SEVULESKU, Tr. [Savulescu, Tr.], acad.; SEVULESKU, Alis [Savulescu, Alice]; BONTYA, Vera [Bontea, Vera]

Foundations and methodology of the development of prognoses of the appearance of diseases on cultivated plants in Rumania. Rev biol 7 no. 4: 491-505 '62.

1. Chlen-korr. Akad. RNR. (for Savulescu, Tr., Savulescu, Alice).

BONTEA, Vera

Contributions to the study of the formation and development of the pycnidia of Phoma lingam (Tode) Desm. Studii cerc biol s. bot 16 no.6:571-573 '64.

1. Section of Phytopathology and Microbiology, "Traian Savulescu" Institute of Biology.

SAVULESCU, Alice, acad. dr.; BONTEA, Vera; BECERESCU, D.; DUMITRAS, Lucretia (Bucuresti)

Two decades of research on Ustilaginales. Natura Biologie 16 no.5: 3-14 S-O '64.

POLIZU, Al.; ZAHARIADI, C.; BONTEA, Vera; MARCHES, C.; BUCUR, Elena

Investigations on the biological action of some thiourea derivatives. Studii cerc biol s. bot 17 no.1:93-100 '64.

1. Laboratory of Insectifungicides and Toxicology, "Traian Savulescu" Institute of Biology. Submitted March 24, 1964.

BONTEMPS, S.

"Protective Size of Edible River Fish." P. 3, (GOSPODARKA RYBNA, Vol. 5, No. 9, Sept. 1953. Warszawa, Poland.)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

BONTEMPS, S.

Water pollution, p. 6. (GOSPODARKA RYBNA, Warszawa, Vol. 7, no. 2, Feb. 1955.)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 6, Jun. 1955, Uncl.

BONTEMPS, S.

Bontemps, S. Pollution of open waters by sewage. Cellulose and paper industry. p. 7

GOSPODARKA RYBNA

Vol. 8, no. 6, June 1956 Warszawa, Poland

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5,, No. 10 Oct. 56

BONTEMPS, S.

BONTEMPS, S. Pollution of open waters by the sewage of coal and chemical industries. p. 6. Vol. 8, no. 8, Aug. 1956. GOSPODARKA RYBNA. Warszawa, Poland.

SOURCE: East European Accessions List (EEAL) Vol. 6, No. 4--April 1957

BONTEMPS, S.

BONTEMPS, S. Pollution of the open waters by sewage. p. 4. Vol. 8, no. 11, Nov. 1956. GOSPODARKA RYBNA. Warszawa, Poland.

SOURCE: East European Accesssions List (EEAL) Vol. 6, No. 4--April 1957

BONTEMPS, S.

POLAND. Chemical Technology. Chemical Products and Their Application--Water Treatment. Sewage Water I-12

Abs Jour: Ref Zhur--Khimiya, No 3, 1957, 9126

Author : Bontemps, S.
Inst : Not given
Title : The Polution of Open Receiving Waters and Streams by Waste Waters from the Chemical and Coke-Producing Industries

Orig Pub: Gospod. rybna, 1956, Vol 8, 6-7 (in Polish)

Abstract: No abstract.

Card 1/1

BONTEMPS STANISLAW

Poland /Chemical Technology. Chemical Products and Their Application
Water treatment. Sewage water. H-5

Abs Jour: Referat Zhur - Khimiya, No 1, 1958, 1660

Author : Bontemps Stanislaw

Title : Sewage Water Pollution of Open Bodies of Water

Orig Pub: Gospod. rybna, 1956, 8, No 11, 4-6

Abstract: A characterization of the effects produced on streams and open reservoirs by sewage water of sulfuric acid production, and sewage water derived from installations of the food industry, sugar-, brewing-, yeast-, dairy-, fruit and vegetable and starch industry.

Card 1/1

BONTEMPS, Stanislaw

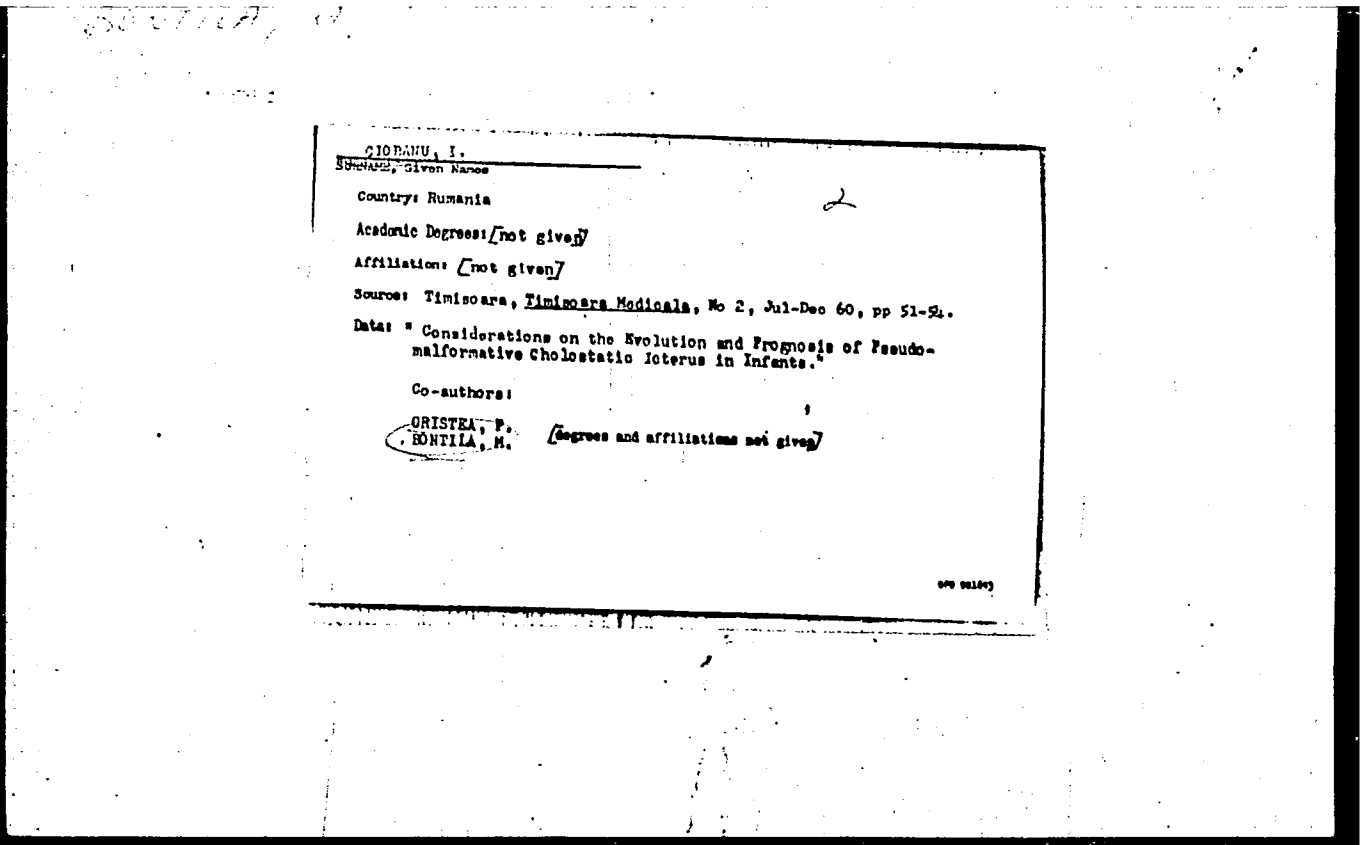
Tagging as a method of study of spawning populations of Vimba vimba L. Rocz nauk roln zootechn 84 no.2:273-292 '64.

1. Laboratory of River Farming of the Institute of Inland Water Fisheries, Warsaw.

MOLNAR-AMARASCU, Ritta, ing.; BONTIDEANU, Simon, ing.

Recaptation of the Republica and Principal mineral springs in the Borsec watering place. Rev cailor fer 10 no.8: 424-429 Ag '62.

1. Trustul Exploatarii Miniere (for Molnar-Amarascu). 2. Directia Regionala Cluj, Serviciul constructii (for Bontideanu).



GIORANU, I.
Surname, Given Names

Country: Rumania

Academic Degrees: [not given]

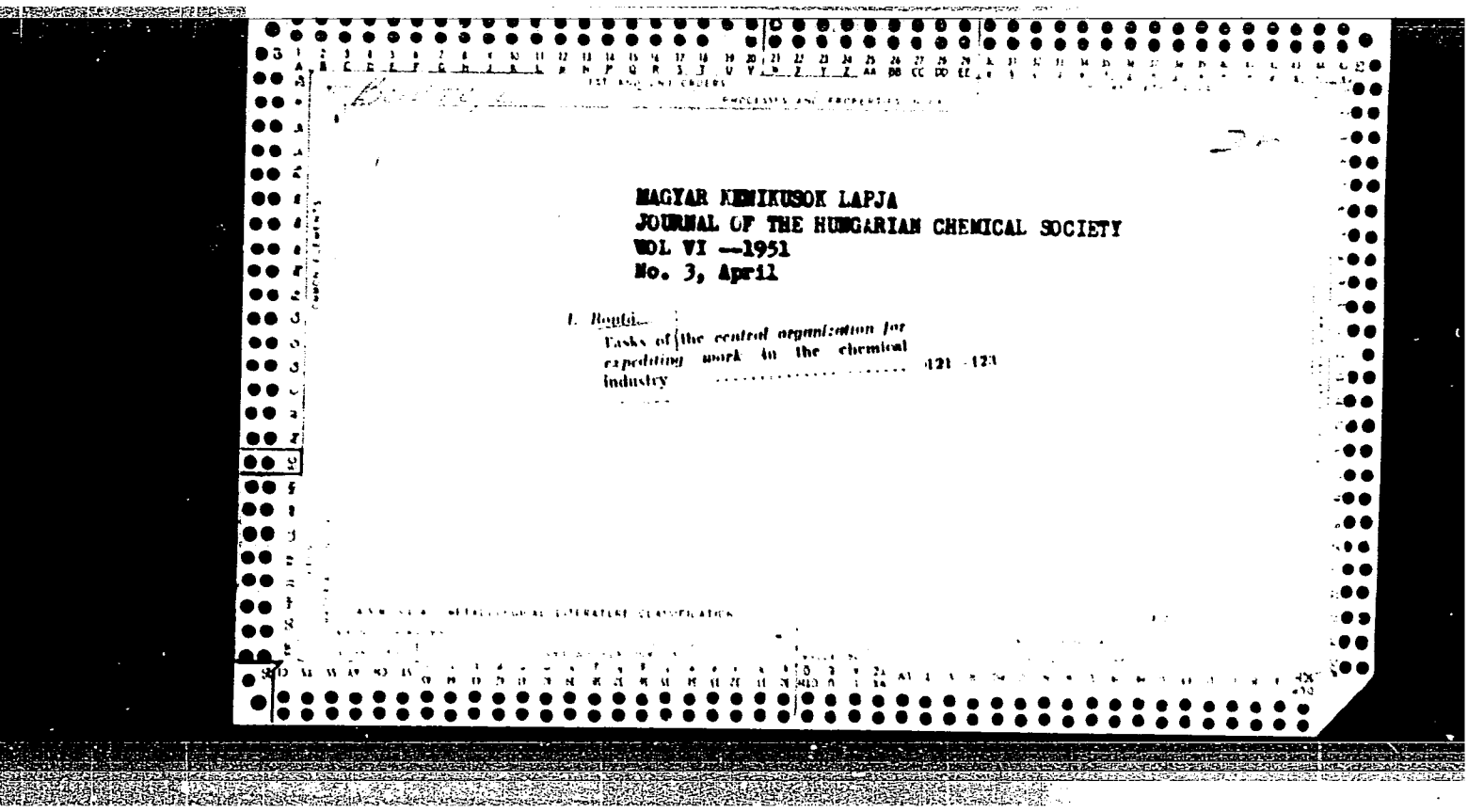
Affiliation: [not given]

Source: Timisoara, Timisoara Medicala, No 2, Jul-Dec 60, pp 51-54.

Data: " Considerations on the Evolution and Prognosis of Pseudo-malformative Cholostatic Icterus in Infants."

Co-authors:

ORISTEA, P.
BONTILA, M. [degrees and affiliations not given]



MAGYAR KEMIKUSOK LAPJA
JOURNAL OF THE HUNGARIAN CHEMICAL SOCIETY
VOL VI —1951
No. 3, April

BONTO. L.

"Methods for Developing Muszintterv, the Movement for Better Technical Organization in the Chemical Industry." p. 336 (Magyar Kemikusol Lapja. Vol, 8 no. 12, Dec. 1953. Budapest.)

Vol. 3, no. 6

SO: Monthly List of East European Accessions, Library of Congress, June 1954, Uncl.

"Organizing Smooth and Rhythmic Production in the Chemical Industry." p. 18
(Tobbtermeles. Vol. 7, no. 12 Dec. 1953 Budapest.)

SO: Monthly List of East European Accessions./Library of Congress, June 1954, Uncl. Vol, 3, no. 6

BOITOS, L.

Palint, G. The industrial planning system is eight years old. p. 2.
TOERTENELMEI, Budapest, Vol. 9, no. 3, Mar. 1959.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 8, no. 10, Oct. 1959, Uncl.

BONTO, Laszlo; MAGYAR, Karoly

Experiences obtained in the Chinese People's Republic while studying its chemical industry. Magy kem lap 15 no.7:304-306 Jl '60.

1. Orszagos Tervhivatal, Budapest (for Bonto). 2. Gyogyszeripari Kutato Intezet es "Magyar Kemikusok Lapja" szerkeszto bizottsagi tagja (for Magyar).

BONTO, Laszlo, dr.

Some data on the history of Hungarian chemical industry in the 18th and 19th centuries. Magy kem lap 17 no.1:12-18 Ja '62.

1. Orszagos Tervhivatal.

(Hungary—Chemical industries)

BONTO, Laszlo, doktor

Development of the chemical industry of the Hungarian People's Republic. Khim.prom. no.5:379-381 My '62. (MIRA 15:7)

1. Gosplan Vengerskoy Narodnoy Respubliki.
(Hungary--Chemical industries)

BONTO, Laszlo

Some data on the history of the Hungarian chemical industry during the first decades of the 20th century. Magy kem lap 18 no.2/3:72-76 F-Mr '63.

1. Orszagos Tervhivatal.

BONTO, Laszlo

Some data on the history of the Hungarian chemical industry from 1930 to the end of World War II. Magy kem lap 19 no.5: 250-255 My '64.

1. National Planning Office.

VIDEKI, Laszlo; BONTOVITS, Lajos

Inner content losses in storing tomatoes. Elelm ipar 11 no.3/4: 106-108 Je-Jl '57.

1. Duna-Tiszakozi Mezogazdasagi Kiserleti Intezet, Kecskemet.

BONTOVITS, Lajos

Development of tomato growing in Hungary and abroad. Konzerv paprika no.5:167-170 S-O'63.

1. Duna-Tiszakozi Mezogazdasagi Kiserleti Intezet.

COUNTRY : Hungary
SUBJECT : Cultivated Plants. Potatoes, Vegetables. Cucurbits.
ABS. JOURN.: Ref Zhur-Biologiya, No. 5, 1959, No. 20329

AUTHOR : Bentovits, Lejos
INST. : --
TITLE : Methods of Cleaning Tomato Seeds.

ORIG. PUB.: Agrartudomany, 1957, 9, No.4, 33-36

ABSTRACT : Four methods of cleaning tomato seeds from the fruit pulp and from the rind were tried out, as well as methods of preventing the tomato seeds from sticking together. The tests were made on four tomato varieties. The cleaning methods were a) treating the seeds with hydrochloric acid solutions in concentrations of 20 - 25 - 30 - 37 % for periods of 25 - 30 - 60 - 90 - 120 minutes; b) fermentation in tomato juice infusion;

CARD : 1/3

CATEGORY : Cultivated Plants.

ABS. JOUR. : Ref Zhur-Biologiya, No.5, 1959, No. 20329

AUTHOR :
INST. :
TITLE : ?

ORIG. PUB.:

ABSTRACT : at room temperature for 12 - 24 - 36 - 48 hours; c) lime solution treatment in a concentration of 5 kg of lime to 50 liters of water for 15 minutes and 15 kg of lime in 50 liters of water for 30 mintures with subnequent washing; d) heat treatment in water at temperatures of 30 - 40 - 50 - 60 - 70 - 80 and 90°. After the seeds were cleaned a check was made of the germinating viability. The best method was treatment of the seeds in a 37% solution of

CARD: 2/3

Cultivated Plants.

SOURCE: Ref Zhur-Biologiya, No. 5, 1959, No. 20329

Author :
INST. :
TITLE :

ORIG. PUB.:

ABSTRACT : HCl for 30 minutes or a 25% sol. for 120 min, as well as fermentative treatment for 12 and 36 hours. --N.I. Bidzilya

CARD : 3/3

BONTOVITS, Lajos

Hungarian tomatoes on the international market. Elelm ipar 14 no.6:165-168 Je '60.

1. Duna-Tiszakozi Mezogazdasagi Intezet, Kecskemet.

MISHEV, D.[Mishev, D.]; IVANOV, S.[Ivanov, S.]; BONTSCHEV, L.[Bontchev, L.]

Measuring apparatus for determining variations of dielectrical complex permeability. Doklady BAN 17 no.9:805-807 '64.

1. Submitted May 13, 1964.

BONTYA, V.[Bontea, V.] (Rumynskaya Narodnaya Respublika);
REFEILE, K.[Refeile, C.] (Rumynskaya Narodnaya Respublika)

Achievements of and outlook for plant protection in Rumania.
Zashch. rast. ot vred. i bol. 6 no.11:48-49 N '61.
(MIRA 16:4)
(Rumania—Plants, Protection of)

BONUS, FRANTISEK.

Lidove tance na Lassku. Na abirce spolupracovali: Jarolav Jurasek, Jaromir Behunek a Helena Livorova. (1. vyd.) Praha, Statni hudebni nakl. (1953) 50 p. (Edice Narodni tance. Mala rada, 1) (Folk dances in the Lassko area. 1st ed. illus., bibl., music)

SOURCE: East European Accessions List. (EEAL) Library of Congress. Vol. 5, No. 8, August 1956.

BONVECH, V.E.

BONVECH, V.E.

Simplifying the taking of samples and the quantitative analysis of oxygen dissolved in water by the iodide-iodade method. Energ. biul. no.4:23-27 Ap '57. (MLRA 10:5)
(Feedwater)

AUTHORS: Khrizman, I.A., Bonyech, V.E., Beyzerov, Ye.M. 32-24-6-12/44

TITLE: On the Methods of Determining Acid-, Ester- and Iodine Numbers in Lignite-Like Bitumen Substances (O metodakh opredeleniya kislotnogo efirnogo i iodnogo chisel v burougol'nykh bitumnykh veshchestvakh)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 6, pp 692-694 (USSR)

ABSTRACT: Two different methods of determining the content of unsaturated compounds in fats, oils, and mineral oil products are described in publications, viz., the methods developed by Gyubl' and Margoshes respectively. Whenever the latter method was applied to bituminous substances, the results obtained were mostly not as good as those obtained by the other method, which is explained by the incomplete dissolution of the unsaturated lignite-like bituminous substances in alcohol. The difference between the results obtained by the two methods is shown in a table. The method of determining the acid number described by G.L.Stadnikov (Ref 1) is analogous to that mentioned in OST-7872-36 and GOST 5985-51 for mineral oils and is based upon a titration of the alcoholic (or alcohol-benzene) solution of the substance with caustic potash,

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beside phenolphthalein and alkali-blue. In the present paper it is shown that these indicators as well as the application of an alcohol-benzene mixture render titration more difficult, whereas the application of a potentiometric method in accordance with GOST 1784-47 is too complicated. As blue coloring can be better observed in titration, tymolphthalein was investigated as an indicator, for which purpose various weighed portions and different quantities of solvents were used. It was found that 0.5 g of the substance per 50 ml of alcohol are sufficient, and that there is no necessity of using a mixture of solvents. A second series of tests showed, however, that for the purpose of determining acids not more than 2 g of the bitumen substance should be used for 50 ml of alcohol, whereas for the determination of the ester number a weighed portion of from 0.3 to 0.7 g per 50 ml of alcohol must be used. It was found that concentration of the lye causes an increase of the values of ester numbers. Saponification for one hour in boiling water suffices in order to obtain accurate values, and on the strength of these investigations it is recommended that methods of determination be precisely described. Data concerning the technique of analysis for the determination of acid- and ester numbers are given. In this connection the editor says

On the Methods of Determining Acid-, Ester- and Iodine Numbers in Lignite-Like Bitumen Substances 32-24-6-12/44

that experiments are intended to be carried out for the purpose of testing the method developed by Kaufman, which is used for the determination of unsaturated hydrocarbons in gasoline used for aircraft according to GOST 2070-51 for the analysis of bituminous substances. There are 3 tables, and 2 references, 2 of which are Soviet.

ASSOCIATION: Tsentral'naya laboratoriya Yuzhnoural'skogo geologicheskogo upravleniya i Ufimskiy aviatsionnyy institut (Central Laboratory of the South Ural Geological Administration, and Ufa Institute of Aviation)

1. Acids--Determination 2. Esters--Determination 3. Iodine --Determination 4. Bituminous materials--Analysis 5. Titration

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BONYAI, Ede

"Pivotal questions of the 2d Conference on Industrial Power Management" by Laszlo Naszalyi. Reviewed by Ede Bonyai. Koh lap 96 no.11:526 N'63.

BONYUSHKIN, Ye.K.; ZAMYATNIN, Yu.S.; KIRIN, I.S.; MARTYNOV, N.P.; SKVORTSOV, Ye.A.; USHATSKIY, V.N.;

[Yields of fragments of U^{235} and U^{238} fission by fast neutrons] Vykhody oskolkov deleniia U^{235} i U^{238} bystrymi neitronami. Moskva, Glav. upr. po ispol'zovaniiu atomnoi energii, 1960. 19 p. (MIRA 17:3)

86733

21.5200 (2816, 1138, 1565) S/120/60/000/006/007/045
E032/E314

AUTHORS: Bonyushkin, Ye.K. and Spektor, V.V.

TITLE: A Scintillation γ-spectrometer with a Control Channel

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No. 6, pp. 30 - 34

TEXT: A block diagram of the spectrometer is shown in Fig. 1. It consists of a CsI(Tl) crystal surrounded by a MgO reflector. The cylindrical crystal is in contact with two photomultipliers (one at each end). The output of one of the photomultipliers is fed into the "working channel" and the output of the other photomultiplier is fed into the "control channel". The working channel consists of a cathode follower, a linear amplifier and a shaping circuit and the control channel consists of a cathode follower, a linear amplifier and a single-channel pulse-height analyser. The outputs of the two channels are fed into a gate and the output of the gate is analysed by a 20-channel pulse-height analyser. The working principle of the spectrometer as a whole is as follows. The window of the single-channel pulse-height analyser in the

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S/120/60/000/006/007/045
E032/E314

A Scintillation γ-spectrometer with a Control Channel

control channel defines the part of the γ-spectrometer which corresponds to the photo peak under investigation. Pulses from this analyser open the gate which transmits amplified and shaped pulses from the working channel and these are fed into the 20-channel pulse-height analyser at the end of the system. The shaping circuit is necessary in order to delay pulses leaving the linear amplifier in the working channel for a time corresponding to the delay in the single-channel analyser in the control channel. The shaping block produces rectangular pulses, whose amplitude is the same as that of the initial pulses. Since the amplitude distribution at the outputs of the two photomultipliers are independent, only those pulses will be transmitted by the gate which belong to the photo-peak under investigation, provided the position of the maximum of the photo-peak remains unaltered. This device can be used to separate photo-peaks in a complex spectrum and to detect weak γ activities on a background of strong radioactive contamination.

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86733

S/120/60/000/006/007/045
E032/E314

A Scintillation γ-spectrometer with a Control Channel

The resolution of the instrument is 12.5% at 0.663 MeV and 10.5% at 1.33 MeV. The efficiency of the spectrometer for γ-rays of 0.633 MeV is 1.3%. Fig. 9 shows a typical spectrum obtained for a mixture of Cs^{137} and Co^{58}. The γ activity of the Co^{58} component is 1/50 of the activity of Cs^{137}. The curve marked a was obtained without the control channel and Curve b with the control channel. A 5 V window was employed. As can be seen, the small γ activity due to Co^{58} is easily separated out.
Acknowledgments are expressed to Yu.S. Zamyatnin for valuable suggestions and interest, to G.A. Vasil'yev and P.V. Topov for help with the electronics, and to Ye.M. Tursov for taking part in the measurements. There are 9 figures and 6 references: 4 Soviet and 2 English.

SUBMITTED: July 28, 1959

Card 3/3

S/089/61/010/001/002/021
B006/B063

AUTHORS: Bonyushkin, Ye. K., Zamyatnin, Yu. S., Spektor, V. V., Rachev, V. V., Negina, V. R., Zamyatnina, V. N.

TITLE: Fragment Yields From U^{233} and Pu^{239} Fissions Induced by Fast Neutrons

PERIODICAL: Atomnaya energiya, 1960, Vol. 10, No. 1, pp. 13 - 18

TEXT: The authors applied radiochemical methods to determine the absolute fragment yields of U^{233} and Pu^{239} fissions induced by 14.5-Mev neutrons and neutrons of the fission spectrum. A report of the results is made here Specimens of $U_3^{233}O_3$ and metallic Pu^{239} foils (120 - 150 mg) were irradiated in hermetically sealed brass cells - both with 14.5 Mev neutrons (from the target of an accelerator, by means of a t,d-reaction) and neutrons of the fission spectrum (from a non-moderated U^{235} arrangement). The total flux hitting the specimens was $\sim 5.10^{14}$ neutrons. Thereupon, the fragments were

separated chemically, and their beta activity was measured. The mass distributions of fragments were determined for the irradiated specimens The curves are basically symmetric, i. e., the minimum between A = 110 - 120 is flanked by two maxima at A = 90 - 100 and A = 135 - 145. The simple linear correlation between the difference Δm of the average masses of the heaviest and the lightest fragment and the atomic weight of the nucleus undergoing fission was independent of the neutron energy but dependent on whether A was even or odd:

$$\Delta m = 288 - 1.04\,A + \delta,\ \delta = \begin{cases} 0 & (\text{even } A) \\ \sim 2 & (\text{odd } A) \end{cases}$$

. A. A. Malinkin, Yu. A. Vasil'yev, and V. I. Shamarukhin are thanked for neutron irradiation of the specimens; P. N. Moskalev, N. V. Shuvanova, A. A. Yegorova, and K. N. Borozdina for chemical operations; and V. V. Zakatilov and L. N. Sorokina for assistance in physical measurements. Numerical results are tabulated. There are 5 figures, 1 table, and 12 references: 5 Soviet and 7 US.

SUBMITTED: April 16, 1960

S/089/61/010/001/002/020
B006/B063

Выходы осколков деления U^{233} и Pu^{239}

Осколки 1	U^{233}		Pu^{239}	
	нейтроны спектра деления 2	нейтроны с энергией 14,5 *Мэв* 3	нейтроны спектра деления 2	нейтроны с энергией 14,5 *Мэв* 3
Sr^{89}	6,30±0,60	—	—	—
Mo^{99}	4,75±0,35	3,5±0,3	5,9±0,6	4,16±0,40
Ru^{103}	0,413±0,045	2,31±0,30	6,0±0,7	6,25±0,80
Ru^{106}	0,16±0,02	1,52±0,20	4,8±0,6	4,16±0,5
Ag^{111}	0,0837±0,008	1,22±0,12	0,55±0,06	1,46±0,14
Cd^{115}	0,052±0,006	0,98±0,18	0,09±0,01	1,23±0,10
$115_{поли}$	0,056±0,006	1,05±0,20	0,095±0,010	1,30±0,11
Te^{129m}	0,602±0,050	—	0,45±0,09	—
$129_{поли}$	1,57	—	1,17	—
Te^{132}	4,36±0,40	3,98±0,35	3,5±1,0	4,58±0,50
Cs^{136}	0,11	0,5	—	—
Cs^{137}	6,28±0,50	4,7±0,5	—	5,1±0,8
Ba^{140}	6,31±0,50	—	5,4±0,5	4,35±0,40
Ce^{141}	6,77±0,60	5,0±0,5	—	—

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S/089/60/010/001/002/020
B006/B063

Legend to the Table: 1) Fragment, 2) the fission being induced by neutrons of the fission spectrum, 3) the fission being induced by 14.5-Mev neutrons.

Card 4/4

32987
S/641/61/000/000/014/033
B104/B102

24.6600

AUTHORS: Bonyushkin, Ye. K., Zamyatin, Yu. S., Kirin, I. S., Martynov, N. P., Skvortsov, Ye. A., Ushatskiy, V. N.

TITLE: Fragment yields of fast neutron fission of U^{235} and U^{238}

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey. Moscow, 1961, 224-234

TEXT: Results of fragment yield measurements carried out in 1953-1955 are dealt with. U^{235} and U^{238} were fissioned by 14.5-Mev neutrons and fission neutrons. The relative fragment yield with respect to the Mo^{99} yield and the absolute yield in Mo^{99} were determined. Pressed 10-50 g U_3O_8 tablets were put into a hermetically sealed container. A U^{235} multiplication system without a moderator, and a converter which transformed thermal neutrons into fission neutrons were used as fission neutron sources. The specimen was bombarded by an integral neutron flux of $2 \cdot 10^{13}$. A tritium-saturated zirconium target which was bombarded with

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Fragment yields of fast ...

150-kev protons served as 14.5-Mev neutron source. The integral neutron flux onto the specimen was $2 \cdot 10^{14}$. The irradiation time was 6 to 10 hrs. The fission fragments were separated from the irradiated samples by isotope dilution. The fragment yields were determined from their β-activity by end-window counters with a 15-20 μ thick mica window having a diameter of 20 mm. The results are summarized in Table 2. The relative probability of a symmetrical fission largely depends on the excitation energy of the compound. For U^{235} the ratio r between the fragment yield of a symmetrical fission and the maximum yie d increases from 0.0016 in thermal-neutron fission to 0.0052 in fission induced by fission neutrons, and to 0.2 in the fission with 14.5-Mev neutrons. An increase in excitation energy of the compound nucleus to 14.5 Mev increases the relative probability of a symmetrical fission by a factor of 125. The variation of r for U^{238}, U^{236}, U^{234}, and Pu^{239} is studied as a function of Z^2/A. The distribution of the fragment yields of these isotopes as a function of A of the fragments is asymmetric. The authors thank A. A. Malinkin, M. I. Pevzner, L. B. Poretskiy and Ye. I. Sirotinin for irradiating the uranium samples with neutrons, V. V. Spektor and L. S. Andreyeva for help in the measurements, V. N. Zamyatnina, A. A. Bobchenko, Ye. P.

Card 2/3

Fragment yields of fast ...

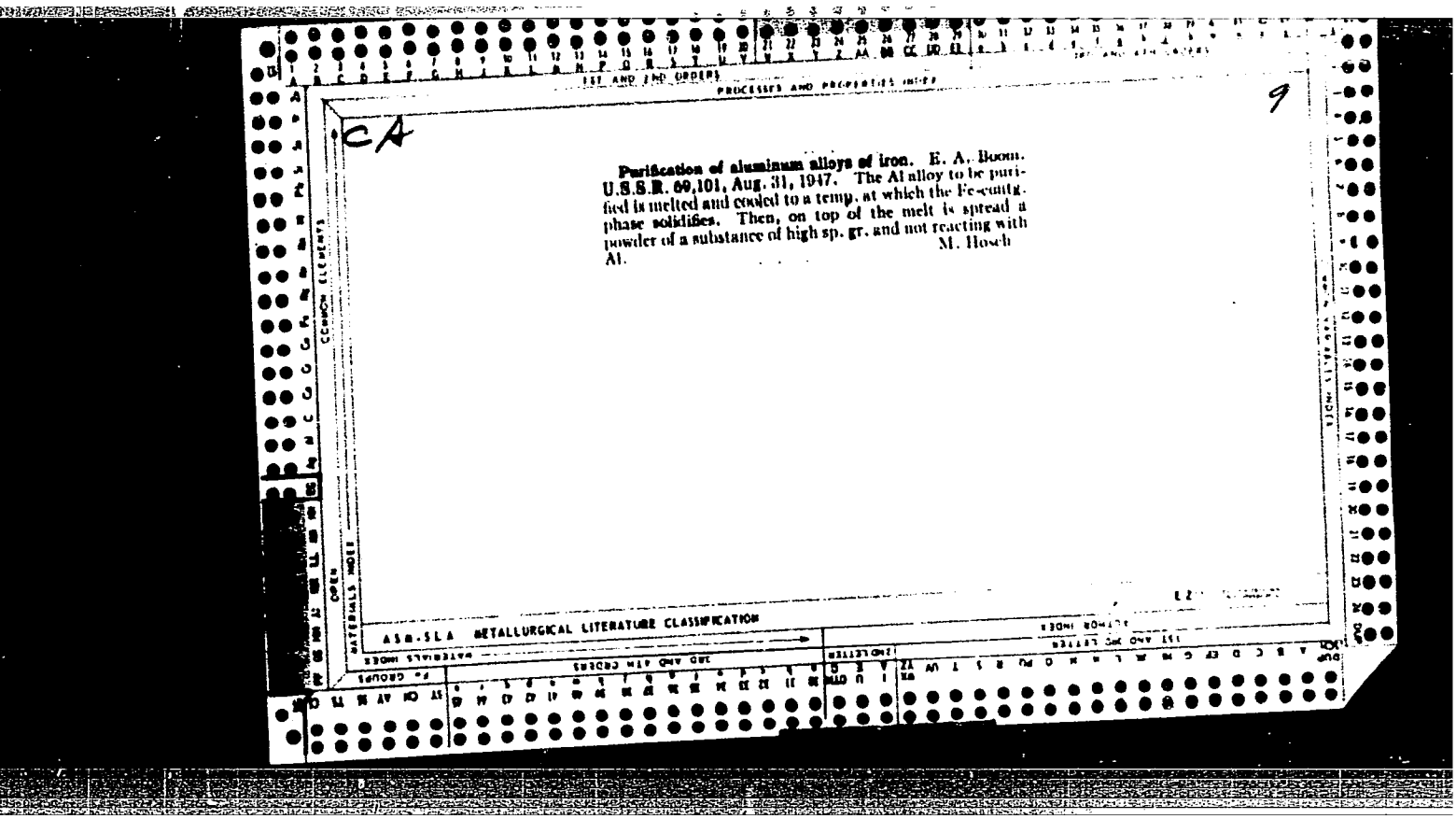
Krasheninnikova, V. R. Negina, N. V. Shuvanova, S. Ye. Sanina and E. A. Kozyreva for the radiochemical separation. A. N. Protopopov (Atomnaya energiya, 5, vyp. 2, 1958) is mentioned. There are 6 figures, 2 tables, and 19 references: 5 Soviet and 14 non-Soviet. The four most recent references to English-language publications read as follows: Fong P., Phys. Rev., 102, 434 (1956); Katcoff S., Nucleonics, 16, 4 (1958); Bunney L. R., Scadden E. M., Abriam J., Ballou N. O., report no. 643, held at the Second International Conference on the Peaceful Uses of Atomic Energy, Geneva, 1958; Hemmendinger A., report no. 663, held at the Second International Conference on the Peaceful Uses of Atomic Energy, Geneva, 1958.

Table 2. Total fragment yield, %.
Legend: (1) isotope, (2) fission spectrum, (3) 14.5 Mev.

Card 3/[illegible]3

26217 Fiziko-khimicheskoye issledovaniye alyuminiyevo-kremniyevo-litiyevykh splavov. Doklady Akad. nauk SSSR, Novaya seriya, T. LXVII, 5, 1949, s. 871-74 Bibliogr: 5 nazv.

SO: LETOPIS' NO. 35, 1949

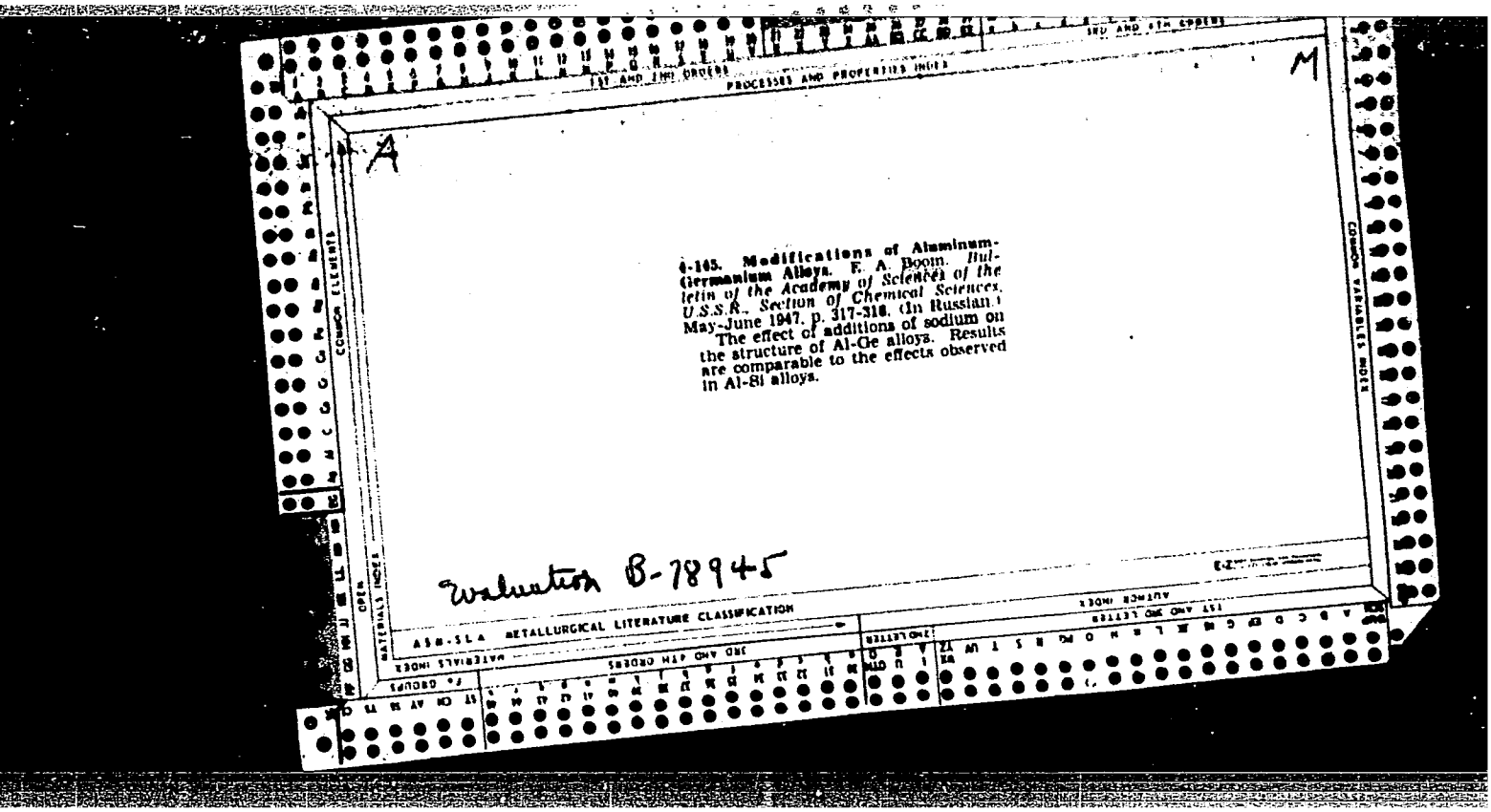


CA

9

Purification of aluminum alloys of iron. E. A. Boom. U.S.S.R. 69,101, Aug. 31, 1947. The Al alloy to be purified is melted and cooled to a temp. at which the Fe-containing phase solidifies. Then, on top of the melt is spread a powder of a substance of high sp. gr. and not reacting with Al.

M. Hosch

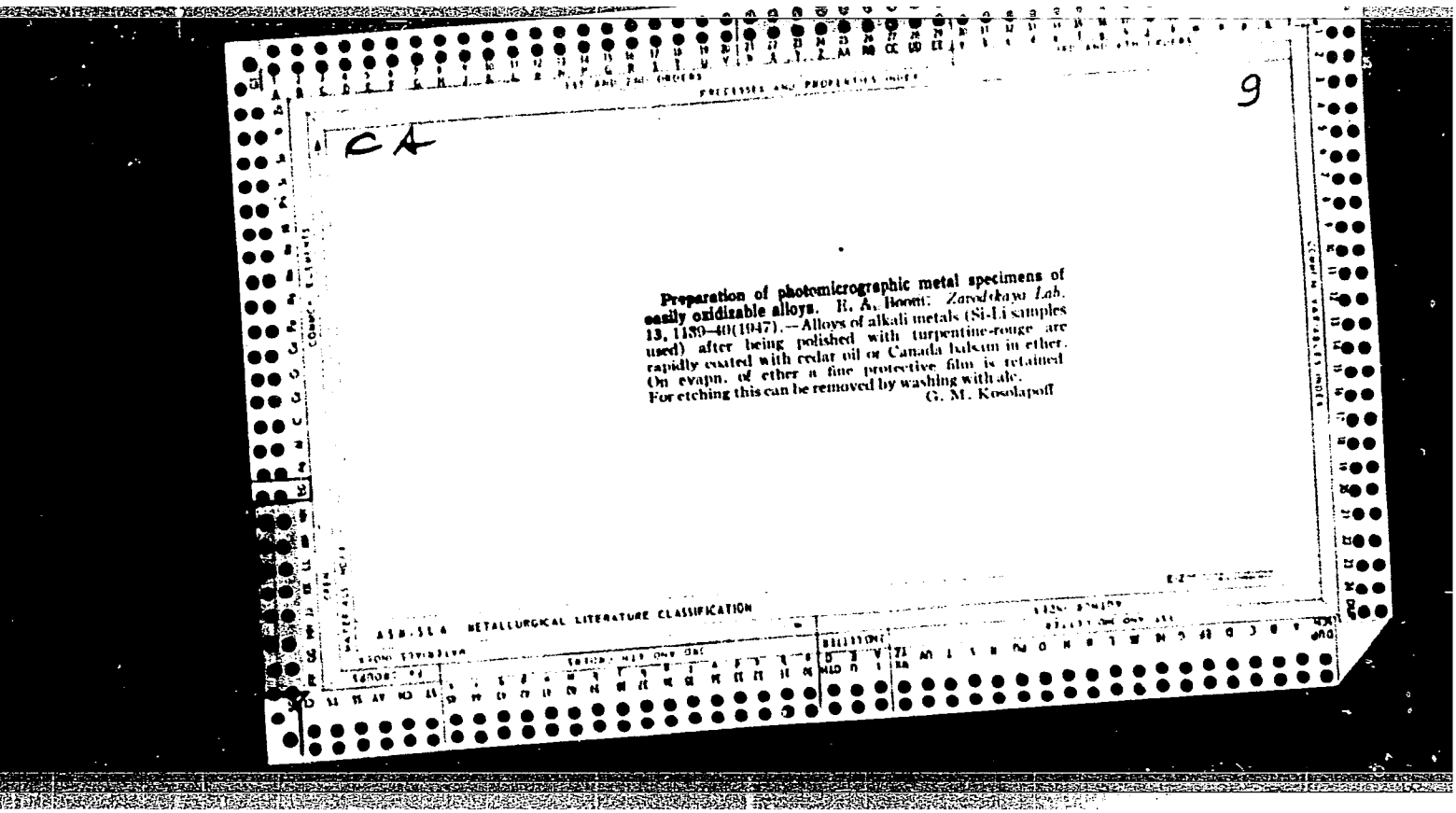


4-165. **Modifications of Aluminum-Germanium Alloys.** E. A. Boom. *Bulletin of the Academy of Sciences of the U.S.S.R., Section of Chemical Sciences*, May-June 1947, p. 317-318. (In Russian.)

The effect of additions of sodium on the structure of Al-Ge alloys. Results are comparable to the effects observed in Al-Si alloys.

Evaluation B-78945

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

9

Preparation of photomicrographic metal specimens of easily oxidizable alloys. R. A. Boom: *Zavod'skaya Lab.* 13, 1139–40(1947).—Alloys of alkali metals (Si-Li samples used) after being polished with turpentine-rouge are rapidly coated with cedar oil or Canada balsam in ether. On evapn. of ether a fine protective film is retained. For etching this can be removed by washing with alc.
G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

67T28

BOOM, YE. A.

USSR/Chemistry - Silumin May 1948
Chemistry - Aluminum

"The Mechanisms of the Formation of the Texture of Modified Silumin," Ye.A. Boom, Inst of Gen and Inorg Chem imeni N.S. Kurnakov, Acad Sci USSR, 1½ pp

"Dok Ak Nauk SSSR, Nov Ser" Vol LX, No 6

Boom describes mechanisms of the formation of the thin texture, which he had partially explained in previous article in "Tsvet Met" No 1, 1944. This thin texture results from the thick crystalline structure when silumin is added to aluminum. Submitted by Academician I.I. Chernyayev 19 Mar 1948.

67T28

USSR/Metals
Alloys
Aluminum Alloys

Jun 49

"A New Phase in the System Aluminum-Silicon-Lithium," Ye. A. Boom, Inst Gen and Inorg Chem imeni N. S. Kurnakov, Acad Sci USSR, 2 pp

"Dok Ak Nauk SSSR" Vol LXVI, No 4 - pp 643-6

Experiments showed that new structural component (revealed by metallographic analysis in an alloy of aluminum with 1½ chromium and a greater lithium content) is a ternary silicide ($Li_xAl_ySi_z$), and that modification of aluminum-chromium alloys by lithium

46/49T85

USSR/Metals (Contd)

Jun 49

consists in formation of a ternary eutectic from aluminum (alpha-Al), chromium, and the ternary silicide. Submitted by Acad I. I. Chernyayev, 2 Apr 49.

46/49T85

Evaluation A-78539, 8 Sep 54

BOOM, Ye. A.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

*Physico-Chemical Investigation of Aluminium Silicon Lithium Alloys. E. A. Boom (*Doklady Akad. Nauk S.S.S.R.*, 1949, 67, (5), 871-874).—[In Russian]. Experiments, designed to demonstrate that the dispersed structure of modified Silumin-type alloys represents a ternary eutectic consisting of Al, Si, and a ternary silicide, are reported with Li, which acts in a similar way to Na, though less effectively. Li was sealed in a hole drilled in an Al-9% Si casting, which was then kept for 20-30 min. at 577° C., cooled, and sectioned. Micro-sections showed two diffusion zones followed by the usual modified structure. Unstable Li_2Si crystals were identified in the first diffusion zone by evolution of SiH_4, and comparison with synthetic Li_2Si. Thermal analysis of Al-Si alloys contg. 1-20% Si showed, on addn. of 1% Li, three thermal effects, and three phases were metallographically identified: primary crystals, binary eutectic, and ternary eutectic. Chem. analysis of the last, after removal of undissolved Si and solid soln., yielded the formula $Li_2Al_2Si_2$. Microhardness tests gave 38·3 kg./mm.² for the solid soln., 421 kg./mm.² for Si, and 946 kg./mm.² for the ternary silicide, which was then identified in the second diffusion zone.—A. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

BOOM, Ye. A.

232T1

USSR/Chemistry, Metallurgy - Germanium 1 Jun 52

"New Phases in the Systems Aluminum - Germanium - Sodium and Aluminum - Germanium - Lithium," Ye. A. Boom

"Dok Ak Nauk SSSR" Vol 84, No 4, pp 697-699

Article states that Al - Si - Na and Al - Si - Li compds (in alloys of the silumin type) were identified previously. Since Ge is analogous chemically to Si, the question was raised whether Al - Ge - Na and Al - Ge - Li could

232T1

not also be prepd. That Al, Ge, and Na combine to form a cryst substance was shown to be true by expts and microscopic study of the product. The same was done for Al, Ge, and Li. Presented by Acad I. I. Chernyayev 3 Apr 52.

(CA 47 no. 19: 9877 '53)

232T1

B004, Ye.A.

ZELIKMAN, A.N.; SAMSONOV, G.V.; KREYN, O.Ye.; STEPANOV, I.S., inzhener, retsenzent; TANANAYEV, I.V., retsenzent; POGODIN, S.A., professor, doktor, zasluzhennyy deyatel' nauki i tekhniki, retsenzent; RODE, Ye.Ye., professor, doktor, retsenzent; ARRIKOSOV, N.Kh, doktor khimicheskikh nauk, retsenzent; SHAMRAY, F.I., doktor khimicheskikh nauk, retsenzent; MOROZOV, I.S., kandidat khimicheskikh nauk, retsenzent; BOOM, Ye.A., kandidat khimicheskikh nauk, retsenzent; NIKOLAYEV, N.S., kandidat khimicheskikh nauk, retsenzent; ZVORYKIN, A.Ya, kandidat khimicheskikh nauk, retsenzent; BASHILOVA, N.I., kandidat khimicheskikh nauk, retsenzent; VYSOTSKAYA, V.N., redaktor; KAMAYEVA, O.M., redaktor; ATTOPOVICH, M.K., tekhnicheskiy redaktor

[Metallurgy of rare metals] Metallurgiia redkikh metallov. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1954. 414 p.
(MLRA 7:9)

1. Chlen-korrespondent Akademii nauk SSSR (for Tananayev)
(Metals, Rare--Metallurgy)

USSR

Reaction of germanium with chemical elements. E. A. Boom. *Klim. Redkikh Elementov, Akad. Nauk S.S.S.R.* [illegible] (1954).—Review with 34 references.

G. M. Kosolapoff

BOOM, Ye.A., red.; BYKOV, V.T., red.; GIRNIK, D.V., red.; STOTSENKO, A.V., red.; ONISIMOVA, Z.G., red.; TSVID, A.A., red.; YAROSHENKO, P.D., red.; KALASHNIKOV, L., tekhred.

[Science in the Far East; on the 40th anniversary of the great October socialist revolution and the 35th anniversary of the Soviet regime in the Far East] Nauka na Dal'nem Vostoke; k 40-letiiu Velikoi Oktiabr'skoi sotsialisticheskoi revoliutsii i 35-letiiu sovetskoi vlasti na Dal'nem Vostoke. Vladivostok, 1957. 111 p. (MIRA 12:2)

1. Akademiya nauk SSSR. Dal'nevostochnyy filial, Vladivo[redacted]
(Soviet Far East--Science)

BYKOV, V.T., prof., doktor khim.nauk, otv.red.; BOOM, Ye.A., kand.tekhn. nauk, red.; KIRGINTSEV, A.N., kand.khim.nauk, red.; MIKHAYLOV, M.A., kand.khim.nauk, red.; OZHIGOV, Ye.P., kand.khim.nauk, red.; BUDILOVSKAYA, S.K., tekhred.

[Results of investigational work on the chemical raw materials of the Far East] Materialy po issledovaniiu khimicheskogo syr'ia Dal'nego Vostoka. Vladivostok Akad.nauk SSSR. Sibirskoe otd-nie, Dal'nevostochnyi filial im. V.L.Komarova, 1958. 85 p.
(MIRA 13:11)

1. Vsesoyuznoye khimicheskoye obshchestvo imeni D.I.Mendeleyeva. Primorskoye otdeleniye.
(Siberia, East--Mines and mineral resources)

5(2)

AUTHOR: Boom, Ye. A. SOV/20-125-2-22/64

TITLE: On Sodium Double Silicide in Modified Aluminum-Silicon Alloys of the Silumin Type (O dvoynom silitside natriya v modifitsirovannykh alyuminiyevo-kremniyevykh splavakh tipa silumin)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 2, pp 323-324 (USSR)

ABSTRACT: As is well known, industrial alloys of the type mentioned in the title with raised Si-contents (9-13% Si) are modified by the introduction, either directly or in the form of its salts, of sodium into the liquid fusion. By an appropriate Na-dosing structural changes or a considerable improvement of the mechanical properties can be brought about. However, this phenomenon has not as yet been duly investigated. In the paper under consideration a brief report is given on the first part of the work, conducted by the author, with regard to the topic mentioned in the title. When an alloy with raised Na-content is put into water, small gas bubbles are evolved. These bubbles, which deflagrate with yellow flames at the surface, produce a brown film on the walls of the vessel.

Card 1/3

On Sodium Double Silicide in Modified Aluminum-Silicon Alloys of the Silumin Type

SOV/20-125-2-22/64

The author has developed a special method for the production of this brown substance. The chemical and spectrographical analyses showed an SiO_2 content of 93.7%. The yellow-brownish color was obviously due to SiO (monoxide). It disappeared when roasted in air, said gas burning with a rather heavy explosion in the U-shaped vessel. A silicon-hydrogen (silane) is alleged to have been produced by the interaction with water of the alloy concerned. From all such substances of the homologous series Si_nH_{2n+2}, a gaseous tetrahydrite SiH_4 is formed, which is self-igniting in air. Consequently it can be assumed that the reaction took the following course: $SiH_4 + 2O_2 \longrightarrow SiO_2 + H_2O$. On previous occasions silane formation (Refs 1, 2) had been observed in similar instances and the formation of an aluminum-silicide of variable composition had been assumed. However, there had never been any confirmation of this assumption. The occurrence of sodium silicide in the alloys mentioned in the title tallies with the views, developed by the author, regarding the formation of a

Card 2/3

threefold alloy in the system Na-Al-Si. The author is of the opinion that the phenomenon of "trans-modification" is caused by the formation of a sodium double silicide. This is also to account for other phenomena connected with a raised Na-content in the alloy, i. e. lowered corrosion resistance, tendency to fissure formation, changed micro-structure, et al. The author has obtained a patent (avtorskoye svidetel'stvo Nr 77421, August 31, 1949, Ref 9). There are 9 references, 3 of which are Soviet.

ASSOCIATION: Dal'nevostochnyy filial im. V. L. Komarova Akademii nauk SSSR (Soviet Far East Branch imeni V. L. Komarov of the Academy of Sciences, USSR)

PRESENTED: May 15, 1958, by I. P. Bardin, Academician

SUBMITTED: March 1, 1958

BOOM, Ye.A.

Cause of the incongruence of melting and solidification points of modified silumin. Zhur.neorg.khim. 7 no.6:1477-1478 Je '62. (MIRA 15:6)

(Silicon-aluminum alloys)

S/136/62/000/011/002/002
E021/E435

AUTHOR: Boom, Ye.A.

TITLE: What is over-modification of silumin

PERIODICAL: Tsvetnyye metally, no.11, 1962, 89-92

TEXT: The phenomenon of over-modification is explained from the point of view of the physico-chemical analysis of the formation of a ternary eutectic from aluminium, silicon and the ternary silicide NaAlSi. There are two stages of over-modification: a slight excess of sodium forming a network structure does not cause a marked fall in the mechanical properties; a large excess causes the formation of coarse crystals of silicon and ternary silicide, hair-cracks develop and the mechanical properties fall sharply. This latter stage is rarely encountered in practice. A slight excess accumulates in the boundaries of the eutectic grains forming a layer of coarse crystals. The impurities not soluble in modified liquid silumin and impurities which are soluble but are precipitated during solidification also accumulate in these regions. If the composition of the over-modified alloy differs greatly from the ternary eutectic composition, a large

Card 1/3

amount of products of primary and secondary solidification will be formed, as a result of which the spherical shape of the eutectic grains will be destroyed. The second stage of over-modification is characterized by the formation of streaks along the edges of which accumulations of grey crystals are formed and adjoining them there are parts of the aluminium which are almost free from silicon precipitate, after which the usual modified microstructure begins. It is proposed that this arises because a large excess of sodium will give an alloy which, in the liquid state, is in the region of stratification. Thus, part of the sodium will be in the form of an alloy and part will be in the form of an emulsion. Some of the sodium will coalesce to form small droplets. During solidification, the sodium droplets will be redistributed as films in the outer parts of the grains. Then, as a result of diffusion, the liquid sodium will interact with the silicon in the solid alloy to form binary and ternary silicides (NaSi, NaAlSi). When polishing and etching of a specimen in such a condition in an aqueous medium, the sodium and the binary silicide will be leached out, leaving small cracks or pores in the specimen.
Card 2/3

What is over-modification ...

S/136/62/000/011/002/002
E021/E435

The ternary silicide, which is more stable, will appear as light grey crystals at the edges of the cracks or pores. The above hypothesis was verified by preparing a microsection from an over-modified alloy. There are 6 figures.

Card 3/3

L 15581-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3000908 S/0279/63/000/002/0098/0099

56

AUTHOR: Boom, Ye. A. (Angarsk)

TITLE: Modification of Silumin beyond the eutectic range

SOURCE: AN USSR. Izv. otd. tekh. nauk. Metallurgiya i gornoye delo, no. 2, 1963, 98-99

TOPIC TAGS: Silumin, eutectic alloy , fusible alloy , aluminum, silicon, sodium, modificator

ABSTRACT: The paper presents a discussion of findings by other authors on the microstructure of silicon-aluminum alloys. Only one line refers to original work on modification of a silumin containing 30% silicon. The eutectic silumine with 18-24% silicon content have a comparatively low melting point and a high coefficient of thermal expansion, rendering them unfit for high temperature installations. By increasing the silicon content, both of these defects can be corrected. When this is done, however, there occurs an undesirable segregation of large primary silicon granules in the alloy. The incorporation of phosphorus or sodium into such silumines results in a reduction of the size of the granules. In the opinion of the author, there takes place in the system Al-Si-(NaAlSi) (a part of the Al-Si-Na

Card 1/2

L 15581-63

ACCESSION NR: AP3000908

system) the establishment of a triple eutectic arrangement Al + Si + (NaAlSi) near the double eutectic system Al + Si. Orig. art. has: 1 picture.

ASSOCIATION: none

SUBMITTED: 11Oct62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: ML NO REF SOV: 004 OTHER: 002

Card 2/2

L 12615-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3003512 S/0020/63/151/001/0096/0097

53

AUTHOR: Boom, Ye. A.

TITLE: Mechanism of modification of silumin[19]

SOURCE: AN SSSR. Doklady, v. 151, no. 1, 1963, 96-97

TOPIC TAGS: silumin, aluminum, silicon, sodium, lithium

ABSTRACT: The nature of modification is examined from the point of view of the physico-chemical analysis of the formation of a ternary eutectic of aluminum, silicon and NaAlSi in the system Al-Si-Na, by examining alloys of the silicon-lithium system, since lithium is the next chemical analog of sodium and, just as sodium, modifies the aluminum-silicon alloys, although less effectively. The attempt was made to explain the origin of comminution of silicon in modified eutectic using the lithium system since it provides greater possibilities for this because of the coarser structure which makes up its phase than the alloys of the Al-Si-Na system. Microanalysis indicated that in aluminum-silicon-lithium alloys the best expressed process develops on the basis of accumulation of silicon in crystals of a ternary chemical compound, probably due to the best structurally-measured relation between silicon, having crystal

Card 1/2

L 12615-63
ACCESSION NR: AP3003512

lattice of the diamond type with parameter 5.42P, and chemical compound (LiAlSi) possessing the same type of lattice with parameter 5.93. This report was presented by academician I. I. Chernyayev, 13 Mar 1963. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 01Mar63 DATE ACQ: 30Jul63 ENCL: 00

SUB CODE: CH, ML NO REF SOV: 004 OTHER: 002

Card 2/2

BOOM, Ye.A. (Angarsk)

Inoculating hypereutectic silumins. Izv. AN SSSR. Otd. nauk. Met. i gor. delo no.2:98-99 Mr-Ap '63. (MIRA 16:10)

BOOM, Ye.A.

Mechanism of silumin modification. Dokl. AN SSSR 151 no.1:96-97 Jl '63. (MIRA 16:9)

1. Predstavleno akademikom I.I.Chernyayevym.
(Silumin)

BOOM, Ye.A.

Mechanism of the formation of fine-grained (modified) structure of silumin. Zhur.neorg.khim. 8 no.9:2128-2131 S '63. (MIRA 16:10)

BOGNAR, Gyorgy

Technical novelties. Villamossag 10 no. 6:188-189 Je '62 Villamossag 10 no. 6:188-189 Je '62

1. "Villamossag" szerkeszto bizottsagi tagja.

BOOR, B.

Calculation of the basin constructed below a dam for the purpose of controlling the swirling currents by Bashkirov's method. p. 244.

Vol. 4, no. 8, August 1954
VODNI HOSPODARSTVI
Praha, Czechoslovakia

Source: East European Accession List. Library of Congress
Vol. 5, No. 8, August 1956

BOOR, Boris, doc., ing.

Complex method of calculating the depth of the sinking basin in the system of bottom flows. Vodoprivreda Jug 2 no.7/8:79-84 '59. (EEAI 10:1)

1. Institut d'Hydrologie et Hydrotechnique de l'Academie Slovaque des Sciences, Bratislava.
(Hydraulics) (Irrigation) (Water) (Rivers)

BOER, B.

Seepage prevention in concrete-gravity dams. p. 116.

VODNI HOSPODARSTVI. (Ustredni sprava vodniho hospodarstvi)
Praha, Czechoslovakia
No. 3, Mar. 1959.

Monthly list of East European Acessions (EEAI), LC, Vol. 8, no. 7
July 1959
Uncl.

BOOR, B.

Calculation of the size of a dam which is vertical on the longitudinal axis of the scour of a waterwork. p. 259

VODOHOSPODARSKY CASOPIS. (Slovenska akademia vied) Bratislava, Czechoslovakia. Vol. 7, no. 3, 1959

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 12, Dec. 1959 Uncl.

BOOR, Boris, doc., inz., C.Sc.

"Reservoirs and dams" by Stanislav Kratochvil. Reviewed by Boris Boor. Vodohosp cas 10 no.1:111 '62.

BOOR, B., doc., inz., CSc.

"Calculation of the bed solidification behind low-pressure spillways" by M.M.Beljasevskij [Belyashevsjiy, N.N.(Biliashevs'kyi,M.M.)]. Reviewed by B.Boor. Vod hosp 13 no.11: 422 '63.

ANDRASINOVA, O.; BOOK, J.

Analysis of enuresis nocturna in our clinical material. Cesk. psychiat. 61 no.6:395-401 D '65.

1. Psychiatricka klinika Lekarskej fakulty University P.J. Safarika v Kosiciach.

BOOR, K.

TECHNOLOGY

Periodical: ELELMEZESI IPAR. Vol. 13, no. 1, Jan. 1959

BOOR, K. World situation in nutrition and food supply. Pt. 1.
(to be continued) p. 25.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 5,
May 1959, Unclass.

BOOR, Karoly

Development of food supplies in the world; 1956-1958. I. (To be contd.). Elelm ipar 14 no.6:179-182 Je '60.

1. Orszagos Tervhivatal.

BOOR, Karoly

Development of food supplies in the world, 1956-1958.II. Elelm ipar 14 no.7:211-216 Jl '60.

1. Orszagos Tervhivatal.

BOOR, Karoly

Newer data on the porduction, consumption and foreign trade of foods.I.(To be contd.) Elelm ipar 16 no.3:89-94 Mr '62.

1. Orszagos Tervhivatal, Budapest.

BOOR, Karoly

New data on the international development of the production, consumption and foreign trade turnover of foodstuffs. II. Elelm ipar 16 no.4:120-123 Ap '62.

1. Orszagos Tervhivatal.

BOOR, Karoly

World situation of food consumption and food supply. Pt.1.
Elelm ipar 13 no.1:25-32 Ja '59.

1. Orszagos Tervhivatal.

BOOR, Karoly

World situation of food consumption and food supply. Pt.2.
Elelm ipar 13 no.2:65 F '59.

1. Orszagos Tervhivatal.

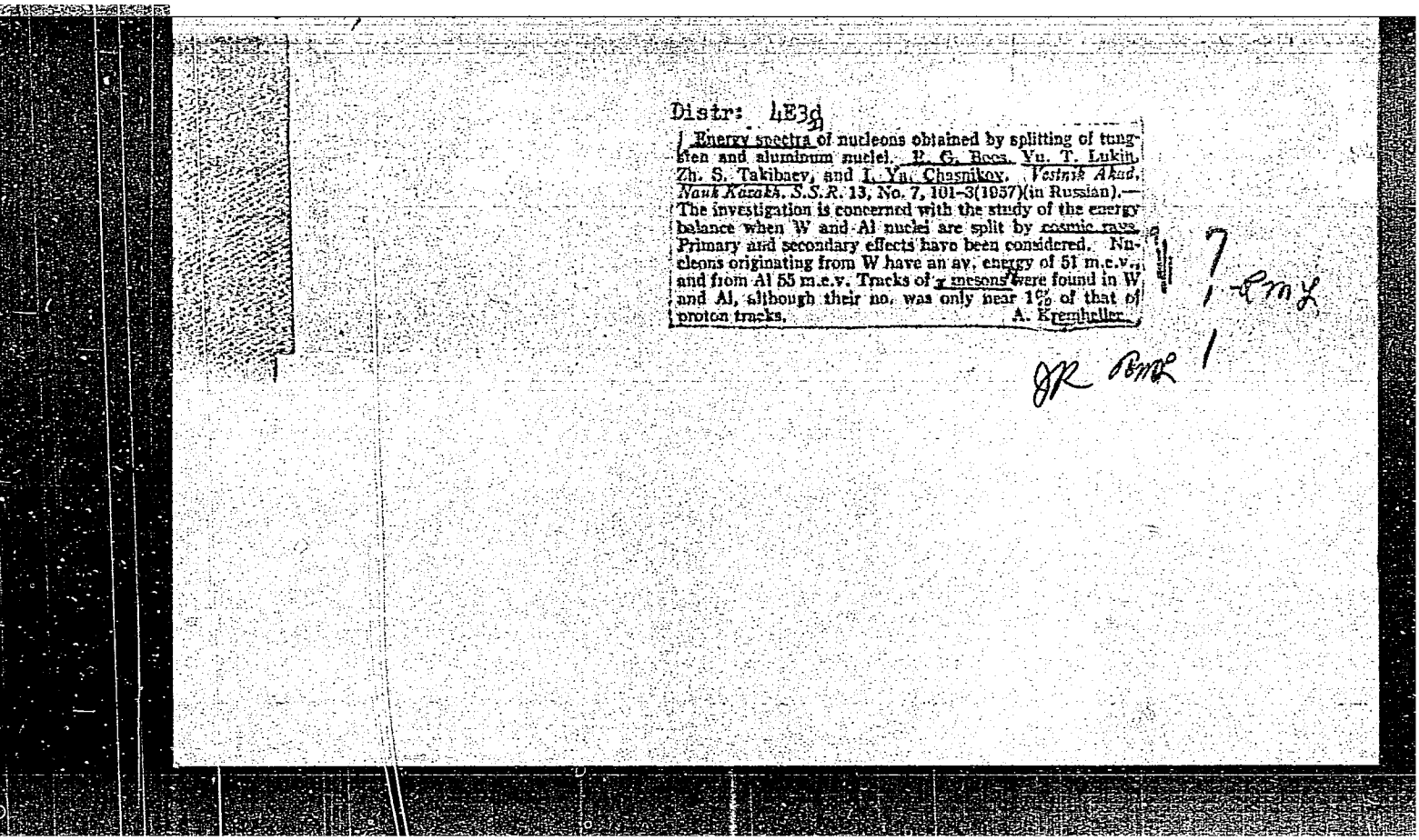
BOOR, Karoly

World situation of food consumption and food supply. Pt.2.
Elelm ipar 13 no.2:66-69 F '59.

1. Orszagos Tervhivatal.

BOORTSEV, V.T., KARASEV, R.A.

"Desulphurization of Cast Iron in Vacuum,"
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of Metallurgy, Moscow, July 1 - 6, 1957



Distr: 4E3d

Energy spectra of nucleons obtained by splitting of tungsten and aluminum nuclei. P. G. Bocs, Yu. T. Lukin, Zh. S. Takibaev, and I. Yu. Chasnikov. *Vestnik Akad. Nauk Kazakh. S.S.R.* 13, No. 7, 101–3(1957)(in Russian).—The investigation is concerned with the study of the energy balance when W and Al nuclei are split by cosmic rays. Primary and secondary effects have been considered. Nucleons originating from W have an av. energy of 51 m.e.v., and from Al 55 m.e.v. Tracks of π mesons were found in W and Al, although their no. was only near 1% of that of proton tracks. A. Kremheller

SOV/ 56-34-3-13/55

AUTHORS: Boos, E. G., Vinitskiy, A. Kh, , Takibayev, Zh. S. , Chasnikov, I. Ya.

TITLE: The Investigation of a Shower Produced by a Singly Charged Particle of High Energy (Issledovaniye livnya, vyzvannogo odnozaryadnoy chastitsey vysokoy energii)

PERIODICLA: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol. 34, Nr 3, pp. 622 - 631 (USSR)

ABSTRACT: The case described here of the type (2 + 16 p) was observed in a 600 μ thick emulsion Ilford G-5, which in 1955 was exposed in Italy at an altitude of about 30 km. The energy of the primary particle which was estimated by the usual kinematic method was $(5^{+10}_{-3}).10^{12}$ eV. The shower particles moved within an angle of $1{,}7.10^{-1}$ rad. The central traces pass in a plate distances up to 5 cm. For this very reason the energy of 15 shower particles could be determined by immediate measurement of the multiple Coulomb scattering. The first

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The Investigation of a Shower Produced by a Singly Charged Particle of High Energy

paragraph discusses the measurement of the momenta of the secondary particles. The scattering was measured individually for all shower particles. The value $\bar{D}$ of the scattering, which was measured immediately in the experiment, is composed of the pure Coulomb scattering D_k and of the scattering n, which is caused by all the other factors. The quantity n can be measured by measurement of the scattering of a high energy particle at three cells along its trace. The scattering of the shower particles was measured at cells from 500 to 4000 μ. The next paragraph deals with the angular distribution and the energy distribution of the shower particles. The angular distribution of the shower partides is illustrated by a diagram. This angular distribution agrees best with distribution according to the Heisenburg theory. . To compare the energy distribution of the shower particles with the theory by Landau a histogram was constructed in the laboratory coordinate system. The here found energy distribution does not correspond with the Landau theory, for a predominance of the low energy shower particles compared with the expected theoretical values is observed. The measured energy of the particles is smaller by one order of magnitude than the the corresponding theoretical values. A diagram illustrates the energy distribution of

The Investigation of a Shower Produced by a Singly Charged Particle of High Energy

15 shower particles in the center of mass system. This curve corresponds to the energy spectrum of the Heisenberg theory. The coefficient of the non-elasticity in the center of mass system amounts to $0,10^{+0,06}_{-0,02}$. The shower investigated here obviously has been generated by a nucleon-nucleon collision. The third paragraph discusses the soft component which accompanies the shower. To study this soft component the emulsion was evaluated inside a cone with the half aperture angle of 0,15 rad relatively to the shower axis. In this volume 10 electron-positron pairs and 1 trident were found. The corresponding data are compiled in a table. In case of knowledge of the number of the primary electron-positron pairs, which accompany a given shower, the expected number of neutral pions can be computed by application of the law of radioactive decay; a corresponding formula is written down here. For the mean energy of the neutral pions the value 15 ± 3 BeV is found. There are 6 figures, 4 tables, and 14 references, 4 of which are Soviet.

BOOS, E. G.

EVALUATING THE ENERGY ($E \sim 10^{11}$ ev) OF PRIMARY PARTICLES FROM THE ANGULAR AND ENERGY DISTRIBUTION OF SECONDARY SHOWER PARTICLES

E. G. Boos, Zh. S. Takibayev

A brief consideration is given to the more common methods of determining the energy of primary cosmic-ray shower-producing particles in individual acts of interaction from the angular distribution of the secondary particles. It is noted that the generally used kinematic methods are based on assumptions which in the majority of cases are not corroborated by experimental data concerning the energy and angular distribution of shower particles.

A method is described of evaluating the Lorentz factor in the center-of-mass system γ_c, in which use is made of the experimentally observed distribution of of transverse impulses of secondary particles. The values of γ_c thus obtained concide (within the limits of errors) with the values of γ_c evaluated from the angular distribution of secondary particles on the assumption of a power ($\sim 1/E^2$) energy spectrum of the generated mesons. Account of the energy spectrum of secondary particles systematically leads to smaller values of γ_c. Insofar as the distribution of transverse impulses is such that $\overline{P_t} \sim \mu_T \cdot c$ and the separate values of p_t do not greatly differ from this mean value, it becomes possible to evaluate the energy of the primary particle by the angular distribution alone, by introducing a certain constant factor that takes into account the nature of the distribution of P_t.

In evaluating γ_c, account is also taken of the energy spectrum of the shower-producing particles. This results in an additional reduction in the value of γ_c.

The problem is considered of evaluating the energy transferred to the generated mesons and the effect produced by the fraction of heavy mesons up on the magnitude of this energy. The energy of the primary particle has been correlated with the energy transferred, on the average, to the generated mesons.

Report presented at the International Cosmic Ray Conference, Moscow, 6-11 July 1959.

SOV/120-59-1-12/50

AUTHORS: Chasnikov, I. Ya., Takibayev, Zh. S., Boos, E. G.

TITLE: Determination of the Energy of Relativistic Particles from Measurements on Multiple Coulomb Scattering (Opredeleniye energii relyativistskikh chastits po izmereniyu mnogokratnogo kulonovskogo rasseyaniya)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 1, pp 54-57, (USSR)

ABSTRACT: The quantity which is measured directly is the second difference in coordinates given by:

$$\bar{D}^2 = \bar{D}^2_{coul} + n^2 \qquad (1)$$

where $\bar{D}_{coul} = Kt^{3/2}/P\beta C$, K is a constant and n is given by $n^2 = \bar{D}^2_{\eta} + \bar{D}^2_{noise}$. The quantity D_{noise} gives all the possible errors associated with measurements on the microscope (Ref 3). It may be shown (Ref 6) that for large cells $n = at^x$ so that:

$$\bar{D}^2 = (K/P\beta C)^2 t^3 + a^2 t^{2x} \quad . \qquad (2)$$

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Determination of the Energy of Relativistic Particles from Measurements on Multiple Coulomb Scattering

In Eq (2) there are three unknowns, namely, the momentum $P\beta C$ and the quantities a and x. To determine them it is necessary to have three equations corresponding to three cell sizes t. Such a system of equations is most conveniently solved in the case of cells whose lengths are in the ratio 1:2:4 so that:

$$\bar{D}_1^2 = (K/P\beta C)^2 t_1^3 + a^2 t^{2x} ,$$

$$\bar{D}_2^2 = 8(K/P\beta C)^2 t_1^3 + a^2 2^{2x} t^{2x} , \qquad (3)$$

$$\bar{D}_4^2 = 64(K/P\beta C)^2 t_1^3 + a^2 2^{2x} 2^{2x} t_1^{2x} .$$

Solution of the above three equations gives:

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Determination of the Energy of Relativistic Particles from Measurements on Multiple Coulomb Scattering

$$P\beta C = Kt_1^{3/2}\sqrt{\frac{64\bar{D}_1^2 + D_4^2 - 16\bar{D}_2^2}{\bar{D}_1^2\bar{D}_4^2 - \bar{D}_2^4}} \quad . \qquad (4)$$

By measuring $\bar{D}_1$, $\bar{D}_2$ and $\bar{D}_4$ the momentum of a particle may thus be directly determined. The method will work satisfactorily when the coulomb scattering is of the order of the distortion effect described by D_{Π} . The latter is due to micro-distortions in the emulsion. The above method was verified using the data obtained in Ref 2 by measuring multiple scattering of 4.5 Gev π-mesons in Ilford G-5 emulsions. The authors report that in this case the method works satisfactorily. Other measurements have shown that the method will work up to 20 Gev if tracks 4-5 cm in length are available. There are 4 figures and 9 references, of which 5 are Soviet, 1 is