14 Illustrations (in English)

As part of a comprehensive study of the work of the Portugese Don Joao de Castro (Lisbon, February 27, 1500 - Goa, June 6, 1548) this book presents interesting details about his geological observations. Zittel (1899) already mentioned the description of the coral growth in the Red Sea given by Joao de Castro, who was a sailor and navigator rather than a natural historian. Other references to Castro's geological works can hardly be found in books dealing with the history of geology. It is, therefore, interesting to learn that in 1538 Castro gave a remarkably precise description of the basalt formation near Bassein on the Indian subcontinent. He observed the basalt columns to be found there and described them with great precision, which has been confirmed in detail by present-day investigations of the Geological Survey of India. Castro's basalt description bears comparison to those of his contemporaries G. Agricola (1546), J. Kenntmann (1555) or K. Gessner (1565), all of which, in contrast to Castro, had considerable geological experience and had studied the Saxon basalt deposits. Castro's discovery of the magnetism of rocks, which he made at the Indian coast during a voyage from Goa to Diu in 1538, is undoubtedly of particular importance. For a small distance between two measuring points he discovered a considerable declination of the magnetic needle which could not be explained by a change of terrestrial magnetism. He correctly attributed this phenomenon to the magnetic action of the basalt rocks. Modern investigations of the magnetic properties of rocks only started with the works of A. von Humboldt (1796). Even though Castro's observations of geological phenomens were not systematic and did not result from systematic

investigations, they should nevertheless receive more notice in writings on the history of geology. One important step in this direction has been made with the publication of Prof. Hooykaas' book which, in addition, gives the reader an excellent insight into the scientific historical problems of the Renaissance.

M. Guntau

- H. Kautzleben (ed.): History of Seismology, Seismics and Earth Tides Research. Publications of the Zentralinstitut für Physik der Erde der Akademie der Wissenschaften der DDR No 64. Potsdam 1981. Pp. 219, 73 illustrations, 6 tables (in German)

This collection contains 22 papers read at a conference on the history of seismology, seismics and earth tides research in Eisenach (GDR) in December 1979 (cf. Newsletter No 13, p. 10 and p. 31). The papers deal with problems covering the period from antiquity to the present. They analyze theories of earthquakes and prodigia of the Graeco-Roman antiquity and their reception at the time after antiquity, investigate the presentation of earth-quakes on wood-cuts and copperplate engravings from the 15th to 18th centuries and give biographically-oriented information (KANT, REBEUR-PASCHWITZ). Other subjects are: history of seismological stations and institutions (Collmberg, Jena, Leipzig); treatment of the mid-German earthquake of March 6, 1872; history of the investigation of the seismotectonics of the North Atlantic Ocean; development of Soviet seismology (1917 - 1977); history of depth seismics and of applied seismics in deposit exploration and mining industry; development of long distance transmission in seismology and seismics. Two papers were devoted to earth tides research: 1. Early history of experimental earth tides research until the end of the 19th century; 2. Contributions of earth tides investigations to the conceptions of the structure of the Earth.

P. Schmidt

- Xia Xiangrong, Li Zhongjun, and Wang Genyuan: Historical Development of Ancient Chinese Mining Industry. Beijing: Geological Publishing House 1980. Pp. 442, 87 figs. (in Chinese)

This book, which consists of two parts, deals with the growth of geological knowledge in China. The first part gives an account of the general history of mining industry in ancient China until 1840. It describes the beginnings and further development of the use of iron, copper, tin, lead, zinc, silver, gold, and mercury. The description is based on extensive historical records, many archaeological discoveries and descriptions of a large number of cultural relics. The first part includes a series of tables showing the geographical distribution of the old metallic mines and giving data of the annual production of metals during several dynasties in ancient China at the time of slavery and feudalism. As to the controversy between certain historians on the beginnings of the use of iron and copper, the authors state their opinions in a chapter at the end of the first part which are based on the analysis of geological materials.
The second part deals exhaustively with ancient Chinese mining techniques. A detailed account is given of the metallic mines, minerals, ores, deposit types, paragenesis and indicator plants of veins or lodes, and the mining and metallurgical techniques all of which had been described by the forbears in this country. In addition, the second part deals with the deposits and extraction of non-metallic minerals, such as porcelain clay, salts, fossil fuels and precious stones (nephrite and turquoise).
It is worthy of note that most of the historical sources quoted in the book have been investigated from a geological point of view for the first time. The book is undoubtedly a rich source of useful information for all students of geology, history and archaeology as well as for sinologists from other countries. The authors regard their book as a continuation of the works of the late Professor H.T. Chang "Lapidarium Sinicum (Shi Ya)" (1927[2]) and "Ancient Mines Record (Gu Kuang Lu)" (1954).

Xia Xiangrong

- R. Porter (ed.): The Earth Generated and Anatomized by William Hobbs. An early eighteenth century theory of the earth. - Bulletin of the British Museum (Natural History), Historical Series Volume 8 (complete). London 1981. Pp. 158, 6 tables, 8 ill.

Roy Porter presents a yet unpublished manuscript by William Hobbs from 1715 on theory of the earth to which are added a detailed introduction and extensive comments. This publication is a welcome supplement to the collection of source works on the history of geological thought in the 18th century. Hobbs, a contemporary of Burnet, Woodward and Whiston, tries to explain geological phenomena solely on the basis of natural forces and their observation, without relying on the miracle of creation. For him the main question is how seashells and other products of the sea got into the rocks and mountains. In this connection he does not agree with the assumption of a total inundation of the land by the sea. In his opinion the problem should be explained by finding out how the sea-bottom could turn into land surface. As an answer to this problem he suggests an uplift in two stages. According to him this was caused by the tides which are supposed to be related to the pulsation of the heart of the earth. The gradual induration of the land is a result of the inner heat of the earth.
This manuscript also contains other interesting geological ideas enlarging our knowledge of the concept of the earth in the 18th century in a remarkable way.

M. Guntau

- T.D. Iljina: The Development of Nuclear Geophysics in the USSR. 1917 - 1960. Moscow: Nauka 1978. Pp. 190, 4 tables, 15 ill., 693 ref. (in Russian)

In this book the author gives a good survey of the history of the role of nuclear physics in geology from the discovery of radioactivity to present-day works on nuclear physics

and their importance for the investigation of the material structure of rocks. Based on the study of publications and records from archives she deals with the following questions: How did nuclear physics develop in the Soviet Union? What kinds of instruments and equipment were introduced? What were the problems of scientific cooperation? Particular attention is drawn to the history of investigating radioactive phenomena of oil deposits. The author describes the historical development of several methods of nuclear physics and their fields of application in the past. This book is a welcome publication since the number of works on the history of geophysics is still very small. Monographs of the type presented here show how gaps in our historical knowledge can be filled.

M. Guntau

- Bridson, G.O.R., Harvey, A.P., and Phillips, U. 1980. Survey of natural history manuscripts in resources in British Libraries. Pp. 13. London: Mansell.

Manuscripts in 443 libraries and museums are listed and described, including the Geological Society of London, the Institute of Geological Sciences, British Museum (Natural History) and the geology departments of Oxford and Cambridge. The material described will be of interest and importance to historians of geology all over the world.

J. Thackray

- Sokolov, V.A. and Kudarenko, V.G.: F.Ju. Levinson-Lessing in Karelia. Petrosavodsk: Karelia Publishing House 1981. Pp. 80, 6 ill. (in Russian)

F.Ju. Levinson-Lessing is one of the outstanding Russian natural scientists and explorers. He is widely known through his works in the fields of petrography, geology, pedology, palaeontology and other geological disciplines. In his capacity as a professor at the Polytechnical Institute of the University of Leningrad he was active in training a large number of geologists.

His career as a scholar and geologist started in Karelia in the eighties of the 19th century. His work greatly contributed to the knowledge of the geological structure of Karelia. The book describes the separate stages and fields of Levinson-Lessing's work directly or indirectly connected with Karelia.

Author

- S.I. Romanovski: Aleksander Petrovich Karpinski. 1847 - 1936. Leningrad: Nauka 1981. Pp. 484 (USSR Academy of Sciences, scientific-biographical series) (in Russian)

Based on extensive written sources this book deals with the life, works and outstanding scientific administrative activities of A.P. Karpinski, first elected president of the Russian Academy of Sciences, a position which he filled until the end of his life, and head of the Geological Committee (the oldest geological institution in this country) for 18 years.
The book gives an account of Karpinski's works on palaeontology, tectonics, palaeogeography and petrography and shows his role as an innovator in many branches of these fields of geology. It also contains illustrations and records from archives, dates of his life and work as well as works written about this scholar.

Ju.Ja. Solovjev

- Shaskolskaja, M.P. and Shafranovski, I.I.: Rene Just Hauy (1743 - 1822). Moscow: Nauka 1981. Pp. 152 (USSR Academy of Sciences, scientific-biographical series) (in Russian)

This book is devoted to the life and work of the world-famous French scholar and crystallographer Rene Just Hauy. His name is closely connected with one of the basic laws of geometrical crystallography: the rational relations of parametres and the theory of the structure of crystals. R.J. Hauy was a scholar who was engaged in several fields. He not only played an important role in the history of crystallography

but also in mineralogy, chemistry and physics. His works contributed to the development of mineralogy as an exact science. His investigation of minerals and their structure permitted him to suggest a classification of minerals according to their crystal structure. His main ideas, which form the basis of the lattice structure of crystals, were further elaboraded by the outstanding Russian crystallographer E.S. Fedorov.

O.A. Sokolova

- Csiky, G. (ed.): Annals of the History of Hungarian Geology (1978), Budapest 1979, Pp. 172 (in Hungarian, English)

The Division of the History of Geology of the Hungarian Geological Society publishes one issue every year containing original articles, tributes to outstanding Hungarian geologists, obituaries, conference reporte and an annual report of the work of the Division. The present issue contains articles about the development of Hungarian geological terminology, about a manuscript of F. Miller on the mineralogy of Hungary and Transilvania (1778) and about documents of Niels Stensen's journey through Hungary. It also pays tribute to A. Hoffer, A. Vendl, R. Reichert, G. Kolosváry, B. Zalányi, F. Papp, I. Lörenthey, I. Gaal, M. Vendel, I. Cseprephy-Meznerics. The annals end with a report on the VIIIth INHIGEO Symposium in Münster and Bonn (FRG).

M. Guntau

- Hercko, I. (ed.): Z dejin geologických vied na Slovensku (On the history of geological sciences in Slovakia). Vydavatelstvo Osveta, Banská Stiavnica 1981. Pp. 291, 98 ill. (in Czech with Russian and English summaries)

This volume contains articles about the development of geological sciences in Slovakia from the 18th century to the present. Several articles, among them three by I. Hercko, describe the history of geological-mineralogical research in Banská Stiavnica. Particular emphasis is on the scientific exchange of ideas with neighbouring and other countries. The

articles also deal with the foundation of the Mineralogical Society in Banskà Stiavnica (1811), draw special attention to the importance of the "Geologische Reichsanstalt" (Vienna) for research in Slovakia and describe the methods of prospecting for deposits between 1850 and 1945. Some articles are devoted to individual scholars, such as Anton Rupprecht, Michael Höring, Alois Wehrle, Dionýz Stur and Samuel Bothars. A special article is devoted to the journey of the French geologist and mineralogist F.S. Beudant through Slovakia 160 years ago. This book describes the outlines of the history of geology in Slovakia complemented by important individual aspects and thus provides an interesting idea of history.

M. Guntau

- Lietuvos TSR geologijos storija (History of geology in Lithuania). Vilnius: Mosklas 1981. 160 pp., ill. (in Lithuanian with English and Russian summaries)

The six chapters of this book describe the development of geological thought in Lithuania during the last 200 years (1780 - 1980). Starting with a discussion of the early stage of the development of geology, the book then gives an account of the beginnings of scientific exploration in this area since the end of the eighteenth century which included geologists from the universities of Vilnius, Tartu, Warsaw and Königsberg as well as from the Mining Institute and the Geological Committee of Russia. Systematic research in the period between 1940 and 1979 marked the beginning of modern scientific geology, and this also led to a greater specialization of the different branches. The book also analyzes the most important research results that have been achieved in Lithuania in recent years.

Author

- Gordeev, D.I.: Andrej Dmitrijevic Arkhangelskij. 1879 - 1940. Moscow: Nauka 1981. 96 pp. (USSR Academy of Sciences. Scientific Biographies) (in Russian)

This book deals with the life and scientific, scientific-administrative and educational work of the outstanding Soviet geologist A.D. Arkhangelskij whose fundamental works have gone down in the history of world science. The author of this scientific-biographical outline, who is one of Arkhangelskij's numerous disciples, in detail describes the role of his teacher in the development of comparative lithology, tectonics, geophysics, regional geology, stratigraphy, the study of mineral resources and, in particular, in the study of questions concerning the formation of phosphorites, petroleum and bauxites.
Arkhangelskij's work as an organizer of complex explorations of large areas is described in a convincing way. The book also provides interesting and less known details about the participation of the young Arkhangelskij in the revolutionary student movement and his acquaintance with L.N. Tolstoi's family. The book is well illustrated and contains the main dates of his life and work and a list of his works.

Ju. Ja. Solovjov

- Methodology of geological sciences: a collection of scientific articles. Kiew: Naukova dumka 1979. 168 pp. (in Russian)

This book contains 12 articles dealing with a number of questions of theoretical geology that are of current interest. Most attention is paid to the possibilities of a systemic-structural approach to geological sciences. Other topics discussed in the articles are as follows: properties of the structural elements of chemical compounds; problems of the laws of geology, of geological time and stratigraphical boundaries and models of geological cartography; the interrelation of systematic representation and classification; the necessity of presenting trends of formalization in geo-

logy and algorithms in solving geological tasks; problems of geological cybernetics; the progressive methodological heritage of the Russian nineteenth-century geologist N.A. Golovkinskij.
This book will be of interest to experts in various geological fields, teachers and graduate and undergraduate students.

Ju.Ja. Solovjov

- N.N. Barkhatova and T.I. Lysenko: A.A. Polkanov's documentary heritage in the archives of the USSR Academy of Sciences. Scientific presentation. Leningrad: Nauka 1980. 176 pp. (in Russian)

This book deals with the documents from archives of the prominent Soviet geologist and petrologist A.A. Polkanov. The presentation of the documents of the period between 1850 and 1974 (arranged chronologically according to topics) includes an analysis of the extensive scientific, scientific-administrative, educational and expeditionary work of this scholar, deals with his numerous international scientific and personals contacts, and describes the development of his scientific work from individual problems to the treatment of important questions of the geology of the Precambrian period.
The appendix contains a number of documents unknown in the past and his scientific correspondence with V.I. Vernadskij, P.I. Stepanov and D.S. Korshinski.

N. Barkhatova

- N.N. Ushakova and N.A. Figurovskij: Vasilij Mikhailovic Severgin. 1765 - 1826. Moscow: Nauka 1981, 160 pp. (USSR Academy of Sciences. Scientific - biographical series) (in Russian)

This book is devoted to the life and work of the outstanding Russian mineralogist and chemist V.M. Severgin. Owing to his

numerous works on mineralogy and chemistry he may be regarded as a true successor of M.V. Lomonosov. As to his views about crystallography, he was a convinced follower of R.J. Hauy. In his description of native minerals he adopted A.G. Werner's classification which he partly revised and complemented. He was an adherent of a chemical orientation of mineralogy. Severgin was the first Russian scholar who recognized Lavoisier's anti-phlogiston theory and actively supported it. He translated many works on mineralogy, chemistry, chemical technology and physics (R. Kirvan, I.F. Gmelin u.a.). He is the founder of Russian scientific terminology in these fields, which is still being used today. Severgin laid the foundations of progressive tendencies in the development of modern mineralogy. He wrote many textbooks and technological journals. This book is intended for all those interested in the development of native science.

O.A. Sokolova

- P. Krüger: Vladimir Ivanovic Vernadskij. Biographies of outstanding scientists, technicians and physicians.Vol. 55. Leipzig: BSB B.G. Teubner Verlagsgesellschaft 1981. 115 pp., 11 ill. (in German)

P. Krüger's book about Vernadskij, which was published in German in 1981, is one further issue of the widely known series of biographies of scientists, technicians and physicians published by B.G. Teubner (Leipzig). It deals with the long and eventful life and the works of one of the most prominent scholars of modern times. It is demonstrated to the reader how his scientific interests gradually increased in the course of time. In the beginning he worked as a mineralogist, but he soon began to include nearly every geological field in his studies. Vernadskij was one of the first scholars who realized the great importance of radioactivity, and he succeeded in founding a special radiological institute. He then started to deal with the geochemistry of the

earth's crust. His next step was a new field, the chemistry of animate beings (biogeochemistry). He established the holistic theory of the biosphere as one of the geological envelopes of the planet. The next field he was engaged in was the theory of noosphere which combines a set of phenomena related to man's influence on nature.
Vernadskij was always interested in the history of science, an he did a lot to organize research in the field of the history of natural sciences. The author of this book convincingly presents the main characteristics of Vernadskij's work which has become more and more important in recent years. The ideas expressed by him more than half a century ago may be said to have had a rebirth. It is for this reason that we should be thankful to GDR scholars and publishers who have published this interesting and requisite book at right moment.

J. Rezanov

Geschichte der Geologie
auf dem XVI. Internationalen Kongreß für Wissenschaftsgeschichte
(Bukarest 1981)

Vom 26. August bis 3. September 1981 fand in Bukarest der XVI. Internationale Kongreß für Wissenschaftsgeschichte statt, der von der Internationalen Union für Geschichte und Philosophie der Wissenschaften / Abteilung für Wissenschaftsgeschichte (Division of the History of Science) (IUHPS / DHS) und der Akademie der Wissenschaften der Sozialistischen Republik Rumänien veranstaltet wurde. An dem Kongreß nahmen mehr als 1000 Wissenschaftler aus 50 Ländern teil. Es waren über 1000 Vorträge angemeldet, zu denen die Veranstalter die Kurzfassungen in 4 Bänden mit insgesamt 2036 Druckseiten herausgegeben hatten. Die Arbeit des Kongresses fand im Rahmen von 14 Sektionen, 12 Symposien, 7 Spezialkolloquien und 4 Gedenkveranstaltungen statt.
Die Sektion A 9 hatte die Geschichte der Geowissenschaften zum Gegenstand. Es wurden Beiträge zur Geschichte der Geographie und Geologie vorgetragen und diskutiert. Im Programm waren 41 Vorträge angekündigt worden, die aber nicht alle gehalten wurden. Die Zusammenarbeit von Historikern der Geographie und Geologie hat sich bewährt. Es kam nicht nur zu einem wechselseitigen Austausch neuer Forschungsergebnisse sondern auch zu fruchtbaren Dialogen, woraus der Wunsch entstand, auch in Zukunft die Kontakte auf geeignete Weise weiter zu pflegen.
Die Vorträge zur Geschichte der Geologie beschäftigten sich vor allem mit Themen des Zeitabschnitts vom 18. Jahrhundert bis zur Gegenwart, nahmen zu einigen allgemeinen Problemen der Entwicklung der geologischen Erkenntnis Stellung, berichteten über die Geschichte der geologischen Forschung in einzelnen Regionen und würdigten das wissenschaftliche Werk verschiedener Geologen.
Ju.A. Anisimov (UdSSR) sprach über die Rolle der mineralischen Rohstoffe für die Entwicklung der Produktivkräfte und erörterte dabei die Probleme, die sich aus den Zusammenhängen von Rohstoffbedarf und Industrieproduktion in Vergangenheit und Gegenwart abzeichnen. Mit Problemen der Gewinnung von Bodenschätzen beschäftigte sich auch A. Lundgren (Schweden) und analysierte