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Abstracted in this issue:

Title	Issue		Date
Russian Periodicals			
"Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk" (News of the Academy of Sciences of the USSR, Department of Technical Sciences) Cards 22-25, 55-61, 67		No 12	Dec 1947
"Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya" (News of the Academy of Sciences of the USSR, Physics Series) Cards 15, 72, 73, 75-89	Vol XI	No 6	Nov/Dec 1947
"Izvestiya Akademii Nauk SSSR, Seriya Geograficheskaya i Geofizicheskaya" (News of the Academy of Sciences of the USSR, Geography and Geophysics Series) Cards 37, 49-51, 64-66	Vol XI	No 6	Nov/Dec 1947
"Morskoy Flot" (Maritime Fleet)* Cards 17-21, 95		No 12	Dec 1947
"Razvedka Nedr" (Geological Exploration)* Cards 16, 38-48, 74		No 6	Nov/Dec 1947
"Stal'" (Steel) Cards 26-32, 62, 63		No 12	Dec 1947
"Torfyanaya Promyshlennost'" (Peat Industry)* Cards 33-36		No 1	Jan 1948
"Vestnik Akademii Nauk SSSR" (Herald of the Academy of Sciences of the USSR) Cards 1-14, 52-54		No 8	Aug 1947
"Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki" (Journal of Experimental and Theoretical Physics) Cards 68-71, 90-94	Vol XVII	No 2	Feb 1947

NOTE

In indexing these abstracts the following guides are used: MEDICINE - "Quarterly Cumulative Index Medicus," American Medical Association; CHEMISTRY - "Chemical Abstracts Subject Index," American Chemical Society; GENERAL - "Subject Headings for Technical Libraries," US Department of Commerce, Office of Technical Services.

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USSR/Acad Sci Aug 1947

"Leningrad Lectures of the Academy of Sciences in the Period 1946 - 1947," M. M. Radovskiy, 1 p

"Vest Akad Nauk SSSR" No 8

In Apr 1946 resolution passed by the Presidium of the Academy of Sciences, USSR, that system of public lectures be given in which speakers would lecture on their specialties. In Oct 1946, S. I. Vavilov lectured to audience of 400 on Newton's laws. Several other authors also gave lectures.

FDB 57T1

USSR/Acad Sci Aug 1947
Crystals
Magnets

"June Session of Department of Physicomathematical Sciences" 1 p

"Vest Akad Nauk SSSR" No 8

Session convened 9 Jun, and first article read was by V. K. Arkad'yev, Corresponding Member of the Academy of Sciences, on resonance in molecular magnets. Among other articles read were those by A. V. Shubinkov, Corresponding Member of the Academy of Sciences, and Director of the Institute of Crystallography; N. V. Belov; G. G. Lemmleyn; etc. More research and study was suggested on the physics of crystals.

FDB 57T2

USSR/Acad Sci Aug 1947
Geol
Geog

"Meeting of Department of Geologo-Geographical Sciences" 3½ pp

"Vest Akad Nauk SSSR" No 8

Meeting began with reading of D. S. Belyankin's article on question of the present state and future prospects of the study of magmas and magnetic rocks. Other articles submitted by A. A. Polkanov, B. M. Kuplet-skiy, S. F. Fedorov, S. I. Mironov, etc. Article by L. S. Berg on the probable movement of continents was not read since it was not considered sufficiently important.

FDB 57T3

USSR/Acad Sci Aug 1947

"In the Presidium" 2½ pp

"Vest Akad Nauk SSSR" No 8

Discusses suggestions made for greater distribution of responsibility between members of the Presidium, plan for operations of the Presidium for second half of 1947, and touches on work of branches and bases of the Academy of Sciences, USSR. Academician Volgin submitted article describing operation of six branches and seven scientific research bases, 88 laboratories, seven botanical gardens, and series of stations. Total of 2,555 people operate branches and bases of the Academy of Sciences. Proposition

FDB 57T4

USSR/Acad Sci
Gravimetry
Seismol

"Fourth All-Union Conference on Gravimetry," Yu. D. Bulanzhe, 3 pp

"Vest Akad Nauk SSSR" No 8

Five-day conference called by Seismological Institute of Academy of Sciences, USSR, and Central Scientific Research Institute on Geodesy, Aerophotography, and Cartography of Main Administration of Geodesy and Cartography of the Council of Ministers USSR. Thirty-four theses submitted for judgment, covering all fields of gravimetry, methods of determining gravita-

FDB 57T5

USSR/Acad Sci (Contd) Aug 1947

was made to publish journal in 1948 honoring the 15th anniversary of branches and bases.

FDB 57T4

USSR/Acad Sci (Contd) Aug 1947

tional forces, etc. A. A. Izotov submitted paper on use of gravimetric material to calculate the shape of the earth, and methods of triangulation.

FDB 57T5

USSR/Acad Sci Aug 1947
Med - Biol

"June Meeting of Department of Biological Sciences" 3 pp

"Vest Akad Nauk SSSR" No 8

Academician L. A. Orbeli, Secretary of the Department, presided over the 9-13 Jun meeting of the Department of Biological Sciences. Articles submitted by T. D. Lysenko, A. A. Avakyan, Yu. A. Orlov, L. S. Shtern, A. N. Belozerskiy, A. A. Imshenetskiy, etc. Prof V. Ye. Ruzhantsev submitted article on principles of phylogeny and systematics in paleontology, showing how distribution of ammonia in the earth's

FDB 57T6

USSR/Acad Sci Aug 1947
Engin
Metals

"June Meeting of Department of Technical Sciences" 1½ pp

"Vest Akad Nauk SSSR" No 8

Academician B. A. Vvedenskiy presided over the Jun meeting of the Department of Technical Sciences. First article submitted for reading was by A. A. Bochvar on dependence of fire resistance of aluminum alloys upon their structure and composition. Other articles submitted by M. P. Kostenko, and S. V. Serensen, Ukrainian Academy of Sciences.

FDB 57T7

USSR/Acad Sci (Contd) Aug 1947

crust can be used to determine stratification of the Upper Paleozoic.

FDB 57T6

USSR/Acad Sci Aug 1947
Engin

"First Council for Coordination of Work of Scientific Research Energetics Foundations," G. M. Krzhizhanovskiy, Academician, 7½ pp

"Vest Akad Nauk SSSR" No 8

During period, 19-24 May 1947, first meeting of energetics foundations of the Academy of Sciences of the various Republics and affiliates of the Academy of Sciences of the USSR was held at the Energetics Institute. Main problem was to obtain more coordination of scientific work in energetics. Meeting revealed much room for improvement of cooperation. It also

FDB 57T8

USSR/Acad Sci Aug 1947
Chem - Acad Sci
Radium

"June Session of Department of Chemical Sciences" 1½ pp

"Vest Akad Nauk SSSR" No 8

Session called in honor of 25th anniversary of the Radium Institute of the Academy of Sciences. I. Ye. Starik, Acting Director of the Radium Institute, read a paper on the work of the Institute. Twenty-eight workers awarded prizes and medals: Academician V. G. Khlopin, Director of the Institute; Academician P. I. Lukirskiy; B. A. Nikitin, I. Ye. Starik,

FDB 57T9

USSR/Acad Sci (Contd) Aug 1947

introduced facilities of various institutions to one another.

FDB 57T8

USSR/Acad Sci (Contd) Aug 1947

and A. A. Grinberg, Corresponding Members of the Academy of Sciences; M. G. Meshcheryakov, M. A. Pasvik-Khlopina, and A. Kh. Ratner, Candidates in Chemical Sciences, etc. Several scientists, among them A. N. Nesmeyanov and A. F. Kapustinskiy, submitted articles and papers for judgment.

FDB 57T9

USSR/Acad Sci Aug 1947
Geol
Chem - Acad Sci

"Scientific Session of the Academy of Sciences of the Estonian SSR," L. Bakh, 2½ pp

"Vest Akad Nauk SSSR" No 8

During the period, 23-29 Apr 1947, the youngest of the Academies of Sciences, the Estonian Academy of Sciences, held meetings at Tallin and at Tartu. Briefly describes proceedings of the meetings. Majority of members of the Estonian Academy of Sciences are on the faculty of the University of Tartu (formerly known as Yur'yev or Derpt). Central library of the Estonian

FDB 57T10

USSR/Acad Sci Aug 1947

"Society for Coordination of Scientific Work of the Academies of Sciences of the Union Republics," G. D. Kurochkin, Sci Secy of the Society, 10 pp

"Vest Akad Nauk SSSR" No 8

Short account of work accomplished in various Union Republic Academies of Sciences during 1946. Following Academies submitted reports: Azerbaydzhan SSR, Armenian SSR, Belorussian SSR, Gruziya SSR, Kazakh SSR, Latvian SSR, Lithuanian SSR, Ukrainian SSR, Uzbek SSR, and Estonian SSR. Gives dates (years) when various republics' Academies were officially recognized.

FDB 57T11

USSR/Acad Sci (Contd) Aug 1947

Academy of Sciences is located in three-storied underground vault under former castle near Vyshgorod Gates. Main building of the Estonian Academy of Sciences is located in the center of Tallin, and houses the Institutes for Geology, Chemistry, Industrial Problems, Construction, and Agriculture.

FDB 57T10

USSR/Acad Sci Aug 1947

"Telegrams From Foreign Scientists" 2 pp

"Vest Akad Nauk SSSR" No 8

Venkama Raman (Bangalore), Frederic and Irene Joliot-Curie (Paris), Al'bert Sent-D'yerdi (Budapest), Zdenek Neyedly (Prague), Todor Pavlov (Sofia), Konstantin Parkhon (Bucharest), and Kazimir Natsh (Krakow), have sent telegrams to the Academy of Sciences, USSR, its president, S. I. Vavilov, or its secretary, N. G. Bruyevich, expressing thanks at having been elected to membership in the Academy of Sciences, USSR.

FDB 57T13

USSR/Acad Sci Nov/Dec 1947

"Regular Session of Department of Physicomathematical Sciences of the Academy of Sciences, USSR" ½ p

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Papers submitted at the May session by: M. F. Subbotin, G. A. Shayn, I. V. Obreimov, A. R. Prikhod'ko, I. V. Rodinikova, A. S. Zavel'skiy, S. Kh. Matushevskiy, M. N. Reyfman, Yu. M. Sukharevskiy, and V. S. Nesterov. Papers submitted at the Jun session by: A. N. Kolmogorov, V. K. Arkad'yev, and A. V. Shubnikov.

FDB 57T15

USSR/Engin Dec 1947
Ships - Repair
Tank Ships

"Modernizing the Tanker 'Beriya'," B. Felinzat, Engr-Mach, 6½ pp

"Morskoy Flot" No 12

Cargo capacity is expected to be increased 2.2 times during present Five-Year Plan. Accordingly, the tanker "Beriya" underwent modernization recently: engines replaced, electric tachometer installed, resistance pumps replaced, etc.

LC 57T17

USSR/Acad Sci Aug 1947

"Congratulations to the All-Union Society on Its Propagation of Political and Technical Sciences From the Academy of Sciences, USSR" 2 pp

"Vest Akad Nauk SSSR" No 8

Political speech praises the great work by the All-Union Society in its struggle to educate the Soviet public. It mentions existence of 16 Academies of Sciences, divided into 272 scientific research institutions. Ten of these Republics have representative Academies of Sciences, and five have affiliates or bases of the Academy of Sciences.

FDB 57T12

USSR/Acad Sci Aug 1947
Conductors, Semi

"June Session of the General Assembly of the Academy of Sciences" 9 pp

"Vest Akad Nauk SSSR" No 8

Session took place, 10-13 Jun, in the Moscow House of Science. Briefly records proceedings of the assembly. Papers read by: A. F. Ioffe, on semiconductors and alloys; G. V. Gershuni, on subsensory reactions; and S. S. Nametkin; I. P. Bardin; V. P. Volgin; etc.

FDB 57T14

USSR/Electricity Nov/Dec 1947
Ohm Meters
Water - Research

"Ohm Meter With Regulated Coefficient," O. K. Vladimirov, M. Ye. Novozhilova, 1½ pp

"Razvedka Nedr" No 6

Standard resistance meters produced by Russian industry are not suited for studying fresh waters of high specific resistance. To make possible the use of the present apparatus for measurements in all cases, it is necessary to design a resistance meter with a coefficient that can be varied within the limits of 0.005 to 0.5 in measuring specific resistance in ohm meters. Describes such device.

LC 57T16

USSR/Engin Dec 1947
Valves
Metals, Heat-Resisting

"Materials for Manufacture of Distributing Valves," A. Yeremin, Sr Sci Collaborator, TsNIIMF, 2 pp

"Morskoy Flot" No 12

Most valves in Diesel engines must operate at very high temperatures and are being produced from new materials having high degree of heat resistance. Describes composition of four new materials. Editors request machinists and engineers of ships using new materials to send in reports on their efficiency.

LC 57T18

USSR/Engin Dec 1947
Harbor Protection Systems
Winterization

"Careful Completion of Preparation for Winter Operations" 3 pp

"Morskoy Flot" No 12

Urges all echelons in the shipping trade to make careful preparations for winter. Cites some exemplary ports, such as Leningrad, that begin preparations for winter as early as Jul, and the Taganrog works, starting as early as Jun. Others are very backward. Kherson wharfs was only about 10% completed for winter operations by Nov, and Krasnaya Kuznitsa, only 70% completed in Nov.

LC 57T19

USSR/Engin Dec 1947
Construction, Marine
Erosion

"Reinforcing the Coast at Sochi," V. Gamazhenko, Engr, 5 pp

"Morskoy Flot" No 12

Final installment of series of articles on methods used and types of reinforcements built to prevent the sea from eroding Sochi coastline further. Cross-sectional views of the sea wall, and plan showing position of retaining wall.

LC 57T20

USSR/Engin Dec 1947
Water Heaters
Engines, Marine

"Methods of Measuring Crust Inside Water-Heating Pipes of Boilers," M. Larichev, Engr, 1 p

"Morskoy Flot" No 12

Describes system to measure encrustation formed on inside surfaces of water-heating pipes. This is very important as crust of more than 0.5 mm will greatly reduce operating efficiency of boiler equipment. Editors request reports from operating personnel to be able to draw up standard for critical thicknesses of crusts for various-type boilers.

LC 57T21

USSR/Engin Dec 1947
Metallurgy
Furnaces, Electric-Arc

"Quantitative Determination of Status of Oxidized Slag in Electric-Arc Furnaces," A. M. Samarin, A. Yu. Polyakov, L. A. Shvartsman, Corr Members, Acad Sci USSR; Metal Inst imeni A. A. Baykov, Acad Sci USSR, 9 pp

"Izv Akad Nauk SSSR, Otdel Tekh Nauk" No 12

One of the more difficult contemporary tasks is to discover some method to determine amount of iron ore used during smelting in Martin furnaces, or the oxidizing period necessary in simple electric-arc

FDB 57T22

USSR/Engin Dec 1947
Ships - Roll and Pitch
Ships - Stabilization

"Theory of Rolling and the Stability of a Ship in Heavy Seas," G. Ye. Pavlenko, 16 pp

"Izv Akad Nauk SSSR, Otdel Tekh Nauk" No 12

Summary of results of experiments and tests conducted over period of years to determine effect of rolling on stability of ship. Discusses roll on quiet sea with absence of resistance, roll on quiet sea when resistance is present, roll during heavy seas, the hyperbole of safety, and methods to calculate the disturbing force. Submitted by Academician V. L. Pozdyunin, 9 Apr 1946.

FDB 57T23

USSR/Engin (Contd) Dec 1947

furnace. Authors present results of their quantitative determination of necessary oxidation ability of slag, with aid of method they consider to be the most exact yet suggested. Submitted, 15 Jul 1947.

FDB 57T22

USSR/Engin Dec 1947
Boilers
Combustion Chambers

"Thermal Calculations of Boiler Combustion Chambers," S. P. Syromyatnikov, Academician, 12½ pp

"Izv Akad Nauk SSSR, Otdel Tekh Nauk" No 12

Correct choice of dimensions of the combustion chamber of boiler installation is very important point when building the unit. One of the most complex tasks is the thermal calculation of the work of the gas flow of the combustion chamber. At present, there is no accurate method for calculating the thermal system in this chamber. Author presents results of 30 years of

FDB 57T24

USSR/Engin Dec 1947
Compressors
Heat - Transference

"Phenomenon of Heat Transfer Between Walls of Cylinders and Air During Operation of Piston Compressors," A. P. German, Academician, 10 pp

"Izv Akad Nauk, Otdel Tekh Nauk" No 12

Author presents various mathematical formulas for calculating heat transfer between walls of cylinder and the free air during operation of piston-type compressor. Also presents large bibliography of German works on this subject and makes frequent reference to work done by German scientists in this field. Submitted, 4 May 1947.

FDB 57T25

USSR/Engin (Contd) Dec 1947

work, and claims discovery of reliable system for making this calculation. States that with slight modifications it can be applied to industrial boilers of any make. Submitted, 5 Jun 1947.

FDB 57T24

USSR/Engin Dec 1947
Rolling Mills
Coal

"Powder Coal Heating of Rolling Furnaces," K. M. Pakhaluyev, Engr, Eastern Inst Utilization of Fuel, 5½ pp

"Stal'" No 12

Experiments over long period to determine relative advantages of using combined gas-coal powder fuel or plain coal powder fuel to heat rolling furnaces showed that coal powder was far more efficient. Use of this type of fuel permits increase of technical and economical factors during operation of these furnaces, under high temperatures necessary for melting ashes of coal used.

FDB 57T27

USSR/Engin Dec 1947
Metallurgy
Steel - Production

"Chusovsk Metallurgical Works on Eve of Thirtieth Anniversary of the Great October Revolution," A. P. Popov, S. I. Sapiro, Engineers, Chusovsk Works, 3 pp

"Stal'" No 12

Briefly discusses various parts of Chusovsk Metallurgical Works. Gives special attention to advances made since the Revolution. It is one of the largest metallurgical plants of the Ural region, and particularly important for its vanadium steel. No production figures are given, but development of this plant is

FDB 57T28

USSR/Engin (Contd) Dec 1947

given in percentage figures based on its prerevolutionary production.

FDB 57T28

USSR/Engin Dec 1947
Metallurgy
Casting

"Selection of Weight and Method of Casting Quality Steel Pig," S. Z. Yudovich, S. A. Yatsovskiy, Engineers, KMK, 6 pp

"Stal'" No 12

Experiments conducted at one of the plants of the Kuznets Combine. As result of data obtained, authors state that the weight of pig of quality steel could be increased to 6 tons or more. Also explain possibility of using siphon pouring. With the siphon method it is possible to decrease the

FDB 57T26

USSR/Engin (Contd) Dec 1947

number of flaws and air holes with no loss of quality.

FDB 57T26

USSR/Engin Dec 1947
Metallurgy
Furnaces

"New Construction for Hearth of Blast Furnace," Prof I. D. Semikin, Dnepropetrovsk Metal Inst; I. G. Polovchenko, Engr, Dneprodzerzhinsk Night Inst, 8 pp

"Stal'" No 12

Authors discuss new construction for hearths of blast furnaces. Hearth has heavy bronze base under the hearth block. Cooling plates are arranged under the hearth block. Claim that with this arrangement stability of hearth is increased, service period of hearth block and foundations is lengthened, and operating period of the furnace increases.

FDB 57T29

USSR/Engin Dec 1947
Metallurgy
Furnaces

"New Construction for Hearth of Blast Furnace" 6 pp

"Stal'" No 12

Collection of articles written in answer to article submitted by Professor Semikin and Engineer Polovchenko. A. F. Sheynberg, Candidate in Technical Sciences, of GiproMez states that the construction suggested by Semikin and Polovchenko is inefficient, as uneven heating of the hearth will cause it to crack. He in turn suggests that stability of the hearth block can be increased, if it is cast of alloys having low deformation and linear expansion coefficients. FDB 57T30

USSR/Engin Dec 1947
Metallurgy, Ferrous
Efficiency, Industrial

"Let Us Complete the New Stalin Five-Year Plan in Four Years" 2½ pp

"Stal'" No 12

Exhorts various steel industries of the Soviet Union to complete present Five-Year Plan in 4 years. It is hoped that by the end of 1947 the Collective of Chelyabinsk Metallurgical Works will have produced 10,000 tons of pig, 2,500 tons of steel, and 5,500 tons of rolled steel above its norm. Various dome-furnace plants are exceeding their norm by 30-40%. Mentions

FDB 57T31

USSR/Engin (Contd) Dec 1947

various other plants that are showing their patriotism by planning to complete the Five-Year Plan in 4 years.

FDB 57T31

USSR/Engin Dec 1947
Metallurgy
Furnaces

"Construction of Hearth of Blast Furnace," H. K. Leonidov, Engr, GiproMez, 2 pp

"Stal'" No 12

Refers to article by Professor Semikin and Engineer Polovchenko on new construction for hearth of blast furnace. Leonidov states that in spite of the new construction the effect of molten pig on upper surface of the hearth is not varied. He also adds that any type of damage to the cooling system will greatly speed up disintegration of the hearth, and cause great damage to foundations of the furnace.

FDB 57T32

USSR/Engin Jan 1948
Peat Industry

"Determination of Degree of Decomposition of Peat for Technical Purposes," Z. P. Kandulinskaya, 2 pp

"Torf Prom" No 1

Peat industry is in extreme need of rapid and objective method to determine degree of decomposition of peat. Discusses disadvantages of presently used microscopic method. Lists advantages of some other less used methods, and briefly discusses difficulties to be overcome in any method to meet requirements of the industry.

LC 57T33

USSR/Engin Jan 1948
Peat Industry
Pipe

"Hydraulic Knock in Mass Conductors of Hydropeat," Dr M. D. Bezzubov, Moscow Peat Inst, 1 p

"Torf Prom" No 1

Mathematical discussion of hydraulic knock in hydropeat mass conductor pipe.

LC 57T34

USSR/Engin Jan 1948
Mach - Construction
Peat Industry

"Problems of Peat Machine Construction," I. Zhulin, Chief, GlavTorfMasha, 2 pp

"Torf Prom" No 1

According to the Stalin Fourth Five-Year Plan, extraction of peat must be increased primarily by mechanization of the most laborious processes, such as extraction and removal of lump and cut peat, loading of peat, digging trenches, laying drains, etc. Discusses difficulties with constructing machines used for these purposes.

LC 57T35

USSR/Geog Jan 1948
Peat Resources

"Peat Beds of Gruziya," A. N. Ter'yan, 2 pp

"Torf Prom" No 1

Peat bogs of Gruziya may be divided into two groups: lowland and mountain plateau areas. First is of chief importance, while the other is only of secondary importance. Briefly describes Kobuletskoye, Potiyskoye, Redut-Kale, Sukhumskoye, and Kolkhidskoye beds.

LC 57T36

USSR/Geog Nov/Dec 1947
Deserts

"Farthest Intrusion of Dry Wastes," E. M. Murzayev, Inst Geog, Acad Sci USSR, 6 pp

"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 6

Describes extreme northern intrusions of the dead wastes. Discusses characteristics of their climatic and biogeographic conditions. Also discusses some reasons for formation of such desert wastes in higher latitudes of Asia. Submitted by Academician A. A. Grigor'yev, 10 Oct 1946.

FDB 57T37

USSR/Geol Hydrol — Nov/Dec 1947

"Modulus of Underground Flow of Little Kara-Tau Range," A. A. Konoplyantsev, 3½ pp

"Razvedka Nedr" No 6

Considerable amount of water needed for production and future use in the Kara-Tau Phosphorite Combine, located in an area of very light rainfall. Author presents hydrogeological study of Little Kara-Tau Mountain Range where Combine is located.

LC 57T38

USSR/Geol Mining Equipment — Nov/Dec 1947

"Rationalization and Invention in the Ural Geological Administration," S. I. Mekhonoshin, 7 pp

"Razvedka Nedr" No 6

Extensive account of work done in rationalization of equipment used in production processes by the Ural Geological Administration. Discusses extraction and use of natural combustible gases dissolved in underground waters, device for cutting pipes on lathe screw-cutting machines, etc.

LC 57T39

USSR/Geol Prospecting Petroleum — Nov/Dec 1947

"Aspects of Prospecting for Gas and Oil Deposits Between the Ural and Volga Rivers," N. A. Shvemberger, S. K. Karymsakov, 3 pp

"Razvedka Nedr" No 6

Lowland area along the Caspian Sea between the Ural and Volga Rivers, characterized by many hydrocarbon gas discharges, differs considerably in its geological structure from neighboring Emba oil fields. Due to recent prospecting, area is looked upon as new oil- and gas-bearing region almost untouched by geological study.

LC 57T40

USSR/Geol Prospecting Coal — Nov/Dec 1947

"Problem of the Coal Capacity of the Dnepr-Donets Depression," S. K. Komotskiy, 8½ pp

"Razvedka Nedr" No 6

Reports prospecting work in the Dnepr-Donets depression since 1940 to give more precise idea of coal content of area and nature of deposits. No definite knowledge on this was formerly available. Presents diagrams of geological cross section of area.

LC 57T41

USSR/Geol Prospecting Maps — Nov/Dec 1947

"Scale of Angles of Slope for Structural Maps," K. S. Maslov, 2 pp

"Razvedka Nedr" No 6

Structural maps usually do not have any scale for measuring angles of slope. Consequently, changes in magnitudes of slope of structural surface cannot be determined in the process of reading such maps without making additional calculations. Author develops principle, and presents scale for measuring angles of slope.

LC 57T42

USSR/Geol Prospecting Quartz — Nov/Dec 1947

"Chokadam-Bulak Quartz Bed," L. P. Konnov, 4 pp

"Razvedka Nedr" No 6

Chokadam-Bulak bed is situated in Takzhik SSR, 45 km from Leninabad. Deposit was first evaluated and suggested for prospecting in 1944 by Konnov. Considered strong industrial source of quartz raw material. Konnov discusses geological structure and composition of the deposit.

LC 57T43

USSR/Geol Prospecting Coal — Nov/Dec 1947

"Technological Process of Drilling," Ye. F. Epshteyn, 3½ pp

"Razvedka Nedr" No 6

Describes new method of prospect drilling developed by the Donbass Coal Prospecting Unit in 1941, and recommends it for use in geological prospecting parties. It is supposed to increase productivity by 10-20%.

LC 57T44

USSR/Geol Prospecting Mines — Nov/Dec 1947

"Rationalization of Technology of Cutting Mines in Geological Prospecting Parties of 'UralCherMetRazvedka' Trust," V. V. Sukhoruchkin, 5 pp

"Razvedka Nedr" No 6

Describes method of cutting prospecting pits, drifts, and crosscuts developed by author.

LC 57T45

USSR/Geol Prospecting Petroleum — Nov/Dec 1947

"Experience in Organization of Micropetrographic Research in Field Parties in Siberia," L. O. Stankevich, G. I. Gendrikhovskaya, 3 pp

"Razvedka Nedr" No 6

Discusses technical problems met in making microscopic studies of rocks during geological expeditions.

LC 57T46

USSR/Geol Prospecting Mercury — Nov/Dec 1947

"New Type of Mercuric Mineralization in the Urals," A. V. Merkur'yev, 6 pp

"Razvedka Nedr" No 6

Presents geological data on new epithermal fundamental deposits of cinnabar discovered in Isovsk region of Sverdlovsk Oblast in prospecting work of the Ural Geological Administration under direction of author.

LC 57T47

USSR/Geol Prospecting Lead — Nov/Dec 1947

"Combination Profiling in Application to Lead Veins," A. S. Semenov, 5 pp

"Razvedka Nedr" No 6

Curves for profiling with symmetrical setup can be obtained automatically from curves of combination profiling. Former are constructed according to average values of the ordinate of curves of combination profiling. It is easily seen that the magnitude of the anomaly for such curves will be considerably less than for curves of combination or asymmetrical profiling.

LC 57T48

USSR/Geophys Atmosphere — Nov/Dec 1947

"Observations on the Dawn as Method of Sounding Lower Layers of the Atmosphere," N. I. Kucherov, 24 pp

"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 6

Author discusses the astro-geometrical theory of dawns and classifies various-type dawns. Describes phenomenon known as "dawn streak." Shows that the phenomenon of dawn is dependent on basic synoptic conditions of the atmosphere. Observations of the dawn can be used as method to sound lower parts of

FDB 57T49

USSR/Geophys Soil Sci — Nov/Dec 1947

"Process of Freezing of Soil," L. I. Rubinshteyn, 6¼ pp

"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 6

Author discusses the freezing of soil having moisture content, in particular, this freezing under conditions when moisture of the soil is at various freezing temperatures, in event of unlimited space that is under extreme conditions as set up by Stefan. States that question of change of temperature with relation to the change of aggregate composition of the soil was

FDB 57T50

USSR/Geophys (Contd) — Nov/Dec 1947

the atmosphere, and therefore are of interest from the synoptic standpoint. Two color plates show various types of dawns. Submitted by Academician L. S. Leybenzon, 25 Aug 1945.

FDB 57T49

USSR/Geophys (Contd) — Nov/Dec 1947

taken up in another article, "Question of the Processes of Distribution of Heat in Heterogeneous Materials." Submitted by L. S. Leybenzon, 12 Jul 1946.

FDB 57T50

USSR/Gravimetry Gravimetric Analysis — Nov/Dec 1947

"Fourth All-Union Conference on Gravimetry," Yu. D. Bulanzhe, 2 pp

"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 6

In late Apr 1947, Fourth All-Union Conference on Gravimetry took place in Moscow. Reports minutes of the meeting, and discusses some of the developments during the six-year span between the Third and the Fourth Conference. At the Fourth Conference A. A. Izotov read paper on use of gravimetric data for study of the shape of the earth, and in triangula-

FDB 57T51

USSR/Hydrol Aug 1947
Potamol

"Utilization of Water Reservoirs of Small Basins" 2¼ pp

"Vest Akad Nauk SSSR" No 8

This series of articles and theses was submitted at council of Section on Scientific Solving of Problems on Hydroeconomy. Discussions covered four distinct fields: 1) studies, investigations, surveys, and future plans, 2) hydroenergy, 3) water transport and transportation of lumber by river current, 4) water supplies, control of erosion and fish breeding. Several scientists submitted articles in the four fields.

FDB 57T52

USSR/Gravimetry (Contd) Nov/Dec 1947

tion. This report was submitted for publication, 15 Jul 1947.

FDB 57T51

USSR/Med - Paleontol Aug 1947
Med - Growth

"Scientific Competitions" 1 p

"Vest Akad Nauk SSSR" No 8

Department of Biological Sciences, Academy of Sciences, USSR, announces that papers will be accepted for judgment for the prize imeni Academician A. A. Borisyak for work in evolutionary paleontology. Prize is 10,000 rubles, and applications must be received before 1 Nov 1947. Also announces that papers will be accepted for judgment for the prize imeni K. A. Timiryazev in the field of physiology of growth. Prize is 15,000 rubles, and applications must be received before 1 Jan 1948.

FDB 57T53

USSR/Med - Fruits Aug 1947
Med - Growth

"Control of Growth and Ripening of Fruit With the Aid of Regulating Substances," N. A. Maksimov, Academician, 11 pp

"Vest Akad Nauk SSSR" No 8

Until recently, the process of ripening of fruits was not analyzed from the physiological standpoint. Institute of Physiology of Growth imeni K. A. Timiryazev, Academy of Sciences, USSR, has done much work on effect of chemical substances on process of ripening. Author discusses effects of several growth substances, such as $C_{10}H_9O_2N$, on progress of growth of the plant and ripening of the fruit of the plant.

FDB 57T54

USSR/Metals Dec 1947
Viscosity
Math, Applied

"Interpretation of the Viscosity Coefficient of Metals," I. A. Oding, Corr Mem, Acad Sci USSR, Inst Mach Studies, Acad Sci USSR, 6½ pp

"Izv Akad Nauk, Otdel Tekh Nauk" No 12

Oding takes A. Nadai's equation:

$$d\sigma = \frac{\partial\sigma}{\partial t}dt + \frac{\partial\sigma}{\partial\varepsilon_p}d\varepsilon_p + \frac{\partial\sigma}{\partial v}dv$$

and interprets every part of it. Submitted, 5 Jun 1947.

FDB 57T55

USSR/Metals Dec 1947
Crystallization
Steels

"Nonhomogeneity of Steel Pig and Its Crystallization," V. A. Davidenko, Metal Inst imeni A. A. Baykov, Acad Sci USSR, 21 pp

"Izv Akad Nauk SSSR, Otdel Tekh Nauk" No 12

Author begins with general description of development of the problem of the nonhomogeneity of steel pig. Then describes tests he conducted to determine crystallization in various types of steel. Also evaluates results obtained. One of the most important observations was the fact that he established

FDB 57T56

USSR/Metals Dec 1947
Carburization
Kinetics

"Question of Kinetics of Cementation of Cobalt and Nickel From Water Solutions of Metallic Zinc," G. S. Frents, B. P. Kreyngauz, Metal Inst imeni A. A. Baykov, Acad Sci USSR, 7¼ pp

"Izv Akad Nauk SSSR, Otdel Tekh Nauk" No 12

Object of study was to determine conditions for cementation of cobalt and nickel from sulfuric acid solutions of metallic zinc. Among results obtained was the fact that cementation of nickel and cobalt from water solutions of their salts by means of

FDB 57T57

USSR/Metals (Contd) Dec 1947

regularity and common factor permitting use of same method to determine development of crystallization in steel, and other types of metals. Submitted by Academician I. P. Bardin, 15 Jul 1947.

FDB 57T56

USSR/Metals (Contd) Dec 1947

metallic zinc was possible when concentrations of hydrogen ions was pH-3.5 to 4.0. Authors also were able to determine that with similar amounts of metal, cementation of cobalt was twice as active as cementation of nickel. Submitted by Academician I. P. Bardin, 15 Jul 1947.

FDB 57T57

USSR/Metals Dec 1947
Precipitation
Kinetics

"Cementation of Metals From Their Chloride Solutions," D. M. Chizhikov, B. Ya. Tratsevitskaya, Corr Members, Acad Sci USSR, Metal Inst imeni A. A. Baykov, Acad Sci USSR, 8½ pp

"Izv Akad Nauk SSSR, Otdel Tekh Nauk" No 12

Authors conducted experiments to study kinetics of the cementation of metals from their chloride compounds. Metals used were Zn, Fe, Sn, Pb, H, and Cu. Among results obtained was the fact that iron does not displace zinc at concentrations of Fe^{++}2 grams per liter or less. Submitted, 15 Jul 1947.

FDB 57T59

USSR/Metals Dec 1947
Diffusion
Math, Applied

"Diffusion in Molten Metals," A. M. Samarin, L. A. Shvartsman, Corr Members, Acad Sci USSR, Metal Inst imeni A. A. Baykov, Acad Sci USSR, 2½ pp

"Izv Akad Nauk SSSR, Otdel Tekh Nauk" No 12

Authors wish to point out that equations suggested by Stokes and Einshtein give correct approximations for diffusion of metals, for low and high temperatures. Mention, however, that all experiments on observation of diffusion in molten metals are very limited. Submitted, 15 Jul 1947.

FDB 57T60

USSR/Metals Dec 1947
Steel Alloys
Hardening

"Hardening and Softening of Binary Steel Alloys," M. M. Shteynberg, Candidate Tech Sci, Ural Industrial Inst, 4 pp

"Stal'" No 12

Study of the properties of iron alloys, hardening during cold plastic deformation, and softening during heating makes it possible to determine effect of elements alloyed in the iron on the properties of steel for construction purposes. In particular, it is possible to determine density and heat resistance. This research and study is very important step in the study of steel alloys. FDB 57T62

USSR/Metals Dec 1947
Flow Pressure
Drawing

"Theory of Specific Flow Pressure of Metal During Drawing," S. I. Gubkin, Metal Inst imeni A. A. Baykov, Acad Sci USSR, 18½ pp

"Izv Akad Nauk SSSR, Otdel Tekh Nauk" No 12

Article was submitted at session of Section for Processing of Metals by Pressure, Metallurgical Institute imeni A. A. Baykov, and discusses various formulas used to determine the specific flow pressure of metal during the process of drawing. Discusses the UDT (specific flow pressure) and defor-

FDB 57T58

USSR/Metals (Contd) Dec 1947

mation during drawing, the UDT of metal during drawing, determining basic resistance, and the coefficient of outer friction. Submitted by Academician I. P. Bardin, 15 Jul 1947.

FDB 57T58

USSR/Metals Dec 1947
Steel, High-Speed
Steel, Tungsten

"Effect of Niobium on Characteristics of Low-Tungsten High-Speed Steel," L. D. Mashtakova, N. T. Gudtsov, Academician, Metal Inst imeni A. A. Baykov, Acad Sci USSR, 8½ pp

"Izv Akad Nauk SSSR, Otdel Tekh Nauk" No 12

In 1939 there were several tests and experiments to determine effect of niobium, titanium, cobalt, or molybdenum on cutting characteristics of high-speed steel. Authors report data obtained as result of continuation of these tests, particularly on cutting

FDB 57T61

USSR/Metals (Contd) Dec 1947

action of low-tungsten content high-speed steel. Authors conducted experiments to determine effect of niobium on structure and cutting ability of steel containing 2.6-3.2% tungsten. Submitted, 15 Jul 1947.

FDB 57T61

USSR/Metals Dec 1947
Steel Alloys
Steel - Hardness

"Ya. S. Umanskiy's Book, 'Carbides of Hard Alloys'," Prof V. S. Mes'kin, Dr Tech Sci, 1 p

"Stal'" No 12

Reviews 132-page book published in 1947 by Metallurgical Publishing House. States that this book will be great contribution not only to specialists in the field of hard alloys, but also to those in the field of metal studies, metallurgy, and machine construction. Will be of particular value to those engaged in production or handle steel alloys.

FDB 57T63

USSR/Meteorol Nov/Dec 1947
Meteorol Res

"Statistical Character of the Synoptic Condition Over Central Asia During the Cold Part of the Year," T. A. Sarymsakov, V. A. Dzhordzhio, V. A. Bugayev, Inst Math and Mech, Acad Sci Uzbek SSR, 14 pp

"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 6

Authors discuss studies conducted to determine statistical method of classifying synoptic conditions over Central Asia. In addition to repetition and prolongation of separate types on which are based methods for dynamic formation of climate during cold part of the

FDB 57T65

USSR/Meteorol (Contd) Nov/Dec 1947

year, authors also show relationships between several types of conditions. Discuss system they suggest from standpoint of its value as means of forecasting. Submitted, 5 Jul 1946.

FDB 57T65

USSR/Mines and Mining Dec 1947
Shafts
Coal

"Forms of Shaft Distribution in the Moscow Coal Basin," A. P. Sudoplatov, Inst Mining, Acad Sci USSR, 17 pp

"Izv Akad Nauk, Otdel Tekh Nauk" No 12

Discusses various types of shaft distributions for mines in the Moscow coal basin. Describes various conditions that might be met and recommends the most advantageous type of mine and shaft layout. Submitted by Academician A. M. Terpigorev, 19 Aug 1947.

FDB 57T67

USSR/Meteorol Nov/Dec 1947
Climate

"Weather Conditions in Moscow," L. A. Chubukov, Inst Geog, Acad Sci USSR, 10 pp

"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 6

Describes climate of Moscow, generated by complex factors of climatology. Climate of Moscow is composed of series of repeating types of weather conditions and meteorological phenomena containing very similar characteristics. Formation of the structure of Moscow weather conditions is characterized by regularities in radiational balance, circulation of

FDB 57T64

USSR/Meteorol (Contd) Nov/Dec 1947

the atmosphere, and topography of the area surrounding Moscow. Submitted by Academician A. A. Grigor'yev, 20 Feb 1947.

FDB 57T64

USSR/Minerals Nov/Dec 1947
Geophys
Salt

"Mechanism of the Formation of Salt Domes," B. L. Shneyerson, Inst Theoretical Geophys, Acad Sci USSR, 5½ pp

"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 6

Uses method of calculating energy necessary for formation of salt domes to explain conditions necessary for these forces. Explains process systematically: States that the salt travels upward in the shape of a pillar. Calculations show, that if such

FDB 57T66

USSR/Minerals (Contd) Nov/Dec 1947

hypothesis were adopted, there is need for large tangential force that is expended primarily on the piercing of the rock lying over the salt pillar. Submitted by Academician L. S. Leybenzon, 21 Apr 1947.

FDB 57T66

USSR/Nuclear Phys - Counters, Proportional Feb 1947
Nuclear Phys - Equipment

"Flat Proportional Counter," L. Bell, V. Veksler, Phys Inst imeni P. N. Lebedev, Acad Sci USSR, 5½ pp

"Zhur Eksper i Teoret Fiz" Vol XVII, No 2

Describes flat proportional counter. Makes study of its properties and shows that it fulfills all requirements usually demanded. Shows that special attention must be paid to elimination of formation of negative ions in the working gas. Article was also published in English in "Journal of Physics" Vol X, p 386, 1946.

FDB 57T68

USSR/Nuclear Phys - Mass Spectrographs Feb 1947
Math, Applied

"Wave Field With Mass Spectrum," D. I. Blokhintsyev, Phys Inst imeni P. N. Lebedev, Acad Sci USSR, 6 pp

"Zhur Eksper i Teoret Fiz" Vol XVII, No 2

Examines linear equations with higher derivatives of unlimited high order. Establishes limits for operators of these equations. Gives case of scalar field particularly close examination. Article also appears in English in "Journal of Physics" Vol XI, p 72, 1947.

FDB 57T69

USSR/Nuclear Phys - Gamma Rays Feb 1947
Nuclear Phys - Impact, Electronic

"Angular Distribution of Electronic Pairs Produced by γ Rays of ThC," L. V. Groshev, I. M. Frank, Phys Inst imeni P. N. Lebedev, Acad Sci USSR, 2½ pp

"Zhur Eksper i Teoret Fiz" Vol XVII, No 2

Shows that dependence of distribution of angles between components of pairs formed by γ rays on the atomic number of the irradiated substance can differ, depending on method of pair registration employed. As result of this, the difference in results obtained with use of the Wilson chamber and the counters does not lead to contradiction.

FDB 57T70

USSR/Nuclear Phys - Gamma Rays Feb 1947
Nuclear Phys - Impact, Electronic

"Transition Effects of γ Rays and Their Influence on the Ionization Current in Ionization Chambers," O. N. Vavilov, I. M. Frank, Phys Inst imeni P. N. Lebedev, Acad Sci USSR, 12 pp

"Zhur Eksper i Teoret Fiz" Vol XVII, No 2

Made measurements of the transition effects of γ rays with use of flat thin-walled ionization chambers. Then enclosed chambers with layers of various substances (Pb, Fe, Al, cardboard), and total thickness of each of these substances remained the same during the entire experiment. In the measurements

FDB 57T71

USSR/Nuclear Phys - Particles Nov/Dec 1947
Nuclear Phys - Nuclei

"Magnetic Properties of Atomic Nuclei," Ya. I. Frenkel', 5 pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Discusses magnetic moments of protons and neutrons, nonadditivity of magnetic moments of complex nuclei, and analogy of complex nuclei with paramagnetic bodies.

FDB 57T72

USSR/Nuclear Phys - Gamma Rays (Contd) Feb 1947

the substances were transposed from one layer to the other so that the quantity of given substance on the layer next to the wall of the chamber would be variable. This made it possible to measure transition effects for the front and back walls of the chamber, and the equilibrium intensity of radiation in various substances with constant intensitivity of the first γ rays falling on the chamber.

FDB 57T71

USSR/Nuclear Phys - Atoms Nov/Dec 1947
Nuclear Phys - Electron Theory

"Atomic Magnetic Moments in Solid and Liquid Bodies," Ya. G. Dorfman, 8 pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Discusses problem of studying magnetic moments of the electron shell of atoms, experimental methods to determine atomic magnetic moments, and atomic magnetic moments and interatomic bond in solid and liquid bodies. Determination of atomic magnetic moments in condensed systems can serve as very precise means of studying entire series of peculiarities in interaction between atoms and ions.

FDB 57T73

USSR/Petroleum Industry Nov/Dec 1947
Oil Wells

"Influence of Chemical Corrosion on Output of Oil Wells," V. M. Gavrilko, 4 pp

"Razvedka Nedr" No 6

Electrochemical and chemical corrosion resulting from action of underground water on filter materials of oil wells is in many cases one of the basic causes of the lowering of the output of these wells. Discusses aspects of this problem.

LC 57T74

USSR/Phys Nov/Dec 1947
Ferromagnetics
Magnetic Fields

"Contemporary Problems of Magnetodynamics," V. K. Arkad'yev, 6 pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Magnetodynamics developed from study of magnetic properties of ferromagnetic substances with various frequencies of magnetic field. Plan was suggested in 1922 for development of these questions in directions indicating the study of processes of magnetization both in periodic and aperiodic fields. In the middle 1930's new fields were opened in the phenomenon of

FDB 57T75

USSR/Phys (Contd) Nov/Dec 1947

magnetization which must be related to magnetodynamics such as viscous magnetization of paramagnetics and nuclear magnetic resonance.

FDB 57T75

USSR/Phys Nov/Dec 1947
Magnetite
Magnetic Permeability

"Accommodation of the Magnetic Permeability of Magnetite," R. I. Yanus, Ya. S. Shur, V. V. Druzhinin, A. M. V'yukhina, Ural State U imeni A. M. Gor'kiy, 1½ pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

It was established experimentally that some varieties of magnetites when broken down into fine powder exhibit in very sharp form capacity for accommodation and disaccommodation of magnetic permeability. If the magnetite is subjected to magnetic reversal

FDB 57T76

USSR/Phys (Contd) Nov/Dec 1947

several times after lying for some time outside accommodating influences, the permeability increases noticeably. If it is then kept outside an accommodating influence, however, it again gradually returns to former condition.

FDB 57T76

USSR/Phys Nov/Dec 1947
Ferromagnetism
Energy - Dissipation

"Heterogeneity of Ferromagnetics as Source of Additional Losses of Energy During Magnetic Reversal," R. I. Yanus, V. V. Druzhinin, Inst Phys of Metals, Ural Br, Acad Sci USSR, 1 p

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Evaluation of the possible order of magnitude of each of the sources of additional losses considered indicates that their sum can show magnitude of this order as well as the normal difference between theoretical and experimental values.

FDB 57T77

USSR/Phys Nov/Dec 1947
Ferromagnetism
Magnetostriction

"Magnetic Properties of Ferromagnetics," Ya. S. Shur, Inst Phys of Metals, Ural Br, Acad Sci USSR, 9 pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Path of curves of magnetostriction and curves of magnetization in the field of weak magnetic poles, influence of elastic strains on path of magnetization curves, and change of electrical resistance of ferromagnetics in magnetic field, are used to discover magnetic properties of ferromagnetics and to study it in detail.

FDB 57T79

USSR/Phys Nov/Dec 1947
Lamination
Recrystallization

"Study of Texture of Laminated Iron and Recrystallization by Magnetometric Method," K. V. Grigorov, Inst Phys of Metals, Ural Br, Acad Sci USSR, 7½ pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Gives results of study of texture of laminated iron and recrystallization by magnetometric method. Importance of such study lies in the fact that detailed study of textual development permits deeper penetration into the mechanism of plastic deformation and recrystallization. Magnetometric method, proposed

FDB 57T78

USSR/Phys (Contd) Nov/Dec 1947

by N. S. Akulov, is distinguished not only by its convenience, simplicity, and possibility of quantitative characterization of texture, but in many cases it is the only method permitting detailed study of textural development.

FDB 57T78

USSR/Phys Nov/Dec 1947
Ferromagnetism
Magnetic Measurements

"Magnetic Strain Diagram and Position of the Villari Point on the Magnetization Curve," M. V. Dekhtyar, Sci Res Inst Phys, Moscow State U, 17 pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Author presents results of his research on the influence of initial distribution of elementary magnetic moments in elastic and plastic deformed ferromagnetics on its magnetic properties. Used results obtained in study of strain diagrams.

FDB 57T80

USSR/Phys Nov/Dec 1947
Ferromagnetism
Magnetism

"Electrical Properties of Ferromagnetics," S. V. Vonsovskiy, Inst Phys of Metals, Ural Br, Acad Sci USSR, 6 pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

All metals of the "transitional" groups, among them ferromagnetics, have sharply expressed "anomalies" of electrical properties in comparison with "simple" metals. Basic cause of these "anomalies" lies in specific structure of the electron energy spectrum of the "transitional" metals, resulting from unbalanced

FDB 57T82

USSR/Phys (Contd) Nov/Dec 1947

layers in the electron shell of isolated atoms of these elements. In ferromagnetics, this detail of the energy spectrum leads to the existence of spontaneous magnetization which determines concrete form of the electrical "anomalies" of these substances.

FDB 57T82

USSR/Phys Nov/Dec 1947
Magnetostriction
Cryst

"Magnetostriction of Iron Silicide," D. A. Shturkin, Inst Phys of Metals, Ural Br, Acad Sci USSR, 6 pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Studies dependence of longitudinal magnetostriction of monocrystals of iron silicide upon crystallographic orientation, temperature, and magnetizability.

FDB 57T84

USSR/Phys Nov/Dec 1947
Magnetostriction
Invar

"Temperature Dependence of the Magnetostriction of Invar Alloys," K. P. Belov, O. N. Agasyan, Sci Res Inst Phys, Moscow State U, 6 pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Invar, elinvar, kovar, and similar alloys have anomalies of their volume and elastic properties with very complex dependence upon temperature. According to present hypotheses, the nature of these anomalies is clearly connected with the ferromagnetism of these alloys, and primarily determined by

FDB 57T81

USSR/Phys (Contd) Nov/Dec 1947

character of flow of the ferromagnetostriction phenomena. This study of magnetostriction of these alloys and especially the dependence upon temperature is of interest since it makes possible determination of the nature of the anomalous properties of Invar-type alloys.

FDB 57T81

USSR/Phys Nov/Dec 1947
Magnetism Terrestrial
Magnetic Fields - Earth

"Magnetism of the Earth," Ya. I. Frenkel', 10 pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Discusses secondary phenomena (periodic and nonperiodic variations), various hypotheses on the origin of the primary magnetic pole of the earth, physical state of the earth's sphere and its nucleus, the nucleus of the earth's sphere as turbogenerator with self-excitation, and quantitative formulation of turbogenerator theory of the earth's magnetism.

FDB 57T83

USSR/Phys Nov/Dec 1947
Ferromagnetism
Invar

"Ferromagnetic Nature of Properties of Invar and Elinvar Alloys," K. P. Belov, Sci Res Inst Phys, Moscow State U, 4½ pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

On the basis of results of this study rational explanation is given of the anomaly of thermal expansion in Invar alloys and of the low temperature coefficient of the modulus of elasticity of elinvar. Using data obtained by measurement of magnetostriction and susceptibility in the paraprocess field,

FDB 57T85

USSR/Phys Nov/Dec 1947
Ferromagnetism
Crystals - Lattices

"Influence of Processes of Relaxation and Recrystallization on Magnetic Properties of Iron Silicide," Ya. S. Shur, V. I. Drozhzhina, M. G. Luzhinskaya, Inst Phys of Metals, Ural Br, Acad Sci USSR, 3 pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

In experiments conducted difference observed in magnetic properties due not only to difference in processes leading to correction of the crystallic lattice (relaxation or recrystallization), but also due to difference in magnitude of the grain. After recrystallization, material with coarser crystals is received. FDB 57T86

USSR/Phys (Contd) Nov/Dec 1947

correctness of the "ferromagnetic" explanation of the thermal expansion anomaly of Invar is shown.

FDB 57T85

USSR/Phys Nov/Dec 1947
Magnetostriction
Nickel

"Temperature Dependence of Magnetostriction of Nickel," G. P. D'yakov, Sci Res Inst Phys, Moscow State U, 8½ pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Gives report of experimental research on temperature dependence of magnetostriction of saturation and proof of Akulov's theory in entire interval of temperatures from the Curie point to the temperature of liquid nitrogen.

FDB 57T87

USSR/Phys Nov/Dec 1947
Ferromagnetism
Magnetic Fields

"Magneto-Optic Methods of Studying Ferromagnetic Alloys," M. M. Noskov, Inst Phys of Metals, Ural Br, Acad Sci USSR, 4 pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Discusses influence of magnetic field on distribution of light in substance.

FDB 57T88

USSR/Phys - Development Nov/Dec 1947

"Soviet Physics for Thirty Years," A. F. Ioffe, 10 pp

"Izv Akad Nauk SSSR, Ser Fiz" Vol XI, No 6

Contrasts condition of physics in the USSR at present with the state of physics in prerevolutionary Russia. Indicates new lines of development of the science.

FDB 57T89

USSR/Phys Feb 1947
Paramagnetism
Magnetic Susceptibility

"Measurement of Paramagnetic Susceptibility With Decimeter Waves," Ye. K. Zavoyskiy, Kazan Br, Acad Sci USSR, 7 pp

"Zhur Eksper i Teoret Fiz" Vol XVII, No 2

Measurement of active part of magnetic susceptibility of paramagnetics in frequencies not greater than $5 \cdot 10^7$ kc is accomplished by well-developed method of pulsation. For higher frequencies, a sufficiently precise and practical useful method of measurement has not been suggested. Necessity of such method is

FDB 57T90

USSR/Phys Feb 1947
Phosphorescence
Crystals - Color

"Electron Transitions and Decay of the Ultraviolet Luminescence of NaCl Crystals With Subtractive and Additive Coloration," M. N. D'yachenko, Ukrainian Cent Roentgen-Radiol and Oncological Inst, 5 pp

"Zhur Eksper i Teoret Fiz" Vol XVII, No 2

Decay of ultraviolet phosphorescence of NaCl crystals with subtractive and additive coloration obeys exponential law. In deformed crystals phosphorescence radiation consists of rapidly and slowly decaying components. In radiation by visible light, decay, in

FDB 57T91

USSR/Phys (Contd) Feb 1947

obvious, especially to study paramagnetic reactions. Study of the latter, and specifically the phenomenon of magnetospin resonance, led authors to consideration of method they describe. Article also appears in English in "Journal of Physics" Vol XI, No 2, 1947.

FDB 57T90

USSR/Phys (Contd) Feb 1947

contrast to phosphorescence, has only one component, the inclination of which is equal to that of the rapidly decaying component of phosphorescence, while its emission energy is considerably greater than that of each of the phosphorescence components.

FDB 57T91

USSR/Phys Feb 1947
Phosphorescence
Crystals - Color

"Ultraviolet Phosphorescence of NaCl Crystals Having Subtractive and Additive Coloration at Low Temperatures," M. N. D'yachenko, 10 pp

"Zhur Eksper i Teoret Fiz" Vol XVII, No 2

Studied these crystals in temperature range from -196° C to +250° C. In this range nine separate bands of ultraviolet phosphorescence were recorded possessing distinct spectral composition. In crystals with additive coloration temperature dependence of luminescence has smaller number of emission bands compared

FDB 57T93

USSR/Phys (Contd) Feb 1947

with crystals having subtractive coloration. Examines observed phenomena from standpoint of energy levels in colored crystals. Gives scheme taking account of new energy levels in X-rayed crystals of NaCl.

FDB 57T93

USSR/Ships - Equipment and Supplies Dec 1947
Navigation, Surface
Fogs

"Navigating Speed for Vessels in Fogs," Capt-Instructor (Kapitan-Nastavnik), I. Moskalenko, UChP, 3 pp

"Morskoy Flot" No 12

Contemporary shipboard equipment permits relatively safe navigation under all weather conditions. In the case of poor visibility, however, such as fog, great care must be exercised to prevent collisions. Stresses importance of slow speed during fog. Examples of good procedure, and wrong procedure which resulted in collisions.

LC 57T95

USSR/Phys Feb 1947
Electrons - Emission
Cathodes - Emission

"Electronic Emission From Complex Stibium-Caesium Cathode Under Action of Strong Electric Fields," B. G. Brezhnev, Physicotech Inst, Acad Sci USSR, 7 pp

"Zhur Eksper i Teoret Fiz" Vol XVII, No 2

Electronic emission from complex stibium-caesium cathode under action of strong electric field increases considerably with growth of wave length of the light. In the absence of light, fields of 10^5 V/cm produce noticeable autoelectronic emission. It is shown that electrons extracted by the field

FDB 57T92

USSR/Phys (Contd) Feb 1947

belong to very narrow energy spectrum. Visual electronic observation of emitting surface gives varied picture. In the case of photoemission the whole illuminated surface emits uniformly, whereas in autoelectronic emission only separate places with greatest field gradient radiate.

FDB 57T92

USSR/Phys Feb 1947
Waves, Surface
Wave Propogation

"Elastic Capillary Gravitational Surface Waves," A. Gubanov, Leningrad Physicotech Inst, Acad Sci USSR, 8 pp

"Zhur Eksper i Teoret Fiz" Vol XVII, No 2

Deduces equation for velocity of propagation of waves on surface of elastic-viscous body. In the limiting case of small frequencies this equation gives velocity of capillary gravitational waves on liquid surface. For high frequencies, as another limiting case, it gives velocity of Rayleigh waves

FDB 57T94

USSR/Phys (Contd) Feb 1947

at surface of solid body. Uses method of successive approximations to study cases coming close to above two limits.

FDB 57T94