

GRASYAN, E.; HASZNOS, T.; LISSAK, K.; MOLNAR, L.; RUZSONYI, Z.

Activation of the brain stem activating system by vegetative afferents;
a preliminary report. Acta physiol. hung. 3 no.1:103-1022 1952.

(CIML 24:3)

1. Of the Institute of Physiology of Pecs University.

GRASYAN, E.

Some functional properties of hypothalamic inhibition. E. Grastyán, K. Lissák, L. Hasznos, and L. Molnár (*Acta Physiol. Acad. Sci. Hung.*, 1953, 4, 241—252).—Simultaneous stimulation of the motor cortex and the hypothalamus by two square wave stimulators with a stereotactic instrument in cats under ether, chloralose, or Evipan were carried out and the foreleg flexion elicited by motor cortex stimulation, arterial blood pressure and lung ventilation were recorded. The existence of independent and coherent somato-motor inhibitory system was demonstrated in the region of the tuberal nuclei; area pre-optica, also in the septal nuclei as well as in the lateral part of the caput nuclei caudati. A parallelism was regularly seen between inhibition and parasympathetic modification of blood pressure and lung ventilation. A close functional interdependence of the facilitatory and inhibitory systems was proved by post-stimulatory rebound and prolonged periodical fluctuation.

A. B. L. BRZNAK.

GRASTYAN, E.

✓ Analysis of hypothalamic reaction reversal. E. Grastyán, K. Lissák, and T. Hasznos (*Acta Physiol. Acad. Sci. Hung.*, 1953, 4, 253—259).—The effects of the stimulation of various points in the hypothalamus on the movements of the foreleg elicited by stimulation of the motor cortex together with femoral blood pressure and lung ventilation were recorded in cats under ether and Evipan anaesthesia. Square waves of intensities varying between 2.5—12 v. and frequencies 24 to 192 cycles/sec. were used. Reaction reversal in the case of direct hypothalamic stimulation is a function of the intensity of the stimulus and is due to current dispersion. At voltages not leading to dispersion a change in frequency influences only the size but not the direction of the reaction. It is concluded that two systems, a facilitating and an inhibiting, forming a functional unit exist in the hypothalamus. A. B. L. BEZNAK.

GRASTYAN, E.

Grastyan, E. Lissak, K. Molnar, L.

"The functional relation between cyrus cinguli and caudate nucleus in the cat." p. 261.
(Acta Physiologica Academiae Scientiarum Hungaricae. Vol. 4, no. 3/4, 1953, Budapest.)

SO: Monthly List of East European Accessions, Vol. 2, No. 9, Library of Congress, September
1953, Uncl.

GRASYAN, A.; MOLNAR, L.

Experimental studies on the handedness of cat. Acta physiol.
hung. 6 no.2-3:301-311 1954.

1. Physiologisches Institut und Neurologisch-Psychiatrische Klinik
der Medizinischen Universität, Pecs.

(CATS

handedness, extremal dominance)

(HANDEDNESS

extremal dominance in cats)

GRASYAN, Endre; MOLNAR, László

Experimental study of handedness in cat. Kiserletes orvostud. 6
no.6:541-548 Nov 54.

1. Pécsi Orvostudományi Elettani Intézet, Ideg-, és Elmeklinikája.
(HANDEDNESS
in cats)

MEREI, Ferenc, dr.; GRASYAN, Endre, dr.; HASZNOS, Tivadar, dr.

The significance and treatment of increase of intracranial pressure following cranial injuries. *Magy. sebesset* 7 no.1: 53-59 Feb 54.

1. A Pécsi Orvostudományi Egyetem Ideg-es Élemlinikájának és Élettani Intézetének közleménye.

(BRAIN, wds. & inj.

causing increase of intracranial pressure, ther.)

(WOUNDS AND INJURIES

brain, causing increase of intracranial pressure, ther.)

(CEREBROSPINAL FLUID, physiol.

pressure increase following cerebral inj., ther.)

GRASYAN, E.; LISSAK, K.; SZABO, J.

Cortical electrical manifestations of diencephalic inhibition.
Acta physiol. hung. 7 no.3:187-198 1955.

1. Institute of physiology, University Medical School, Pecs.
(ELECTROENCEPHALOGRAPHY,
cortical manifest. of diencephalic inhib)
(DIENCEPHALON, physiology,
cortical manifest. of diencephalic inhib., ENG)
(CEREBRAL CORTEX, physiology,
cortical manifest. of diencephalic inhib., ENG)

MOLNAR, Lasso; GRASTYAN, Endre

Experimental data on the physiology of the grasping reflex.
Ideg. szemle 8 no.3:74-78 June 55.

1. A Pecsí Orvostudományi Egyetem Ideg - és Elaklinikájának
(igazgató: Dr. Jornyey Istvan) es Eletani Intezetének
(igazgató: Dr. Lissak Kalman) közleménye.

(REFLEX

grasping reflex, localization of regulatory centers in
cats (Hun))

MOLNAR, Laszlo, dr.; SCHAB, Rezső, dr.; GRASYAN, Endre, dr.

Effects of ligation of the carotid and vertebral arteries on the process of experimental epileptic seizures in cats. Ideg. szemle 9 no.1:11-16 Feb 56.

1. A Pécsi Orvost. Egyetem Ideg- és Eljekortani Klinik. (igaz. Dr. Kornyei, István), valamint Elektrol. Intsz. (igaz. dr. Lissak Kálmán) közl.

(EPILEPSY, exper.

eff. of ligation of carotid & vertebral arteries in cats. (Hun))

(ARTERIES, CAROTID, physiol.

eff. of ligation on exper. epileptic seizures in cats. (Hun))

(ARTERIES, VERTEBRAL, physiol.

same.))

GRASTYAN, E

✓ 1781. Facilitation and inhibition of conditioned alimentary and defensive reflexes by stimulation of the hypothalamus and reticular formation. E. Grastryan, K. Lissak, and F. Kekesi. *Acta Physiol. Acad. Sci. Hung.* 1956, 9, 133-151. (Physiol. Inst. Med. Univ., Pécs, Hungary).—Previous workers proved that afferent impulses coming from subcortical systems are essential elements in the elaboration of conditioned behaviour patterns. In this work the functional organisation of the hypothalamus and reticular formation in their above role was studied. In order to differentiate specific effects from those non-specifically activating the cortex and the peripheral motorium, hypothalamic and reticular formation areas were electrically stimulated while the cat performed one of two antagonistic (an alimentary and a defensive) conditioned behaviour patterns which had previously been elaborated. The sites of stimulation were histologically identified. Changes in the e.e.g. were also simultaneously recorded. Stimulation of these areas influenced conditioned behaviour by a mechanism of reciprocal antagonism similar in pattern to spinal reflex organisation. Stimulation of a given point, however, elicited invariably the same effect, irrespective of the parameters used. Isolated stimulation of adequate points (without preceding reinforcement with the unconditioned stimulus) may activate the complete conditioned response. This activation takes effect by a facilitation of inhibited stimuli arising in the conditioned response situation. Changes in the character of the experimental situation produce quant. changes in the excitability of the stimulated structures. The hypothalamus and reticular formation and their diffuse system activation exist side by side and cooperate in the building up of the conditioned behaviour patterns. (Hungarian)

Med 5

GRASTYAN, E.

1790. Effects of electrical stimulation of the auditory cortex on conditioned reflex activity in dogs. W. Rüdiger, E. Grastyan, and I. Madarasz. *Acta physiol. Acad. Sci. Hung.* 1950, 6, 163-172 (Physiol. Inst., Med. Univ., Pécs, Hungary).--Parotid secretion was conditioned on 2 different sound stimuli. Permanent electrode pairs were inserted into the cortex, 2 pairs into the motor, one into the auditory cortex. Electrical stimulation of the auditory cortex simultaneously with or shortly after the positive conditioned sound stimulus inhibited the conditioned salivary response. If the same electrical stimulation was used after the conditioned stimulus as a secondary conditioned stimulus, it elicited a conditioned salivary response having become a conditioned stimulus. Electrical stimulation of the auditory cortex alone can serve as conditioned stimulus.

(German) A. B. L. BEZNAK

163

Physiol Inst, Medizinischen Univ, Pécs

CRASTYAN, E

LISSAK, K.; CRASTYAN, E.; MOLNAR, L.; KEKESI, F.; SZABO, J.; VEREBY, G.

Significance of the hypothalamus and hippocampus in the higher nervous activity. Cesk. fysiол. 6 no.4:461-466 Nov 57.

1. Fysiologicky ustav lekarske fakulty, Pecs. Predneseno na Pavlovovskem zasedani v Lipsku 2. 12. 1955.

(HIPPOCAMPUS, physiology,
in higher nervous activity (Cz))

(HYPOTHALAMUS, physiology
same)

(CENTRAL NERVOUS SYSTEM, physiology
higher nervous activity, role of hippocampus & hypothalamus
(Cz))

EXCERPTA MEDICA Sec.2 Vol.10/10 Phy.Biochem. Oct 57

GRASTYANE.

4399. GRASTYÁN E., LISSAK K., KÉKESI F., SZABÓ J. and VEREBY I. Pécsi Orvostud. Egyet. Elettani Intéz., Pécs. *Adatok a hippocampus fiziológiájához. Physiology of the hippocampus KISERL. ORVOSTUD. 1957, 9/1 (88-99) Graphs 7 Illus. 2

The role of the hippocampus in higher nervous activity was studied in acute and chronic experiments on cats. With electrical stimulation of various types under acute and chronic conditions it was found in contrast to the effects demonstrated from the hypothalamus and the reticular substance, that hippocampal stimulation inhibits in a non-reciprocal manner the spontaneous and reflex movements and the antagonistic conditioned reflexes (feeding and defensive reflexes). Similar effects of opposite nature in the function of the 2 regions were observed with stimulation during deep natural sleep. Variations in electrical function of the cortex were analysed parallel with the motor and behavioural changes. Some conclusions as to the physiological significance of hippocampal inhibition are drawn.

GRASYAN, E

VEREBY, Gy.; KEKESI, F.; GRASYAN, E.

Comparative studies on the activation systems of hippocampus and brain stem by stimulation and EEG analysis during natural sleep. Acta physiol. hung. 11(Suppl):21-22 1957.

1. Physiologisches Institut der Medizinischen Universität, Pecs.
 - (HIPPOCAMPUS, physiol.
activation system during sleep, studies by electric stimulation & EEG in exper. animals (Ger))
 - (BRAIN STEM, physiol.
activation system of reticular form. during sleep, studies by electric stimulation & EEG in exper. animals (Ger))
 - (SLEEP, physiol.
activation systems of hippocampus & reticular form. during sleep, studies by electric stimulation & EEG in exper. animals (Ger))

EXCERPTA MEDICA Sec 2 Vol 12/4 Physiology Apr 59

1343. PHYSIOLOGY OF THE HIPPOCAMPUS - Beiträge zur Physiologie des Hippocampus - Grastyán E., Lissák K., Kékesi F., Szabó J. and Vereby I. *Physiol. Inst. der Med. Univ., Pécs - PHYSIOL. BOHEM.* 1958, 7/1 (9-18) Graphs 5 illus. 2
Electrical stimulation of the hippocampus of cats inhibits spontaneous and reflex motor activity and conditioned reflexes.
Hahn - Prague

BAUER, Miklos, dr.; GRASTYAN, Endre, dr.

Registration of acoustic "evoked potentials" during the formation of conditioned food reflexes. *Ful-orr-gegegyogy* 7 no.1:10-17 F '61.

1. A Pecszi Orvostudományi Egyetem Ful-orr-gegeklínikájának (Mb. igazgató: Duchon Jeno dr.) és Élettani Intézetének (Igazgató: Lissak Kalman dr., egyet. tanár) közleménye.
(REFLEX CONDITIONED)

GRASTYAN, Endre, az orvostudományok kandidátusa; BAUER, Miklos

Changes in the produced potentials of auditory and visual cortices during the development of a momentary relationship. Biol orv kozl MTA 12 no.1/2:141-147 '61.

1. Pécsi Orvostudományi Egyetem Elettani Intézete és Orr-Fül-Gege Klinikája.

+

HECHT, K.; GRASYAN, E.

EEG and behavioral studies of "backward conditioning" in cats.
Acta physiol. hung. 20 no.1:27-40 '61.

1. Physiologisches Institut der Medizinischen Universität, Pecs.
(REFLEX, CONDITIONED)

GRASTYAN, E.; KARMOS, G.

A study of a possible "dreaming" mechanism in the cat. Acta physiol. hung. 20 no.1:41-50 '61.

1. Institute of Physiology, Medical University, Pecs.
(DREAMS) (BRAIN physiol) (SLEEP physiol)

LISSAK, K.; KARMOS, G.; GRASYAN, E.

A peculiar dream-like stage of sleep in the cat. *Activ. nerv. sup.* 4
no.3/4:347-352 '62.

1. Institute of Physiology, Medical University of Pecs.
(SLEEP) (DREAMS) (MESENCEPHALON)
(RETICULAR FORMATION) (HIPPOCAMPUS)

KOPA, J.; SZABO, I.; GRASYAN, E.

A dual behavioural effect from stimulating the same thalamic point with identical stimulus parameters in different conditional reflex situations. Acta physiol. acad. sci. hung. 21 no.3:207-214 '62.

1. Institute of Physiology, Medical University, Pecs.
(AVOIDANCE LEARNING) (THALAMUS) (REFLEX, CONDITIONED)

KARMOS, G.; GRASYAN, E.

Influence of hippocampal lesions on simple and delayed conditional reflexes. Acta physiol. acad. sci. hung. 21 no.3:215-224 '62.

1. Institute of Physiology, Medical University, Pecs.
(HIPPOCAMPUS) (REFLEX, CONDITIONED)

GRASTYAN, Endre, dr., egyetemi tanár, az orvostudományok kandidátusa.

Physiology of animal behavior. Elovilag 8 no.2:16-26 Mr-Ap'63.

1. Pécsi Orvostudományi Egyetem Elettani Intézete.

HUNGARY

KLINGBERG, Fritz, of the Clinic for Neurology and Psychiatry at Karl Marx University (Neurologisch-Psychiatrische Klinik, Karl-Marx Universität) in Leipzig, Germany, and GRASYAN, Endre, of the Institute for Biology at the Medical University (Orvostudományi Egyetem Elektrológiai Intézet) in Pécs.

"Changes of Optic-Evoked Potentials During Conditioning and Their Relation to the Conditional Startle Reaction"

Budapest, Acta Physiologica Academiae Scientiarum Hungaricae, Vol 23, No 2, 1963, pp. 115-135.

Abstract: [English article; authors' English summary] Similarly to sound stimuli, startle reactions are elicited by conditional light stimuli in an early phase of development of the conditional aversive reflex. At the time of appearance of the startle reactions, general motor inhibition, a decreased cortical electrical tone, and an increase of the late-surface negative waves of the evoked potential can be observed. It is suggested that a common mechanism is represented by this

1/2

HUNGARY

Budapest, Acta Physiologica Academiae Scientiarum Hungaricae, Vol 23,
No 2, 1963, pp. 115-135.

potential component, the human 'nonspecific electroencephalogram response', and by the recruiting potential. On the basis of the decreased cortical tone accompanying the conditional startle reactions, the conclusion is drawn that as to its mechanism the startle consists of a subcortical irradiation process released by cortical inhibition. The mechanism of the startle reaction is considered to play an important role in the development of the conditional reflex, and at the same time to be one of the earliest somatic conditional manifestations. Forty-five references, including 2 Russian, 2 Hungarian, 2 German, and 39 Western.

2/2

HUNGARY

GRASYAN, Endre, SAKHIULIJA, G.T., and ANGYAN, Lajos, of the Institute for Biology at the Medical University (Orvostudományi Egyetem Elektani Intozats) in Pecs.

"Functional Significance of the Recruiting Potential Mechanism When Used as Conditional Stimulus for the Elaboration of the Avoidance Reflex"

Budapest, Acta Physiologica Academiae Scientiarum Hungaricae, Vol 23, No 2, 1963, pp. 155-167.

Abstract: [English article; authors' English summary, abbreviated] A stimulation eliciting recruiting potentials can be used successfully for conditioning. The essential factor was apparently the aftereffect of the stimulation rather than the stimulation itself. There was an inverse relation between the prominence of the recruiting response and its capacity to become a conditional signal. Stimulation itself had a direct inhibitory effect on the conditional reflex. A dominantly inhibitory mechanism is represented by the recruiting potential. Fourteen references, including 2 Hungarian and 12 Western.

1/1

HUNGARY

ANGYAN, Lajos, GRASTYAN, Endre; Institute of Physiology, Medical University, Pecs (Orvostudományi Egyetem Elektani Intézet, Pecs).

"Changes of Recruiting Potentials During Avoidance Conditioning."

Budapest, Acta Physiologica Academiae Scientiarum Hungaricae, Vol XXIII, No 3, 1963, pages 297-303.

Abstract:[English article; Authors' English summary] The influence of psychologically different situations of avoidance conditioning on the recruiting potentials was studied in cats. Two opposite changes were observed during conditions of higher emotional excitement, one consisting of a decrease, the other of an increase of amplitudes of recruiting-type potentials. Morphological differences were found between the potentials showing these opposite effects. The potentials showing a decrease were found to be pure surface negative, the other potentials biphasic, with an early positive component. It is inferred that this last type represented augmenting responses and it is concluded that, despite some common characteristics of both potential forms, they represent different mechanisms. 2 Hungarian, 7 Western references.

1/1

CZOPF, J.; GRASYAN, E.

The effect of septal lesions on simple and delayed conditioning
in cats. Acta physiol. acad. sci. Hung. 24 no.3:313-319 '64

1. Institute of Physiology, Medical University, Pecs.

*

CZOFF, J.; KARMOS, G.; BAUER, M.; GRASYAN, E.

Simultaneous elaboration of approach and avoidance conditioning
in the same experimental situation for cats. Acta physiol. acad.
sci. Hung. 25 no.1:53-60 '64.

1. Institute of Physiology, University Medical School, Pecs.

GRASTYAN, E.; CZOPF, J.; ANGYAN, L.; SZABO, I.

The significance of subcortical motivational mechanisms in the organization of conditional connections. An attempt at the physiological interpretation of the basic mechanism of motivation. Acta physiol. acad. sci. Hung. 26 no.1:9-46 '65

1. Institute of Physiology, University Medical School, Pecs.

KARMOS, G.; GRASYAN, E.; LOSONCZY, Hajna; VERECZKEY, L.; GROSZ, J.

The possible role of the hippocampus in the organization of the orientation reaction. Acta physiol. acad. sci. Hung. 26 no.1: 131-141 '65

1. Institute of Physiology, University Medical School, Pecs.

ANGYAN, L.; GRASYAN, E.

Some electrical correlates of drive processes elicited from
median thalamic structures. Acta physiol. acad. sci. Hung.
26 no.1:149-155 '65

1. Institute of Physiology, University Medical School, Pecs.

L 45479-66

ACC NR: AT6033345

SOURCE CODE: HU/2505/65/026/01-/0009/0046

AUTHOR: Grastyán, E.; Czopf, J.; Angyán, L.; Szabo, I.

21

ORG: Institute of Physiology, Medical University of Pecs (Pecsi Orvostudományi Egyetem, Elettani Intezet) *B+*

TITLE: Significance of subcortical motivational mechanisms in the organization of conditional connections. Attempt at the physiological interpretation of the basic mechanism of motivation [Paper presented at the symposium of the Hungarian Physiological Society held in Budapest from 2-3 July 1963]

SOURCE: Academia scientiarum hungaricae. Acta physiologica, v. 26, no. 1-2, 1965, 9-46

TOPIC TAGS: conditioned reflex, cat, brain, neurophysiology, electrophysiology

ABSTRACT: The basic neural mechanisms of motivation have been investigated in cats by electric stimulation of diencephalic and mesencephalic structures in a dual conditional reflex environment. Two elementary and antagonistic mechanisms were demonstrated behind the apparently homogeneous motivational effects elicited by the stimulations, termed pull and push effects, and they were shown to be interconnected inseparably. The possible neural organization responsible for the complex inter-relationships of the two motivational sub-systems were discussed on the basis of analysis of several experimental facts. It is pointed out that both the pull and push effects can organize conditional connections corresponding to their nature, with external stimuli active at the moment of their existence. An attempt has been made at a physiological interpretation of Hull's drive reduction hypothesis. The importance of the arrest reaction in the formation of instrumental conditioned reactions is pointed out. Orig. art. has: 11 figures. [Orig. art. in Eng.] [JPRS]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 007 / SOV REF: 001

OTH REF: 025

Card 1/1

L 45471-66

ACC NR: AT6033354

SOURCE CODE: HU/2505/65/026/01-/0131/0141

AUTHOR: Karmos, G.; Grastyán, E.; Losonczy, Hajna; Vereczkey, L.; Grosz, J. 21

ORG: Institute of Physiology, Medical University of Pecs (Pecsi Orvostudományi Egyetem, Elettani Intézet) B/H

TITLE: Possible role of the hippocampus in the organization of the orientation reaction
This paper presented at the symposium of the Hungarian Physiological Society held in Budapest from 2 to 3 July 1963

SOURCE: Academia scientiarum hungaricae. Acta physiologica, v. 26, no. 1-2, 1965, 131-141

TOPIC TAGS: electrophysiology, brain, cat, neurophysiology

ABSTRACT:

Behavioral and electrophysiological findings have been presented concerning the function of the hippocampus. It was found in unrestrained cats with implanted electrodes that, in contrast to the generally accepted view, hippocampal arousal is characterized by desynchronization similar to that of the neocortex and not by theta waves. An analysis of the relationship between the orientation reaction and hippocampal theta activity revealed that unfamiliar stimuli in a familiar environment did not elicit an orientation reaction. The latter could be elicited only by stimuli having a conditional signal property. The hippocampal theta rhythm was found to be a concomitant of the orientation reaction. An intensification of the latter was observed after hippocampal lesions. A multiple-choice delayed reflex could not be elaborated in cats with hippocampal lesions while the reflex elaborated before the lesion was impaired only temporarily. The possible function of the hippocampus and the significance of the theta rhythm have been discussed. The authors thank the "Muszeripari Muvek", Esztergom, Hungary for the loan of the frequency analyzer. Orig. art. has: 10 figures. [Orig. art. in Eng.] [JPRS]

SUB CODE: f06 / SUBM DATE: none / ORIG REF: 004 / SOV REF: 001 / OTH REF: 010
Card 1/1

L 45469-66

ACC NR: AT6033356

SOURCE CODE: HU/2505/65/026/01-/0149/0155

AUTHOR: Angyan, L.; Grastyán, E.

ORG: Institute of Physiology, Medical University of Pecs (Pecsi Orvostudományi Egylet, Elettani Intezet) 21

TITLE: Some electrical correlations of drive processes elicited from the median thalamic structures. [This paper presented at the symposium of the Hungarian Physiological Society held in Budapest from 2 to 3 July 1963.] 27/

SOURCE: Academia scientarum hungaricae. Acta physiologica, v. 26, no.1-2, 1965, 149-155

TOPIC TAGS: brain, electrophysiology, neurophysiology

ABSTRACT: The role of midline thalamic structures in the conditioning process has been studied using the recruiting potential as an indicator in three different ways. 1. Recruiting responses were elicited in two psychological opposite situations of avoidance conditioning in order to evaluate the influence of different environmental factors on the potential mechanism. 2. Low frequency stimulation of the centrum medianum, reuniens and ventralis anterior nerves was used as a conditioned signal and in variations in the morphology of the potentials accompanying the development of conditioning were analyzed. 3. Stimulations were applied to activate a pre-established avoidance or approach conditioned reaction, and the potential configurations at which activation was reached were compared with potential configurations not reaching the threshold of activation. The observations suggested that, despite their common characteristics, different parts of the diffuse thalamic projection system represent different mechanisms. A double functional representation of the region of the centrum medianum and its possible role in the conditioning process is discussed. Orig. art. has: 8 figures. [Orig. art. in Eng.] [JPRS]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 004 / OTH REF: 001

Card 1/1 fv

GRASU, Const.

Contributions to the study of the fauna of the Upper Jurassic in the Haginas Mountains. Anal St Jassy II 10:71-78 '64.

1. "Stejarul" Research Station, Binarati. Submitted October 26-27, 1963.

GRASU, Gheorghe

From the experience of the front-rankers in socialist
competition. Constr Buc 16 no.742:2 742 28 March 1964.

1. Fabrica de ciment "Stinca" din Braila.

ACCESSION NR: AP4024732

S/0109/64/009/003/0524/0532

AUTHOR: Grasyuk, A. Z.; Orayevskiy, A. N.

TITLE: Transients in maser

SOURCE: Radiotekhnika i elektronika, v. 9, no. 3, 1964, 524-532

TOPIC TAGS: maser, maser transient, maser transient theory, maser transient experiment

ABSTRACT: A theoretical and experimental investigation of transients occurring in a maser is reported, from the moment of entry of the active-molecule beam into the resonator. Equations are developed which describe the transients; the form of these equations is similar to that of equations describing quasi-stationary conditions. It is found that the effect of the beam intensity on the quiescent time and the total transient time is stronger than the corresponding effect on the steady-state amplitude; this permits using the method of amplitude

Card 1/2

ACCESSION NR: AP4024732

transient characteristics for balancing beam intensities in two-beam masers. The phase and frequency in a maser are established in a different manner than is the amplitude, which should be borne in mind when dealing with the various methods of aligning a maser for its radiation line. The oscillating nature of the theoretical amplitude curves provides some reason to believe that an auto-modulation mode is possible in a maser under certain conditions. "The authors wish to thank A. V. Uspenskiy for his comments." Orig. art. has: 9 figures and 21 formulas.

ASSOCIATION: none

SUBMITTED: 28Jun62

DATE ACQ: 10Apr64

ENCL: 00

SUB CODE: PH

NO REF SOV: 006

OTHER: 001

Card 2/2

L 8717-65 EWG(j)/EWA(k)/ESD/EMI(l)/EEC(k)-2/EEC(t)/T/EEC(b)-2/EMP(k)/EWA(m)-2/
 EWA(h) Pn-4/Po-4/Pf-4/Pl-4/Peb/Pl-4 IJP(a)/ESD(gs)/AFWL/ASD(a)-5/AFTC(p)/SSD/
 RAEM(a)/RAEM(t)/AFETR/ESD/ESD(t)/ASD(d) WG

ACCESSION NR: AP4045491 S/0109/64/009/009/1680/1686

AUTHOR: Basov, N. G.; Grasyuk, A. Z.; Orayevskiy, A. N. 8

TITLE: Some special features of information transmission and reception by means of laser oscillators and amplifiers

SOURCE: Radiotekhnika i elektronika, v. 9, no. 9, 1964, 1680-1686

TOPIC TAGS: laser, multichannel communication line, laser beam, traveling wave laser, image amplifier 25 6

ABSTRACT: Some basic properties of multichannel communication lines using the time and space coherence of the radio emission of a laser oscillator concurrently are studied. The information is transmitted by irradiating an object of variable transparency with a laser beam. The authors demonstrated that the transmission capacity of such a system exceeds considerably the corresponding value yielded by the Shannon formula for one channel. The receiver signal-to-noise ratio required for the stable operation of communication lines using traveling-wave lasers is evaluated. The problem of the possibility of using regenerative lasers as image amplifiers is also studied.

Card 1/2

L 8717-65

ACCESSION NR: AP4045491

The authors note that, for the purpose of simplifying the receiver of a multichannel communication line, it is possible to utilize space quantization of transparency functions with limited diffraction spectra. Orig. art. has: 7 figures and 8 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR
(Physics Institute, AN SSSR)

SUBMITTED: 25Apr 63

ATD PRESS: 3112

ENCL: 00

SUB CODE: EC

NO REF SOV: 004

OTHER: 003

Card 2/2

L 19028-65 EWT(1)/EWA(h) Feb SSD/AFWL/RAEM(a)/AFETR/APGC(b)/ESD(gs)

ACCESSION NR: AP5000457

S/0109/64/009/012/2156/2165

AUTHOR: Agabekyan, A. S.; Grasyuk, A. Z.; Zubarev, I. G.; Svergun, V. I.;
Orayevskiy, A. N.

TITLE: Stabilization of unstable conditions in a two-level quantum generator

SOURCE: Radiotekhnika i elektronika, v. 9, no. 12, 1964, 2156-2165

TOPIC TAGS: quantum generator, quantum generator stabilization

ABSTRACT: Two methods of stabilizing automodulation conditions in a two-level quantum generator are theoretically considered: (1) Locking-in of the unstable generator by a low-power constant-amplitude generator; (2) Stabilization by means of a resonator-Q negative feedback. The effect of a constant-amplitude external force on the stability of the amplitude of oscillations is mathematically investigated. To stabilize automodulation conditions, the magnitude of the external force should exceed a certain threshold which depends on the parameters

Card 1/2

L 19028-65

ACCESSION NR: AP5000457

of the generator being locked; hence, phase and amplitude locking-in must be distinguished. Four equations describing the stabilization by a resonator-Q negative feedback are set up and analyzed. Orig. art. has: 7 figures and 52 formulas.

ASSOCIATION: none

SUBMITTED: 31Jul63

ENCL: 00

SUB CODE: EC

NO REF SOV: 005

OTHER: 001

Card 2/2

ACCESSION NR: AP4019968

S/0020/64/154/006/1303/1305

AUTHORS: Grasyuk, A.Z.; Zuyev, V.S.; Kokurin, Yu.L.; Kryukov, P.G.;
Kurbasov, V.V.; Lobanov, V.F.; Mozhzherin, V.M.; Sukhanovskiy,
A.N.; Cherny*kh, N.S.; Chuvayev, K.K.

TITLE: Optical moon ranging

SOURCE: AN SSSR. Doklady*, v. 154, no. 6, 1964, 1303-1305

TOPIC TAGS: laser, ruby laser, moon ranging, moon
light reflection, celestial ranging, optical ranging

ABSTRACT: The paper describes the preliminary results of moon ranging with a ruby laser. For the transmission and reception of the light pulses, a telescope was used with a mirror diameter of 2.6 m. (see Fig. 1 of the Enclosure). The laser used was developed by V.S. Zuyev and P.M. Kryukov and had the following parameters: wavelength 6943Å, pulse energy 50 to 70 joules, pulse duration 2 μsec, diameter of the beam 11 mm., and divergence 3'. By taking into consideration the light scattering in the atmosphere, the diameter of the spot on the moon is estimated to be 14 km. For the detection of the signal,

Card 1/3

ACCESSION NR: AP4019968

a photomultiplier cooled with dry ice was used. The signal to noise ratio was 0.16. Therefore, statistical treatment was necessary. The authors believe that the results prove the reality of the reflected signal. "The authors are grateful to corresp. members A. G. Basov and A. B. Severnyy, and to B. I. Belov, F. Kh. Nigmatullin of the Lebedev Phys. Institute, and to V. B. Nikonov, V. K. Prokofyev, P. P. Dobronravin, N. V. Stesheuko, and B. P. Abrazhevskiy of the Crimean Astrophysics Observatory." Orig. art. has: 1 figure..

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR (Institute of Physics, AN SSSR), Krymskaya astrofizicheskaya observatoriya akademii nauk SSSR (Crimean Astrophysics Observatory, AN SSSR)

SUBMITTED: 05Nov63

ATD PRESS: 3047

ENCL: 01

SUB CODE: EC, AA

NO REF SOV: 001

OTHER: 001

Card 2/3

ACCESSION NR: AP4019968

ENCLOSURE; 01

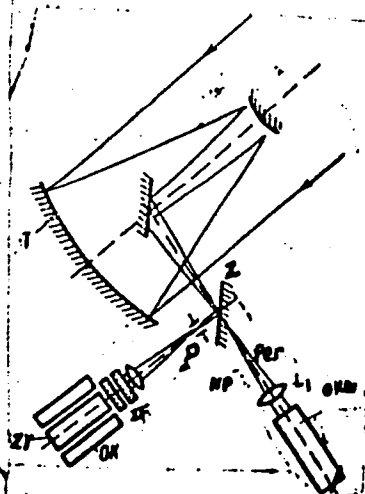


Fig. 1. Diagram of unit for optical moon ranging

T - Telescope; OKG - optical quantized generator; L₁ - matching lens; Z - throwover mirror; D - diaphragm; IF - interference filter; FZY - electron photomultiplier; OK - dry ice container.

Card

3/3

L 8723-65 EWG(j)/EWA(k)/FBD/EWT(l)/EEC(k)-2/EEC(t)/T/EEC(b)-2/EWP(k)/EWA(m)-2/
EWA(h) Pn-l/Po-l/Pf-l/Peb/Pl-l/Pl-l IJP(c)/SSD/BSA/RAEM(t)/AFETR/ASD(d)/RAEM(a)/
ESD(g)/ASD(a)-5/ESD(t)/AFWL WG

ACCESSION NR: AP4043832

S/0020/64/157/005/1084/1087

AUTHOR: Basov, N. G. (Corresponding member AN SSSR); Grasyuk, A. Z.^β
Zubarev, I. G.

TITLE: Regenerative laser 25

SOURCE: AN SSSR. Doklady*, v. 157, no. 5, 1964, 1084-1087

TOPIC TAGS: laser, ruby laser, regenerative laser, laser amplifier,
unidirectional laser, traveling wave laser, laser gain

ABSTRACT: An optical amplifying system is presented, consisting of
a Q-switching ruby laser driving a unidirectional amplifier laser.
The Q-switch of the signal source was provided to determine properly
the shape, length, power, and time reference of the driving pulse.
The unidirectional feature of the driven laser, achieved by a third
mirror taking the return path outside the ruby rod, renders the
threshold adjustment of the system less critical and makes it easier
to reach stable gain. Furthermore, the unidirectional system allows

Card 1/2

L 8723-65

ACCESSION NR: AP4043832

3

for the employment of several amplifying lasers in series without interstage isolators. In the experiment, the overall power gain was measured as a function of single-pass gain. An overall gain in the vicinity of 10 was recorded against a single-pass gain of 6 and the reflection coefficient of the semitransparent mirror was equal to 0.1. In order to measure the sensitivity of the amplifier, the photomultiplier was placed as far from it as possible to reduce luminescence effects and a flash lamp quenching device was used to eliminate the pump background. The measurements showed that the system is sensitive to signal power of the same order of magnitude as the theoretical value, given a signal-to-noise ratio close to unity. The pass bandwidth was 5 cm^{-1} for overall power gain of 25. "The authors extend their thanks to V. S. Zuyev, P. G. Kryukov, and V. I. Svergun for assistance in their work." Orig. art. has: 4 figures and 3 equations.

ASSOCIATION: none

SUBMITTED: 18Feb64

ATD PRESS: 3113

ENCL: 00

SUB CODE: EC

NO REF SOV: 004

OTHER: 002

Card 2/2

EWA(k)/EED/ENG(r)/EWT(1)/EWP(e)/EWT(m)/EEG(k)-2/EWP(1)/EEG(t)/T/
 EWP(e)/EEG(h)-2/EWP(b)/EWA(m)-7/EWA(k) Pm-4/Pn-4/Pq-4/Pq-4/PeB/Pl-4/Pl-4/Pf-4
 EWP(1)/EWP(1) WG/WH
 ACCESSION NR: AP5014226 UR/0386/65/001/004/0029/0033

AUTHOR: Basov, N. G.; Grasyuk, A. Z.; Zubarev, I. G.; Katulin, V. A.

TITLE: Generation in optically pumped GaAs. by means of a neodymium glass laser

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 1, no. 4, 1965, 29-33

TOPIC TAGS: gallium arsenide, optical pumping, neodymium glass laser, nonlinear effect, two photon absorption, Raman scattering, second harmonic generation

ABSTRACT: A neodymium-doped glass Q-spoiled laser (pulse energy 0.5 j, power up to 7 Mw) was used to excite GaAs. The pumping energy was 1.17 ev ($\lambda = 1.06 \mu$), which is considerably smaller than the energy gap of the forbidden zone in GaAs (1.51 ev ($\lambda = 8200 \text{ \AA}$) at $T = 77K$). The excitation was achieved in a $5 \times 5 \times 10 \text{ mm}$ n-type GaAs crystal in which carrier concentration and mobility were $1.7 \times 10^{17} \text{ cm}^{-3}$ and $4400 \text{ cm}^2/\text{v sec}$, respectively. The crystal, shown in Fig. 1 of the Enclosure, was attached to a massive heat sink 6 placed in liquid nitrogen. The pumping light 1 was focused at one of the crystal edges 4 by means of a cylindrical lens 2. The other two edges, orthogonal to edge 4, were polished accurately to form a plane resonator. Light 5, from one side of the resonator, was directed at the ISP-51

Card 1/4

L 53581-65

ACCESSION NR: AP5014226

spectrograph 7, where it was photographed; the light from the other side was directed at a screen 3, where it was also photographed. The effect of the density of pumping power on the width and intensity of spectral lines was studied and is shown in Fig. 2. The photographs of the radiating edge show that generation occurs in a layer 1 mm thick. Thus, as is the case of exciting GaAs with the Stokes component in the Raman scattering of a ruby laser beam in liquid nitrogen (N. G. Basov, A. Z. Grasyuk, V. A. Katulin, Doklady AN SSSR, v. 161, no. 6, 1965), a comparatively large volume of the semiconductor takes part in the generation. The efficiency of the generation, expressed as a ratio of yield to pumping energy, was about 0.1%. Research is currently being conducted to explain the physical nature of the excitation of GaAs. Attempts to observe the second harmonic of the pumping frequency under conditions described by N. Blumbergen (International School of Physics "Enrico Fermi", Course XXXI, Varenna, 1963) have not yet yielded positive results. Orig. art. has: 2 figures. [YK]

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute, Academy of Sciences, SSSR)

SUBMITTED: 16Apr65
NO REF SOV: 001

ENCL: 02
OTHER: 001

SUB CODE: EC
ATD PRESS: 4015

Card 2/4

L 53581-65

ACCESSION NR: AP5014226

ENCLOSURE: 01

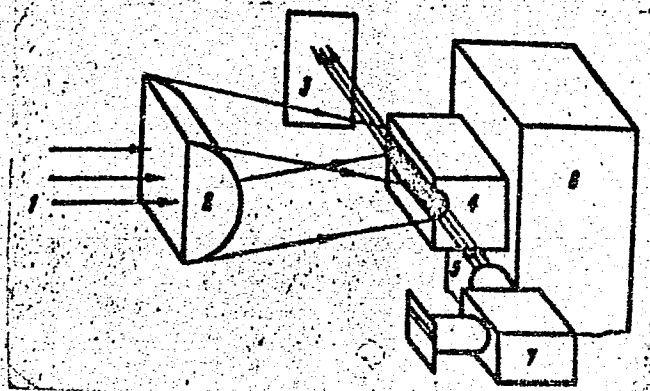


Fig. 1: Schematic of the installation

Card 3/4

L 53581-65

ACCESSION NR: AF5014226

ENCLOSURE: 02

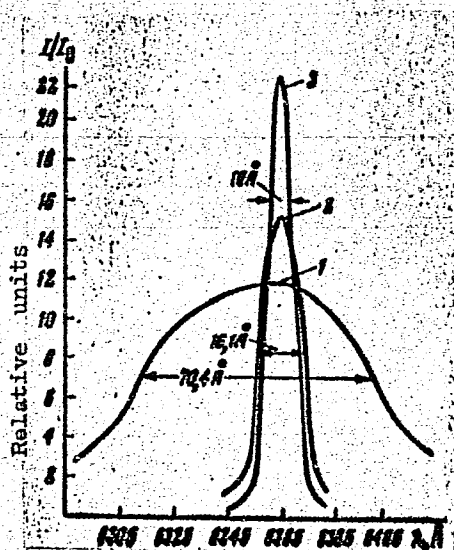


Fig. 2. Spectral line of GaAs for various values of pumping power. The scale along the ordinate axis differs for various curves: the maximum at curve 3 is much greater than at curve 1.

Card 4/4

L 58925-65 EWA(k)/FBD/EWC(r)/EWT(l)/EWP(e)/EWT(m)/EEC(k)-2/EWP(i)/T/EEC(b)-2/
 EWP(k)/EWP(b)/EWA(m)-2/EWA(h) Pm-l/Pn-l/Po-l/Pq-l/Pf-l/Peb/Pi-l/P1-l/ IJP(c)
 ACCESSION NR: AP5018842 WG/WH UR/0368/65/003/001/0026/0031
 535.89

AUTHOR: Basov, N. G.; Grasyuk, A. Z.; Zubarev, I. G. 72
B

TITLE: The response of a neodymium-glass laser amplifier .

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 1, 1965, 26-31

TOPIC TAGS: laser amplifier, neodymium glass amplifier, traveling wave amplifier, neodymium glass laser, amplifier response

ABSTRACT: Data are presented on the experimental investigation of a neodymium-glass laser amplifier. The block diagram of a setup used for the measurement of the amplifier response is shown in Fig. 1 of the Enclosure. A neodymium-glass laser with Q-switching was used as an exciter. The laser output was transmitted through the theodolite T, where it was focused and subsequently converged on an object with variable transparency. After passage through the theodolite the angular divergence of the beam was smaller than the angular diffraction at the input and output apertures of the amplifier. The beam from the theodolite was attenuated by neutral filters which were precalibrated to the laser wavelength (1.06 μ). After passage through an object, one-half of the beam was separated by a 50% mirror and photographed. The other half was passed through a neodymium-glass amplifier and was also photographed.
 Card 1/3

L 58925-65

ACCESSION NR: AP5018842

The processed photographs show that, unlike the ruby amplifier, the neodymium-glass amplifier is capable of hf. amplification of the image of a laser-illuminated object. The amplifier response was computed theoretically and measured experimentally by means of a two-beam oscillograph, as a function of the area of the amplifier output aperture and the magnitude of the solid angle of the recorder. The experimental value of the response of a neodymium-glass amplifier was 1.7×10^{-6} w. This value is close to the theoretical limit of 1.2×10^{-6} w for a transmission band of 6×10^{12} cps. Orig. art. has: 4 figures and 12 formulas. [YK]

ASSOCIATION: none

SUBMITTED: 08Apr65

ENCL: 01

SUB CODE: EC

NO REF SOV: 001

OTHER: 003

ATD PRESS: 4051

Card 2/3

L 58925-65

ACCESSION NR: AP5018842

ENCLOSURE: 01

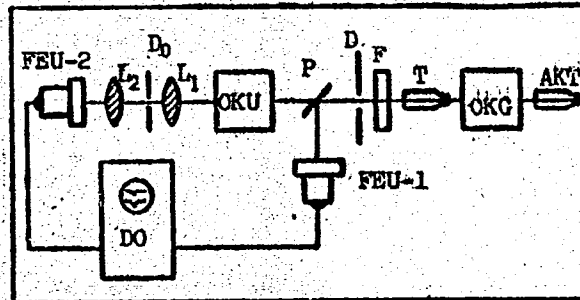


Fig. 1. Block diagram of the setup for the measurement of amplifier response

AKT - Autocollimator; OKG - laser with modulated Q;
T - theodolite; F - precalibrated filters; D, D₀ - diaphragms; P - plane-parallel glass layer; OKU - laser amplifier; L₁ and L₂ - confocal lens (F ~ 6 cm);
FEU-1 - control photomultiplier; FEU-2 - recorder;
DO - two-beam oscillograph.

dm
Card 3/3

L 9460-66 FBD/EWT(1)/EWP(e)/EWT(m)/EEC(k)-2/T/EWP(t)/EWP(k)/EWP(b)/EWA(m)-2/EWA(h)

ACC NR: AP6000868 SCTB/IJP(c) WG/JD SOURCE CODE: UR/0181/65/007/012/3639/3640

AUTHOR: Basov, N. G.; Grasyuk, A. Z.; Zubarev, I. G.; Katulin, V. A. 44 74

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR) 44 15 0

TITLE: Laser action in CdS due to optical excitation by radiation from a ruby laser

SOURCE: Fizika tverdogo tela, v. 7, no. 12, 1965, 3639-3640

TOPIC TAGS: laser, semiconductor laser, ruby laser, nonlinear optics, two photon absorption

ABSTRACT: Laser action is reported in CdS excited by a ruby laser at 77K. Since the energy of photons of incident radiation ($\lambda = 1.78 \mu$) is smaller than the width of the forbidden gap (2.5 eV), two-photon absorption was responsible for laser action. A 5 x 3 x 3 mm sample forming a Fabry-Perot cavity was excited by radiation from a 1-j ruby laser (pulse duration ~50 nsec). The emission spectrum from CdS at various pump densities (see Fig. 1) is similar to that of electron-beam-pumped CdS. The broadening of the oscillation line with higher pump power was attributed to an increase in the number of modes; however, a resolving power of 1 Å did not make it pos-

Card 1/2

L 9460-66

ACC NR: AP6000868

0

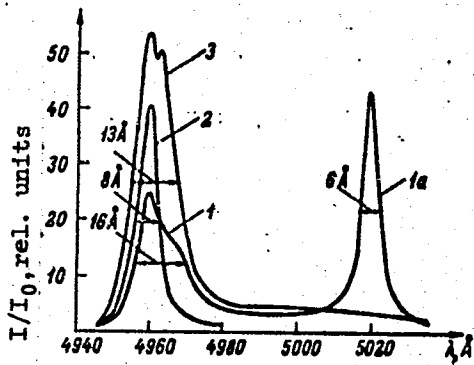


Fig. 1. The emission spectrum of CdS excited by a ruby laser. The pump power density: 1 and 1a - 60; 2 - 80; 3 - 600 Mw/cm². The vertical scale is different for different curves.

sible to observe the different modes. At 100 Mw/cm² emission occurred throughout the thickness of the crystal. Orig. art. has: 1 figure and 1 table. [CS]

SUB CODE: 20 SUBM DATE: 15May65/ ORIG REF: 004/ ATD PRESS: 4156

L 63121-65 EWT(1)

ACCESSION NR: AP5020376

UR/0141/65/008/003/0631/0633
621.378.1

29
28
E

AUTHOR: Agabekyan, A. S.; Grasyuk, A. Z.; Orayevskiy, A. N.

TITLE: Spontaneous emission of particles in a resonator with several coupled modes of oscillation

SOURCE: IVUZ. Radiofizika, v. 8, no. 3, 1965, 631-633

TOPIC TAGS: emission spectrum, resonator, oscillation

ABSTRACT: If there are several modes of oscillation in a resonator in a band of frequencies occupied by emission lines, the modes are usually assumed to be independent (orthogonal). However, in practice there is always some coupling between them, determined by the geometric parameters of the resonator, properties of the substance, etc. Clearly, this coupling should influence the physical processes in the resonator, causing spontaneous and induced excitation of particles in it. The probability of spontaneous emission is calculated by a method analogous to one used in a previous work coauthored by Orayevskiy, assuming that the energy spectrum of the particles contained in the resonator consists of 2 non-overlapping continuous bands of

Card 1/2

L 63121-65

ACCESSION NR: AP5020376

width ΔE with average levels E_1 and E_2 . Two limiting cases are considered in detail, and in both cases the coupling between modes reduces the probability of spontaneous emission. Orig. art. has: 9 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 13Jul64

ENCL: 00

SUB CODE: NP

NO REF SOV: 003

OTHER: 001

llc
Card 2/2

L 46150-65

ACCESSION NR: AP5012760

0

photomultiplier. A narrow spectral line in the spectral interval between 8340 and 8400 Å was emitted by the GaAs laser pumped by an unfocused 0.1 j (2 Mw) pulse from a ruby laser. When the pulse energy reached 0.15 j, the line became very narrow and oscillation occurred on the 8365 Å line. Narrowing of the line was accompanied by a narrowing of the directionality pattern and a sharp increase of the spectral line intensity. Stimulated emission by Raman excitation was accomplished by placing a dewar with liquid nitrogen between the ruby and the GaAs laser. A lens was placed in front of the dewar's entrance window and another one, confocal with the first, in front of its exit window. An infrared filter transparent only to the Stokes component of Raman emission from liquid nitrogen (8281 Å) was installed in front of the GaAs laser. Experiments showed that 15% of the energy from a 0.3 j beam of ruby laser emission is transformed into Stokes radiation. Focusing of the Raman emission up to an energy density of 0.2 j/cm² resulted in laser oscillation at both liquid nitrogen and room temperatures. The quantum yield of the Raman-pumped GaAs laser was about 4%; its divergence, about 4°. Orig. art. has: 3 figures.

[CS]

Card 2/3

I. 46150-65

ACCESSION NR: AP5012760

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR
(Physics Institute, Academy of Sciences, SSSR)

SUBMITTED: 04Jan65

ENCL: 00

SUB CODE: EC

NO REF SOV: 007

OTHER: 001

ATD PRESS: 4002

Card 3/3 CC

BASOV, N.G.; GRASYUK, A.Z.; ZUBAREV, I.G.; KATULIN, V.A.

Generation in GaAs in the case of two-photon optical excitation by radiation from a laser operating on neodymium glass. *Fiz. v red. Zhur. eksper. i teoret. fiz.* 1 no.4:29-33 My '65. (MIRA 18:11)

L. Fizicheskiy Institut imeni Lebedeva AN SSSR. Submitted April 16, 1965.

BEVIL, M.G.; GRANTON, A.T.; RUBINOV, V.G.; FORTI, L. V. G.

Generation in QRS in two-photon optical excitation by radiation
from a ruby laser. Fiz. tver. tela 7 no. 10:1990-1991 p 165
(1991 1991)

1. Fizicheskiy Institut imeni Lebedeva AN SSSR, Moskva.

L 23390-66 EEC(k)-2/EWA(h)/EWP(k)/EWT(1)/FBD/T IJP(c) WG

ACC NR: AT6009312 SOURCE CODE: UR/2504/65/031/000/0074/0095

AUTHORS: Basov, N. G.; Grasyuk, A. Z.; Zubarev, I. G.;
Tevelev, L. V.

63

341

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences,
SSSR (Fizicheskii institut Akademii nauk SSSR)

TITLE: Regenerative optic quantum amplifiers

25

SOURCE: AN SSSR. Fizicheskii institut. Trudy, v. 31, 1965.
Kvantovaya radiofizika (Quantum radio physics), 74-95

TOPIC TAGS: laser application, image amplification, molecular
amplifier, ruby laser, amplifier design, quantum electronics, electronic
amplifier, coherent light, light emission

ABSTRACT: An optical quantum amplifier is defined as a device in which
coherent light emission is amplified by using the laser principle,
and the authors deal with the properties of regenerative optic
quantum amplifiers and ways of their practical utilization. The
article is devoted to the fundamental theoretical relations necessary

2

Card 1/2

L 23390-66

ACC NR: AT6009312

to estimate the property of such amplifiers, and to results of experimental investigations of certain amplifier schemes and their main characteristics. Theoretical relations are obtained for the gain and bandwidth of regenerative amplifiers operating in one mode, and for the sensitivity of the regenerative amplifier (with and without account of mode spectrum in the resonator). In addition, the authors report an experimental investigation of a regenerative optical quantum amplifier, using a Q-switched ruby laser, the amplifier itself being operated with and without Q switching. Several models of the amplifier were tested for gain, bandwidth, and for operation as an image intensifier. Orig. art. has: 12 figures and 38 formulas.

SUB CODE: 20/ ORIG REF: 021/ OTH REF: 017 / SUBM DATE: none/

Card 2/2 *Jo*

L 21602-66 FBD/ENT(1)/EEC(k)-2/T/EWP(k)/EWA(h) IJP(c) WG

ACC NR: AP6007829

SOURCE CODE: UR/0120/66/000/001/0156/0158

AUTHOR: Grasyuk, A. Z.; Zubarev, I. G.

ORG: Physics Institute, AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

15
B

TITLE: Tuning of a multimirror optical resonator

SOURCE: Pribory i tekhnika eksperimenta, no. 1, 1966, 156-158

TOPIC TAGS: laser resonator, multimirror resonator, resonator tuning

ABSTRACT: A method of tuning multimirror resonators which are a part of lasers ^{25,44} and regenerative quantum amplifiers is described. The equipment used in the method (see Fig. 1) consisted of a light source, diaphragm, lens, autocollimator, and several mirrors. The method calls for 1) a proper selection of the direction of the collimated beam; 2) crossing of the AC and DF beams at a point B by means of mirrors M_2 and M_3 ; 3) proper arrangement of auxiliary semitransparent mirror M_4 ; and 4) placement of the working surface of M_1 at a point B. When these steps are taken, the autocollimator produces a pattern which indicates a properly tuned

Card 1/3

UDC: 621.378

L 21602-66

ACC NR: AP6007829

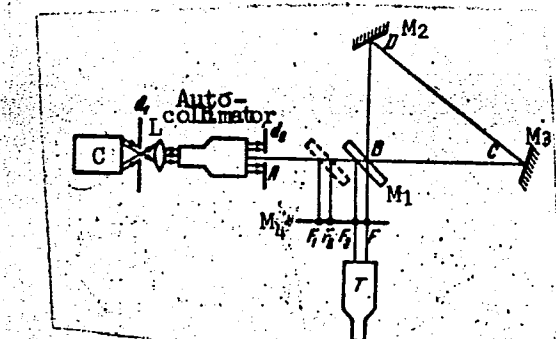


Fig. 1. Equipment used in the method

d_1 and d_2 - Diaphragms with diameters of 1 and 3-5 mm, respectively; L - collimating lens with focal length of ~ 10 cm; M_1 - semi-transparent mirror; M_2, M_3 - dense mirrors (coefficient of reflection $\sim 98\%$); M_4 - auxiliary mirror; C - condenser; T - auxiliary optical tube.

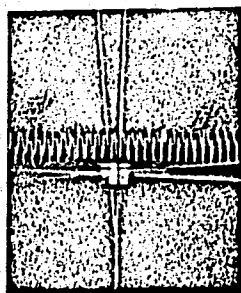


Fig. 2. Pattern of properly tuned resonator

Card 2/3

L 21602-66

ACC NR: AP6007829

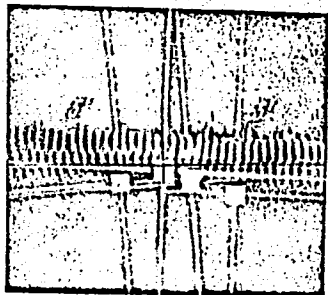


Fig. 3. Pattern of detuned resonator

resonator (Fig. 2). For comparison, a pattern of a detuned resonator is shown in Fig. 3. Orig. art. has: 3 figures. [YK]

SUB CODE: 20/ SUBM DATE: 05Jan65/ ORIG REF: 001/ OTH REF: 002/ ATD PRES: 424

Card

3/3

L 22769-66 FBD/EWT(1)/EEC(k)-2/T/EWP(k)/EWA(h) IJP(c) WG

ACC NR: AP6010975

SOURCE CODE: UR/0056/66/050/003/0551/0559

58
B

AUTHOR: Basov, N. G.; Grasyuk, A. Z.; Zubarev, I. G.; Katulin, V. A.; Krokhin, O. N.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Two-photon optically excited semiconductor laser 25, 44

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 3, 1966, 551-559

TOPIC TAGS: laser, semiconductor laser, nonlinear optics, two photon absorption, optical excitation

ABSTRACT: The present paper is an expanded version of an earlier article on a two-photon optically excited GaAs laser (Zhurnal eksperimental'noy i teoreticheskoy fiziki, pis'ma v redaktsiyu, v. 1, no. 4, 1965, p. 29; (see ATD PRESS, v. 4, no. 15, 1965, p. 9)). It is pointed out that in calculating the coefficients of two-photon absorption in CdC, R. Braunstein and N. Ockman (Physical Review, v. 134, no. 2A, 1964, p. 499) neglected the interband states in the valence band and the interference term in the matrix elements, and thus arrived at incorrect results. Since a formula derived by L. V. Keldysh (Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, 1964, p. 1945) for the probability of multiphoton absorption gives a lower value than the experimentally obtained data for two-photon absorption, formulas are derived for the probability and the coefficient of two-photon absorption in GaAs, using the perturba-

Card 1/2

L 22769-66

ACC NR: AP6010975

tion theory and taking into account the band structure parameters of GaAs. In addition expressions are also obtained for the dependence of the excitation intensity on the penetration depth of the exciting radiation into the semiconductor and the external coherent quantum yield and its dependence on the internal losses in the laser and on the length of the cavity. The calculated data are found to be in good agreement with the experimental results. Orig. art. has: 18 formulas and 7 figures. [CS]

SUB CODE: 20/ SUBM DATE: 06Oct65/ ORIG REF: 007/ OTH REF: 004/ ATD PRESS: 4229

Card 2/2 da

L 29358-66 EEC(k)-2/EWP(k)/EWT(1)/EWT(m)/FBD/ETC(f)/T/EWP(e)/EWP(t)/ETI IJP(c)

ACC NR: AP6018574

SOURCE CODE: UR/0181/66/008/005/1953/1954
RDW/WG/WH/JD

AUTHOR: Grasyuk, A. Z.; Yefimov, V. F. Zubarev, I. G.; Katulin, V. A.;
Mentser, A. N.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskii
institut AN SSSR); Moscow Institute of Steel and Alloys (Moskovskiy
institut stali i splavov)

TITLE: CdSe semiconductor laser with two-photon optical excitation

SOURCE: Fizika tverdogo tela, v. 8, no. 6, 1966, 1953-1954

TOPIC TAGS: laser, semiconductor, semiconductor laser, cadmium selenide

ABSTRACT: Laser action is reported in CdSe excited with a Q-switched neodymium-doped glass laser. Since the energy of the exciting radiation $h\nu = 1.17$ eV is smaller than the width of the forbidden band in CdSe ($\Delta = 1.88$ eV at 77K) the stimulated emission was attributed to two-photon absorption. The 8 x 4 x 2 mm sample was cooled to 77K. The exciting radiation was incident on the 8 x 4 mm face of the sample perpendicular to the Fabry-Perot cavity. The emission observed is shown in Fig. 1. The peak occurred at 6972 Å ($h\nu = 1.78$ eV). At an excitation density of 1 Mw/cm² the halfwidth of the spontaneous emission was

Card 1/2

L 29358-66

ACC NR: AP6018574

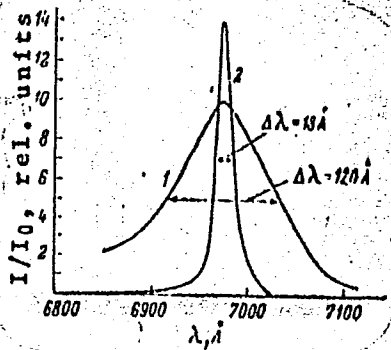


Fig. 1. The emission spectrum of CdSe at an intensity of exciting radiation of 1 Mw/cm² (1) and 7 Mw/cm² (2)

120 Å. Generation occurred at a density of exciting radiation of 7 Mw/cm² (the halfwidth narrowed down to 18 Å, the intensity of emission increased by two orders of magnitude, and directivity was 1—2°). The external quantum efficiency with regard to the energy of the exciting light penetrating the sample was 0.5%. A second harmonic of the exciting radiation at 5300 Å was observed when the pump light was parallel to the c-axis of the sample. The threshold intensity for excitation of CdSe was three times smaller than in optically pumped CdAs. An attempt to attain laser action in CdSe by ruby laser pumping was unsuccessful. Orig. art. has: 1 figure.

[CS]

SUB CODE: 20/ SUBM DATE: 03Jan66/ ORIG REF: 003/ ATD PRESS: 5010
Card 2/2

24.1200

81371
S/O46/60/006/01/04/033
B008/B011

AUTHOR: Grasyuk, D. S.

TITLE: Scattering of Sound Waves From an Uneven Surface of
an Elastic Body

PERIODICAL: Akusticheskiy zhurnal, 1960, Vol. 6, No. 1, pp. 30 - 33

TEXT: The author deals with the problem of the scattering of sound waves from an uneven interface between liquid and solid body. The unevenness is assumed to be periodic and to have a small amplitude compared to the wavelength of incident radiation (Fig. 1). Amplitudes of surface waves and of shear waves in the solid body are estimated with the aid of Rayleigh's approximation method. Fig. 2 illustrates the amplitudes of the primary spectrum reflected into the liquid (Curves 1, 2, 3), of the primary longitudinal (Curves 4, 5, 6) and of the transversal spectrum (Curves 7 and 8) in the solid body, depending on the angle of incidence α , for 3 propagation rates of the shear waves. The following conclusions can be derived herefrom: (1) At $b = 100$ m/sec (Curve 8) the shear spectra

Card 1/2

Scattering of Sound Waves From an Uneven
Surface of an Elastic Body

81371
S/046/60/006/01/04/033
B008/B011

appear only at an incidence angle of $\vartheta > 20^\circ$. They are negligibly small. (2) At $b = 500$ m/sec (Curve 7) the amplitude of the shear waves, beginning at $\vartheta = 15^\circ$, can be compared with the amplitude of the broken longitudinal waves. (3) At $\vartheta = 55^\circ 3'$, $\chi_1 = 0$ holds, i. e. the primary longitudinal spectrum in the solid body glides along the surface, but its amplitude remains finite. On a further widening angle of incidence, the quantity χ_1 becomes imaginary. The primary longitudinal spectrum turns into an inhomogeneous wave propagating along the x-axis, and its amplitude, at a distance from the uneven surface, falls off in the exponent. The transversal waves remain ordinary plane waves, although with a small amplitude. The author thanks L. M. Brekhovskikh for his valuable advice. There are 2 figures and 5 references: 4 Soviet and 1 Japanese.

ASSOCIATION: Akusticheskiy institut AN SSSR, Moskva
(Institute of Acoustics, AS USSR, Moscow)

SUBMITTED: August 17, 1959

Card 2/2

L 8325-66

ACC NR: AP5028047

SOURCE CODE: UR/0046/65/011/004/0438/0441

AUTHOR: Grasyuk, D.S.; Oshchenkov, P.K.; Rozenberg, L.D.; Semennikov, Yu. B.

56
49
3

ORG: Institute of Acoustics, AN SSSR, Moscow (Akusticheskiy institut AN SSSR)

TITLE: An ultrasonic acoustic visor with a new U-55 electronic-acoustic image converter

SOURCE: Akusticheskiy zhurnal, v. 11, no. 4, 1965, 438-441

TOPIC TAGS: ultrasonic equipment, electronic device, acoustic equipment, image converter

ABSTRACT: The authors present a description of a new U-55 electronic-acoustic image converter in which the piezoelectric receiving plate is not one of the walls of the vacuum vessel, as opposed to image converters in common usage which use a wall (usually the front wall) of the vacuum vessel as the plate. A schematic diagram of the device is presented (Fig. 1). It is



1 - Receiving piezoelectric plate; 2 - Converter body; 3 - Thin metal lead-in; 4 - glass plate; 5 - electron beam.

Card 1/2

UDC: 620.179.16

L 8325-66

ACC NR: AP5028047

7
noted that the converter is capable of copying the image of any electric contour incident on its surface, regardless of the origin of the contour, i. e., it may be used in a system with any contour source such as infrared or electrolytic. It has been named a "unicon" (unikon) (universal converter) because of its universal applicability. An acoustic visor (introscope) designed on the basis of the new converter, operating in the 3--9 Mc range, has been tested. Several examples of its application are given and discussed. It is noted that the examples presented show that the introscope makes it possible to obtain satisfactory images of a great variety of objects and may become the prototype of industrial units for obtaining visible images of defects in metals and plastics, and may also be utilized in medical diagnostics. Authors express their gratitude to V.I. Rybalka, M.A. Gorodnicheva, T.I. Didyus', R.G. Molchanova, V.I. Stepanov, S.I. Filipov, and V.I. Fomin, who participated in the development, construction, and tests of the converter and the ultrasonic introscope. Orig. art. has: 8 figures.

SUB CODE: GP, IE / SUBM DATE: 17Aug65 / ORIG REF: 006 / OTH REF: 005

jw

Card 2/2

SOV/138-59-4-13/26

AUTHORS: Fedyukin, D.L., Grasyuk, Yu. Z. and Gol'berg, I.I.

TITLE: Determination of the Kinetics of Diffusion in Balls
(Opredeleniye kinetiki diffuzii v myachakh)

PERIODICAL: Kauchuk i Rezina, 1959, Nr 4, pp45-47 (USSR)

ABSTRACT: The playing properties of tennis balls are determined largely by visco-elastic properties, which in turn are dependent on internal pressure and the properties of the rubber. The standard requires that the internal pressure at the time of manufacture should be from 300 to 500 mm Hg. In view of the wide variation-allowable, the pressure as determined after storage may show similar wide variation. Thus a kinetic test to measure actual rate of diffusion is helpful. Figure 1 shows a manometer formed of capillary tube, 1.2 mm bore, to give low dead capacity. The ball is punctured by a hollow needle, and a paste of lead oxide and glycerine is used to ensure leak tightness. The ball is punctured at the seam between gores. The

Card 1/2

SOV/138-59-4-13/26

Determination of the Kinetics of Diffusion in Balls

difference in pressure is logged over several days, and kinetic-diffusion curves, as in Figure 2, where p/p_0 is the ratio of the actual pressure to the initial pressure is plotted against time in days. A formula and constants were found to fit these curves. From these, using statistical distributions, the probable time in storage before given percentages of the balls will lose pressure to a level below 300 mm Hg is tabulated in Table 2, where time is given in days. Balls sprayed or coated with a polyamide film are compared with uncoated balls. It is seen that the actual period at which pressure is maintained within the set limits is much shorter than the required six months. It is suggested that balls must therefore be stored under pressure in sealed containers. Coating with a polyamide film does increase storage life considerably.

There are 2 figures and 2 tables.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovykh i lateksnykh izdeliy (Scientific-research Institute for Rubber and Latex Articles)

Card 2/2

S/081/61/000/019/083/085
B103/B147

AUTHORS: Fedyukin, D. L., Grasyuk, Yu. Z.

TITLE: Test of spongelike mixtures by the ПКТС-2 (PKGS-2) device

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 19, 1961, 523, abstract
19P316 (Tr. N.-i. in-ta shin. prom-sti, sb. 7, 1960, 148-153)

TEXT: To characterize the swelling capacity (percent increase of volume of the sample) of spongelike mixtures, a device imitating the operational vulcanization conditions was designed and constructed. Three sockets (for parallel determination) were installed in a heatable vessel; the cylinders holding the samples were put in the sockets. The pressure is transferred via rod and piston, and regulated by the length of the lever arm and the size of the suspended weight. The increase in height of the sample during heating is read from a micrometer. [Abstracter's note: Complete translation.]



Card 1/1

15 9300

S/138/63/000/001/006/008
A051/A126

AUTHORS: Fedyukin, D. L., Grasyuk, Yu. Z.

TITLE: Instrument and method for testing the frost resistance of foam rubber

PERIODICAL: Kauchuk i rezina, no. 1, 1963, 54 - 55

TEXT: An instrument for testing the frost resistance of foam rubber, small in size and of simple construction, has been designed at the NIIR (NIIR), (Fig. 2). Tests are conducted in an air medium where the necessary temperature conditions are created by a "dry" ice and alcohol mixture. Latex foam rubber was used in the initial testing conducted first at room temperature and, subsequently, at lowered temperatures. The new instrument is recommended for industrial use. There are 2 figures. ✓B

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovykh i lateksnykh izdeliy
(Scientific Research Institute of Rubber and Latex Articles)

~~Card 1/2~~

MAGYAR, Imre, dr.; VAGO, Erzsébet, dr.; MATE, Zoltan, dr.; GRASZ, ~~Erzsébet~~
Erzsébet,; SZUSZEKAR, T. Judith, technikai segitsegevel.

Effect of eufhyllin on hepatic circulation rate. Orv. hetil. 96
no.11:287-290 13 Mar 55

1. A Budapesti Orvostudományi Egyetem I. sz. Belklinikájának
igazgató: Rusznyak István dr. egyetemi tanár) közleménye.

(AMINOPHYLLINE, effects,
on liver circ. rate)

(LIVER, blood supplh,
eff. of aminophylline on circ. rate)

RENYI-VAMOS, Ferenc; BIRO, Janos; GRASZ, Erzsebet; RENYI-VAMOS, Ferencne

Lymph transport of alkaline phosphatase. Kiserletes Orvostudomány
11 no.1:46-50 Feb 59.

1. Budapesti Orvostudományegyetem Urológiai Klinikája.

(LYMPH

alkaline phosphatase content of lymphatic & correspond-
ing blood vessels in dogs, eff. of fasting & various
diets (Hun))

(PHOSPHATASES, determ.

same)

(FASTING, eff.

on alkaline phosphatase content of lymphatic & corre-
sponding blood vessels in dogs (Hun))

(DIETS, eff.

same)

GRATI, V.F.; TUMTURYANU, N.A.

Forms of potassium and phosphorus in the podzols Chernozems of
Moldavia. Izv. Mold. fil. AN ISSR no. 7:33-40 '61 (MIRA 17:7)

GRATI, V.P.; SINKEVICH, Z.A.; KLESHCH, F.I.

Humus content and composition of individual mechanical fractions
in soils of Moldavia. Pochvovedenie no.10:72-81 0 '65.

(MIRA 18:11)

1. Moldavskiy nauchno-issledovatel'skiy institut pochvovedeniya
i agrokhimii imeni Dima.

GRATKOWSKA, Helena

Supravital amputation with administration of penicillin paste.
Czas.stomat. 8 no.4:149-155 Apr '55.

1. Z Kliniki Stomatologii Zachowawczej w Warszawie. Kierownik:
prof.dr J. Krzywicki, Warszawa, Miodowa 18.

(ROOT CANAL THERAPY

amputation with preserv. of live pul, use of penicillin
paste)

(PENICILLIN, ther. use

root canal surg. with preserv. of live pulp)

SZYMCZYK, Teresa; GRATKOWSKA, Helena; KOZIOWSKA, Irena

Studies on the appearance of dental calculus in human subjects.

I. Dental calculus and its relation to the salivary concentration of calcium, phosphorus and hydrogen ions. Pol. tyg. lek. 19 no.12: 417-420 16 Mr '64.

I. Z Zakładu Ciemii Fizjologicznej Akademii Medycznej w Warszawie (kierownik: prof. dr. med. Irena Mochnaeka) i z Kliniki Stomatologii Zachowawczej Akademii Medycznej w Warszawie (kierownik: prof. dr. med. Janusz Krzywicki).

I 34139-66

ACC NR: AP6026029

SOURCE CODE: GE/0005/66/000/001/0012/0014

AUTHOR: Ponomarew, I. F.; Gratschjan, A. N.; Subechin, A. P.

7
B

ORG: Department of Binder Technology, Polytechnic Institute, Novocherkassk

TITLE: Consistent effects in the influencing of the formation process of white Portland cement clinker in the presence of mineralizers

SOURCE: Silikattechnik, no. 1, 1966, 12-14

TOPIC TAGS: cement, anion, cation, crystallization

ABSTRACT: [German translation (by FRAHN, H., in Berlin) of a Russian-language article] Tests were conducted to establish the consistent effects of the cations (Be, Mg, Li, Na, K), of the anions (SiF₆, F, SO₄, Cl), and of the cations and anions in various combinations with each other on the formation of white Portland cement clinker. The ions investigated form parts of conventional mineralizers. The findings indicated that, in general, the most effective mineralizers are those which combine a cation of relatively low electronegativity and an anion of relatively high electronegativity. Sodium hexafluorosilicate contributes to the formation of a very fine crystalline structure. Orig. art. has: 2 figures and 2 tables. [JPRS: 35,328]

SUB CODE: 11, 07, 20 / SUBM DATE: none / ORIG REF: 013 / OTH REF: 001

Card 1/1 *slj*

UDC: 666.942.82

0876 1055

GRATSEKHTYN, I. M. and MALINOVA, R. D.

"Designing and Setting-Up of Nonferrous Enterprises," Moscow, 1951. 527 pp.

GRATSEKHSHTSEYN, Izrail Markovich; MALINOVA, Revekka Davydovna; METT, G.Ya.,
kandidat ekonomicheskikh nauk; retsenzent; MARATKANOV, V.M., inzhener,
retsenzent; TYRIM, V.V., inzhener, retsenzent; KUZNETSOV, G.D., inzhener,
retsenzent; YAMPOL'SKIY, Kh.A., redaktor; ARKHANGEL'SKAYA, M.S.,
redaktor; YEFIMOVA, A.P., tekhnicheskiiy redaktor.

[Organization and planning at nonferrous metal enterprises; metallurgical plants and concentration mills] Organizatsiia i planirovanie na predpriatiakh tsvetnoi metallurgii; metallurgicheskie zavody i obogatitel'nye fabriki. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po cherno i tsvetnoi metallurgii, 1955. 560 p. (MIRA 9:6)

(Nonferrous metal industries)

137-58-6-11873

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 99 (USSR)

AUTHOR: Gratsershteyn, I.M.

TITLE: Fundamental Problems of the Economics of the Aluminum Industry of the USSR (Osnovnyye voprosy ekonomiki alyuminiyevoy promyshlennosti SSSR)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 16, pp 30-34

ABSTRACT: In recent years the major processes in alumina and electrolysis shops have been mechanized, and this has made it possible to cut the number of auxiliary workers. The cost of Al in 1950 diminished by 11.7% as compared with 1940, the decline at individual plants during the 4th Five-Year Plan being 11.8% at the Urals Works, 12.7% at the Stalino Works, and 17.4% at the Bogoslovsk Works. The 5th Five-Year Plan accomplished a further reduction in the cost of alumina by 30.5% on the average (29.2% at the Urals Works and 52.1% at Bogoslovsk); this leads to a reduction in the price of Al in 1955. At the present time 89% of all alumina is produced by the Bayer process (the percentage was 23 in 1940). The yield of metal per kwh of electric energy has risen from 50 g in 1940 to 60 g. Cell

Card 1/2

137-58-6-11873

Fundamental Problems of the (cont.)

productivity at the Urals plant has risen by 18.5%, while the rise at the Stalino Works has been 52.2% and at the Dnepr Works 40%. Cost reduction has been made possible by a reduced consumption of power and materials, and also by cutting service and management costs. In the future, the cost of Al will drop owing to more exhaustive utilization of the raw material, rational location of new plants, the use of new types of complex raw materials (nephelines etc.), and mobilization of the internal reserves of the industry under the new system of management.

A.P.

1. Aluminum--USSR
2. Aluminum--Economic aspects

Card 2/2

GRATSERSHTEYN, I. M.

137-1958-3-4833

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 55 (USSR)

AUTHOR: Gratsershteyn, I. M.

TITLE: How to Determine the Productive Capacity of Nonferrous Metallurgy Enterprises (K voprosu ob opredelenii proizvodstvennykh moshchnostey na predpriyatiyakh tsvetnoy metallurgii)

PERIODICAL: Sb. nauchn. tr. Mosk. in-t tsvetn. met. i zolota i VNITO tsvetn. metallurgii, 1957, Nr 26, pp 297-309

ABSTRACT: Bibliographic entry

Card 1/1

.18(6); 25(5); 25(6) PHASE I BOOK EXPLOITATION GER/2456

Gratsershteyn, I.M., and R.D. Malinova

Organisation und Planung in Betrieben der Buntmetallurgie.
Berlin, VEB Verlag Technik, 1958. 413 p. Number of
copies printed not given.

Translation of: Organizatsiya i planirovaniye na predpriyatiyakh
tsvetnoy metallurgii; metallurgicheskiye zavody i obogatitel'-
nyye fabriki (Organization and Planning in Nonferrous Metal-
lurgical Plants; Metallurgical Plants and Concentration Mills)
Moscow, 1955. 560 p.

Translators: Beck, Bergschicker, Fischer, Frahn, Gamaleya (Doctor),
Wiedemann; Scientific Revisers: E. Herzog, Doctor; G. Ketelhut,
Economist; and W. Steigenberger, Economist. Reviewer: M. Walter,
Economic Engineer.

PURPOSE: This is a textbook for students of metallurgy specializing
in the study of industrial organization and production planning.
It may also be useful to managerial personnel, technicians,
and economists at nonferrous metallurgical plants.

Card ~~1/12~~

GRATSERSHTYN, I.M.

Planning complete utilization of raw materials in the nonferrous metallurgy. Izv. vys. ucheb. zav.; tsvet. met. no.2:169-172 '58.
(MIRA 11:8)

1. Moskovskiy institut tsvetnykh metallov i solota. Kafedra organizatsii i planirovaniya predpriyatiy.
(Nonferrous metals--Metallurgy)

18(4)

PHASE I BOOK EXPLOITATION

SOV/2222

Gratsersteyn, Izrail' Markovich

Razvitiye alyuminiyevoy promyshlennosti SSSR (Development of the Aluminum Industry in the USSR) Moscow, Metallurgizdat, 1959. 160 p. Errata slip inserted. 2,700 copies printed.

Reviewer: A. I. Belyayev, Doctor of Technical Sciences, Professor; Ed.: Kh. A. Yampol'skiy; Ed. of Publishing House: I. I. Pinegin; Tech. Ed.: V. V. Mikhaylova.

PURPOSE: The book is intended for engineers, technicians, and economists interested in nonferrous metallurgy. It may also be of use to students taking a course on the economics of nonferrous metallurgy in colleges and secondary schools.

COVERAGE: The book discusses the economic growth of the Soviet bauxite and aluminum industry. Little information on individual deposits and plants is given and no evaluation of Soviet metalgrade bauxite is included. The book reports on the overall changes in productive capacities brought about

Card 1/4

18.3100

75398
SOV/149-2-5-24/32

AUTHORS: Nezhinskaya, L. A., Gratsershteyn, I. M.

TITLE: Analysis of State and Effectiveness of Complex Utilization of Lead-Zinc Raw Material

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Tsvetnaya metallurgiya, 1959, Vol 2, Nr 5, pp 166-172 (USSR)

ABSTRACT: At present, dressing of polymetallic ores is a very wasteful operation and only the lesser part of the valuable components is recovered. Only 15 to 20% of the sulfur content is utilized and the corresponding figures for other components are: lead 43.6%, zinc 28%, copper 42.6%, gold 19.5%, silver 39.9%. All the rare elements are usually lost. The losses in the smelting of the concentrates are not as great as the above but are still very high: in 1957 Electrotsink lost the equivalent of 49.25% of its final production, Ust'-Kamenogorsk plant lost 32.06%. A system of complex utilization of the ores improved this picture very considerably, since it was introduced in the 1950's. Thus, zinc extraction at

Card 1/3

Analysis of State and Effectiveness
of Complex Utilization of Lead-Zinc
Raw Material

75398
SOV/149-2-5-24/32

at Ust'-Kamenogorsk by 26.2% and at Elektrotsink by
13.6%.

ASSOCIATION: Krasnoyarsk Institute of Nonferrous Metallurgy. Chair
of Plant Organization and Planning (Krasnoyarskiy institut
tsvetnykh metallov. Kafedra organizatsii i planirovaniya
predpriyatiy)

SUBMITTED: March 24, 1959

Card 3/3

GRATERSHTEYN, I. M.

Improving management organization in the nonferrous industry.
Bul.nauch.inform.; trud i zar.plata. no.3:28-34 '59.
(MIRA 12:5)

(Nonferrous metal industries)
(Factory management)