

Anmeldelser og kritikker

ARNE NOE-NYGAARD: *Geologi, processer og materialer*. I serien: *Geologiske vejledninger og små håndbøger*, III. 16,5 cm × 24,5 cm, 399 sider, 361 figurer. Gyldendal.

Med professor ARNE NOE-NYGAARD's nye bog: *Geologi, processer og materialer*, foreligger (marts 1955) den tredje lære- og håndbog i Universitetets Mineralogisk-Geologiske Museum's serie: *Geologiske vejledninger og små håndbøger*. På titelbladet glæder man sig over, at den lille vignet af Mineralogisk Museum, der har »smykket« de to første bøger i samme serie om henholdsvis forsteninger og mineraler, er udeladt. Til gengæld skuffes man over, at en bog af det foreliggende format ikke har nogen titel på ryggen af den indbundne udgave. At bogen i det hele taget foreligger i en indbinding, der utvivlsomt kunne have været af en kvalitet, som ville tiltale læserens estetiske sans mere, end det er tilfældet, finder sikkert sin undskyldning i den lave pris. Smudsomslaget er smukt og tillokkende til gengæld. Det forestiller en glødende lavastrøm fra Etna's udbrud i 1950—51, hvilket man dog skal vide på forhånd, da forlaget har undladt at oplyse herom.

Bogen deler sig i fire dele, der alle er kædet sammen, men som omvendt kan anvendes hver for sig. Bogens hovedtema er endogen og eksogen dynamik: processer. Et mindre afsnit er en gennemgang af de vigtigste bjergartstypers petrografi: materialer. Tredie afsnit er en omtale af den geologiske tidsregning. Sidste del er billedmaterialet.

Processer og materialer er behandlet på en ny og forfriskende måde. Den naturlige sammenhæng, der er mellem disse to problemkredse, er understreget ved, at de materialer, som en given dynamisk proces fører frem til, er behandlet umiddelbart efter processen. Eksempelvis følger efter vindens arbejde vindaflejringer, sådan at vindaflejringerne er skrevet med en mindre sats end bogens »brødskrift«. Efter ønske kan man læse om dynamiske processer for sig og om petrografi for sig. Registret har taget hensyn til denne tilrettelægning og er delt i to grupper: processer og materialer. Under de ydre kræfters geologi finder der en omtale sted af: atmosfæren, varme og kulde, vinden, regnen, sne, is og bræer, vandløb, indsøer, vandet under jordoverfladen og havet. Endvidere er der her tilføjet en kort omtale af den geokemiske stofvandring i sedimenterne, sedimentlagenes geologiske vidnesbyrd, samt »biosfæren«.

De indre kræfters geologi byder såvel på de mere traditionsbundne emner som på behandling af den »nyere« geologi, hvorved tænkes på de anskuelser, der i de sidste tiår er opstået i forbindelse med tolkningen af

prækambriets mysterier — problemerne om gnejs- og granitdannelsen. Ligeså er de nyeste og mest plausible synspunkter om bjergkædedannelse tildelt nogle sider. De indre kræfters geologi er repræsenteret ved afsnit som: jordskorpen, vulkaner, vulkanske sekundærvirkninger, gange, subvulkaner, jordskælv, lagstillingens geometri, saltbjergarternes geologiske forekomstmåde, bjergkæder, den regionale metamorfose, migmatit—gnejs—granit, kontaktmetamorfose, mineralisation, »tektogenet« og barysføren.

Materialebehandlingen, der som nævnt er kædet sammen med processerne, er underbygget af en kort introduktion til de vigtigste mineraler. Ingen af de bjergartsdannede mineraler er stedbørn. Det er mineralernes geologiske »valens«, der ligger til grund for fremstillingen; de kommercielt værdiløse silikatmineraler har samme »valens« som malmmineralerne.

Som afslutning på bogen er der givet en meget kort fremstilling af de geologiske tidsaldre. Der er i denne især lagt vægt på de forkambriske formationers indbyrdes aldersforhold og, de seneste års resultater fra Vest Grønland er her kommet med.

Det er nyt og velgørende at læse en lærebog hvor eksemplerne i så vid udstrækning er hentet fra vore egne områder, som det her er tilfældet. Det vrimler med eksempler fra Grønland, Færøerne og Danmark. Under vulkanafsnittet er mange af eksemplerne fra Island. Bogen afspejler i det hele taget forfatterens eget arbejdsfelt og rejser, hvorved den har fået sit eget præg.

De 361 figurer fortjener en særlig omtale. Ligesom teksten bærer disse også præg af forfatterens eget arbejde. Henvend 25% af samtlige figurer er fotograferet eller på anden vis fremstillet af forfatteren. Bogen er med de mange billeder absolut gennemillustreret. Det er værdifuldt at billederne i langt de fleste tilfælde er ledsaget af en så fyldig tekst, at man med stort udbytte kan læse i bogen bare ved at bruge billederne. Det må glæde enhver dansk geologiinteresseret, at der er så mange gode billed-eksempler fra indendansk område. Mange af billederne er ikke set før, hvorfor materialet også af den grund virker tillokkende. De mange gode sider ved illustrationerne til trods, findes der nittere imellem. Der er nogle tekster der kunne ønskes fyldigere — særlig af hensyn til den geologisk mindre trænede læser. Der er også billeder, der burde have været forbedret eller undgået, men de er dog meget få.

Bagest i bogen findes foruden »Forslag til videre læsning om geologiske emner« — forslag der alle er skrevet på dansk — et stikordsregister. Ved hjælp af de ca. 1800 stikord kan man finde oplysninger om en meget lang række geologiske fænomener ligefra begrebet: slunne — til hvad der skjuler sig bag ordene: Hamam Meskoutine.

ARNE NOE-NYGAARD'S bog er en grundbog beregnet for første års studerende og andre nybegyndere i geologien. Den vil afgjort i vid udstrækning kunne anvendes til selvstudium af amatørgeologer, selvom visse afsnit nok i dette tilfælde vil volde vanskeligheder. For naturfagslærere vil den også være værdifuld — dels på grund af de mange nye eksempler og billederne, og dels fordi den i bogens sidste del søger at redegøre for nogle af de nyeste synspunkter indenfor geologien. Også faggeologer vil finde fornyelse ved at læse bogen, og dette gælder ikke mindst dem, der

via et snævert speciale er kommet ungdomskærligheden geologi lidt mere på afstand. De vil genopleve de første studieår — og hvem vil ikke gerne det?

Selvom bogens hermed foreliggende 1. udgave måske endnu bærer præg af de fødselsvanskeligheder, som en så stor bog naturligt har skabt, er der alligevel grund til at glæde sig meget over bogen og lykønske ARNE NOE-NYGAARD med den.

K. Ellitsgaard-Rasmussen.

List of Danish Geodetical and Geophysical Publications 1954

(Compiled by Dansk Geofysisk Forening)

Published in Copenhagen 1954 unless otherwise stated

Annuaire Magnétique, 1ère partie: Le Danemark (excepté le Groenland), 1953.
Annuaire Magnétique, 2ème partie: Le Groenland, 1948; 1949.
Annuaire Météorologique, 1ère partie: Le Danemark (excepté le Groenland), 1952.

K. P. ANDERSEN: Hydrographic conditions in the southern part of the Norwegian Sea 1953.—Ann. Biol., vol. X, pp. 20–25.

Short report on the hydrographic conditions in the herring area north of the Faroes as found by R/V "Dana", M/S "Thetis" and M/K "Vördan" in 1953.

K. P. ANDERSEN: Hydrographic conditions in the southern North Sea, the Bløden Ground area in 1953. — Ann. Biol., vol. X, pp. 90–94.

Short report on the development of temperature and salinity in the southern part of the North Sea as found by R/V "Dana", M/S "F. V. Mortensen" and M/K "Jens Væver".

H. C. ASLYNG: Jordens vandbalance. — Nordisk Jordbrugsforskning 1954, pp. 93–100.

Comparison between calculated and measured evaporation under Danish climatic conditions.

Ø. BURRAU: On the weight of a physically determined quantity. — Geodætisk Instituts Meddelelser, No. 28.

The paper deals with the problem whether the denominator in the expression for the square of the standard error should be $n(n-3)$ instead of $n(n-1)$.

DET DANSKE HEDESELSKABS kulturtekniske afdelings hydrometriske undersøgelser 1943–50, Beretning om.

Report on the hydrologic investigations in Danish watercourses carried out by Det danske Hedeselskab during the years 1943–50.

J. EGEDAL: Some remarks on storm-surges in interior Danish waters. — Ass. d'Océanogr. Phys., General Assembly at Rome 1954. Pre-prints, pp. 76–77. — Bergen, 1954.

It is mentioned that storm-surges of the same type as that occurring in the North Sea during the night between January 31 and February 1, 1953, also may occur in interior Danish waters.

J. EGEDAL and O. SIMONSEN: Investigations into the seasonal and diurnal oscillations of the differences of elevation between three sub-soil bench marks in Copenhagen by means of hydrostatic levelling. — Danish Geodetic Institute. Submitted to the tenth General Assembly of Int. Geod. and Geophys. Union, Rome 1954.

The three bench marks, having their bases in a depth of 2.5 to 2.9 m., were connected with tubes half filled with distilled water and lying horizontally at a depth of about 0.5 m. By means of hydrostatic levelling instruments constructed by D. la Cour observations were made during 5 periods from June 1952 to June 1953. The found range of the diurnal oscillations was of an order of 5μ while the range of the seasonal oscillations of the differences of elevation was of the order 100μ . It seems as if the variation of soil humidity affects the elevation of the bench marks in a higher degree than variations of the soil temperature at the place of observations.

F. ENGELUND: On the laminar and turbulent flow of ground-water through homogeneous sand. — Transact. Danish Acad. Techn. Sciences, 1953, 3.

An investigation concerning the conditions of ground-water flow in the vicinity of wells.

H. B. HACHEY, F. HERMANN, and W. B. BAILEY: The waters of the I.C.N.A.F. Convention area. — International Comm. Northwest Atlantic Fisheries. Annual Proceedings, vol. 4, part 4, pp. 66-100. — Halifax, 1954.

A general review of certain features of the waters of the western North Atlantic that make up the I.C.N.A.F. convention area (the waters round West Greenland, Baffin Island, Labrador, New Foundland and Nova Scotia). In the review the following is discussed: The water circulation, the distribution of ice, distribution of temperature and salinity, seasonal and long term variations in temperatures and influence of temperature on fish population.

FREDE HERMANN: Hydrographic conditions in the eastern part of Labrador Sea and Davis Strait, 1953. — Ann. Biol., vol. X, pp. 28-30.

Short report on the hydrographic conditions off West Greenland as found on the cruise of R/V "Dana" during July 1953.

HENRY JENSEN: Jordskælvet ud for Stevns den 4. juni 1954. — Geodætisk Instituts Meddelelser, No. 29.

The earthquake seems to reflect features in the pre-quatertiary topography.

I. LEHMANN: Characteristic earthquake records. — Geodætisk Instituts Skrifter, 3. Række, Bind XVIII.

35 earthquake diagrams obtained at København, Scoresby-Sund and Ivigtut are reproduced. They are arranged according to increasing epicentral distance and are selected with a view to exhibit the features characteristic of the various ranges of distance.

I. LEHMANN: On the microseismic movement recorded in Greenland and its relation to atmospheric disturbances. — Pontificiae Academiae Scientiarum Scripta Varia 12. Semaine d'étude sur le problème des microséismes. Ex aedibus academicis in civitate vaticana. — Rome, 1952.

It is shown that microseismic storms are set up in Scoresby-Sund and Ivigtut when cyclones move across the seas to the south and east of Greenland. Many storms are treated in detail, the variation of amplitude with time at the two seismological stations being considered in relation to the path of the cyclone. The character of the microseisms appears from reproductions of the records. It is concluded that the storms are generated chiefly at sea, by the cyclones.

I. LEHMANN: On the short period surface wave "L_g" and crustal structure. — I.U.G.G. News Letter, April 1953, pp. 248-250. — Paris, 1953.

Summary of a paper read at the meeting of the European Seismological Commission in Stuttgart, Sept. 1952. — The L_g phase, due to short period surface waves transmitted solely over continental paths, was studied in the records of some Northamerican earthquakes. The period was from $\frac{1}{2}$ sec to 6 secs and the velocity about 3.5 km/sec.

I. LEHMANN: P and S at distances smaller than 25°. — *Transact. Amer. Geophys. Union*, vol. 34, pp. 477-483. — Washington, D. C., 1953.

A study was made of three European earthquakes as recorded at distances up to about 25°. One of them was about 275 km deep. It was well recorded at distances around 20°, where the P and S curves were found to bend gradually; there was, therefore, no abrupt increase of velocity at the corresponding depth. The second earthquake was shallow and the third occurred at the base of the crust. P was small up to about 14° and S was late. This could be explained on the assumption of the existence of a low velocity layer at some depth below the Mohorovičić discontinuity in which the S velocity decreased more strongly than that of P.

I. LEHMANN: On the shadow of the Earth's core. — *Bull. Seismolog. Soc. America*, vol. 43, pp. 291-306. — Berkeley, California, 1953.

An investigation is made of the behaviour of the first phase P at distances around 105°. Beyond 105° it is usually assumed to be due to a diffracted wave, but it is shown that there is no abrupt decrease of amplitude at this distance and that the time-curve for greater distances may have a slight curvature. S is often clearly recorded at distances greater than 105°.

ASGER LUNDBAK: About possibilities and limitations in aeromagnetic surveying. — *Geof. Pura e Appl.*, vol. 27, pp. 110-115. — Milano, 1954.

A short historical review of aeromagnetic surveying is followed by a discussion of possibilities and limitations. Various problems appear, when vertical or horizontal components of the geomagnetic force are desired, as the common type of the airborne magnetometer measures a component along the direction of the total magnetic force only.

ASGER LUNDBAK: Magnetic properties of basement rocks. — *Congrès Géologique International. Comptes Rendus de la Dix-neuvième Session. Fascicule IX*, pp. 135-149. — Alger, 1954.

Modern accurate gravity observations and observations of magnetic vertical intensity in the same area allow computations of magnetic properties of basement rocks to be made. From such computations it is concluded that the mean intensity of magnetization of basement rocks in Denmark, the Netherlands and the U.S.A. is of the same order of magnitude, and further that the directions of the magnetic horizontal component of the basement rocks preferably are westerly (not northerly as to-day).

LEO LYSGAARD: The recent climatic variation in Denmark. 6 pp.

Continued investigation into the variation of temperature and precipitation in Copenhagen, based on data from recent years.

J. M. LYSHEDE: Nogle eksempler fra potentialteoriens anvendelse på grundvandsbevægelse. — *Nordisk Jordbrugsforskning 1954*, pp. 553-558.

Some typical examples showing how use of potential theory may elucidate observations of ground-water.

Nautisk-Meteorologisk Årbog/Nautical-Meteorological Annual 1953.

K. NYGAARD: Calculation by nomograms of the astronomical correction to precise levelling. — *Geodætisk Instituts Skrifter*, 3. Række, Bind XX.

The method is based on the employment of unskilled labour and meets any reasonable demand for accuracy.

SVEND SAXOV: Moderne metoder til eftersporning af værdifulde råstoffer. — *Naturens Verden*, 35. årgang, pp. 161-167. — 1951.

The application of the airborne magnetometer and the underwater gravimeter in prospecting are discussed. The use of helicopters in triangulation and transportation is described.

SVEND SAXOV: Meteoror og radar. — *Nordisk Astronomisk Tidsskrift 1953*, pp. 60-64.

Tracing meteors by means of radar.

SVEND SAXOV: Nyere geofysisk litteratur. — Meddelelser Dansk Geologisk Forening, 12, pp. 501–516. — 1953.

The textbooks in geophysical prospecting by Cagniard, Dix, Dobrin, Haalck, Heiland, Jakosky, Lelay, Nettleton, and Rothé are reviewed. The collocation by Gutenberg and the books by Coulomb, Daly, and Jeffreys dealing with the interior composition of the Earth are also discussed. The collocation by Landsberg is likewise discussed.

SVEND SAXOV: Hvor gammel er Jorden? — Naturens Verden, 38. årgang, pp. 19–28.
A survey of age determinations of the Earth.

SVEND SAXOV: Radar systemer og afstandsmålinger. — Fysisk Tidsskrift, årgang 1953, pp. 144–159.

The principles in radar systems are described. The application of radar in geodesy is discussed. The velocity of light is tabulated.

SVEND SAXOV: Nogle anvendelser af radar. — Naturens Verden, 37. årgang, pp. 71–74. — 1953.

On the applications of radar in geodesy and geophysics.

SVEND SAXOV: Seismisk registrering af rystelser fra sprængninger. — Ingeniøren, årgang 1954, pp. 612–614.

Seismic records by means of a Wiechert vertical seismograph are obtained from blasts in a chalk mine situated some 40 miles south of Copenhagen. It is shown that millisecond delayed blasting techniques are preferable, the delay being 45 μ sec. The explosive per hole was 10 kg and the number of holes should be 6 to 8 per series. The acceleration was found to be 0.034 g, g being the gravitational acceleration. The relation $a = 0.51 \sqrt{E}$ was obtained, E being the total explosives and a the amplitude of the seismogram.

SVEND SAXOV: Bevægelsen af den magnetiske nordpol. — Geografisk Tidsskrift, Bind 53, pp. 19–27.

The displacement of the North magnetic pole. The observed values by Ross, Amundsen, and Madill together with the computed values by Dyron and Furner, and Spencer Jones are listed.

SVEND SAXOV and KURT NYGAARD: Residual anomalies and depth estimation. — Geophysics, vol. 18, pp. 913–928. — Menasha, Wisconsin. 1953.

The residual gravity anomaly at a point is defined as the difference between the average anomalies along two concentric circles whose center is at the point, divided by the difference between the two radii:

$$R(g) = - \frac{\bar{g}(r_1) - \bar{g}(r_2)}{r_1 - r_2}$$

It is shown that the residual anomalies previously determined by the average circle or the average polygon method (Griffin, 1949) are included in the present definition. The second vertical derivative of g and, to some extent, the fourth vertical derivative of g (Peters, 1949) are also included.

The relation between the residual anomalies and the depth of the subterranean masses is examined. It has been pointed out that the gravitational effect originating from a body with mass m is clearly apparent when the center of mass of the body has the depth $z = 2r = r_1 + r_2$. The influence from masses at a greater or lesser depth is almost eliminated. By avoiding the use of the center point in the figuring of the residual anomalies the influence of random errors is minimized. (Authors' Abstract).

A. SCHNEIDER AVEC LA COLLABORATION DE EINAR ANDERSEN: Mesures des bases 1932–34. — Geodætisk Instituts Skrifter, 3. Række, Bind XVII.

The paper gives the result of the measurements of the Danish base-lines which are used in the Danish triangulation.

JENS SMED: Monthly anomalies of the surface temperature in areas of the northern North Atlantic in 1953. — Ann. Biol., vol. X, pp. 15–16.

Positive anomalies are still highly predominant in the region, and in the majority of the areas they are higher than the year before.

JENS SMED: On the homogeneity of the water column in the southern North Sea. — *Ann. Biol.*, vol. X, pp. 75–80.

From analysis of data for 1902–48 is found a measure of the homogeneity of the water column in the southern half of the North Sea. From November to April these waters appear to be homogeneous to about 1° C. (or less) over most of the area, and from September to April they are largely homogeneous to 0.10‰. The distribution of the exceptions are shown in a series of 24 charts.

JENS SMED: Synoptic Hydrographic Charts, September 1953 — August 1954.

Monthly charts showing surface water temperature and salinity, wind and current for the North Sea and adjacent waters. For details see the 1953 list.

JENS SMED: Drivende is-øer i Polhavet. — *Naturens Verden*, 38. årgang, pp. 115–125.

On the arctic ice islands.

HELGE THOMSEN: Instructions pratiques sur la technique de détermination de la salinité de l'eau de mer par la méthode de titrage de Mohr-Knudsen. — *Bulletin de l'Institut Océanographique*, no. 1047. 20 pp. — Monaco, 1954.

HELGE THOMSEN and M. V. L. LORCK: The state of the ice in the arctic seas 1951. — Appendix to the *Nautical-Meteorological Annual 1951*.