ACCESSION NR: AT4042642

systoles; this had also occurred during training tests. The character of daily variation of cardiac activity remained unchanged. Pneumographic data revealed no respiratory irregularities. Some increase in respiration rate was noted during the powered-flight phase; this had also been observed during centrifuge tests. No pathological change in physiological functions of either cosmonaut was observed during flight. During the powered-flight phase, functional shifts similar to those observed during centrifuge tests occurred. Definite changes in the functional state of various physiological systems took place during the first hours of orbital flight, as indicated by the inhibition of pulse-rate normalization and the character of EEG and cortical resistance changes. Changes in the character of EEG's during prolonged (3 to 4 days) weightlessnes indicate shifts in the interaction of excitation-inhibition processes in the higher levels of the CNS. However, the mental activity and neuro-regulatory functions of the cosmonauts remained at a high level.

ASSOCIATION: none

Submitted . 27Sep 63

Card 4/5

AKULINICHEV, I.T.; ANDREYEV, L.F.; BAYEVSKIY, R.M.; BAYKOV, A.Ye.: BUYLOV, G.G. GAZENKO, O.G.; GRYUNTAL', R.G.; ZAZYKIN, K.P.; KLIMENTOV, Yu.F.; MAKSIMOV, D.G.; MERKUSHKIN, Yu.G.; MONAKHOV, A.V.; PETROV, A.P.; RYABCHENKOV, A.D.; SAZONOV, N.P. ; UTYAMYSHEV, R.I.; FREYDEL', V.R.; KHIL'KEVICH, B.G.; SHADRINTSEV, I.S.; SHEVANDINA, S.B.; ESAULOV, N.G.; YAZDOVSKIY, V.I.

Method and means of medical and biological studies in a space flight. Probl. kosm. biol. 3:130-144 '64. (MIRA 17:6)

VOLYNKIN, Yu.M.; ARUTYUNOV, G.A.; ANTIPOV, V.V.; ALTUKHOV, G.V.; BAYEVSKIY, R.M.; BELAY, V.Ye.; BUYANOV, P.V.; BRYANOV, I.I.; VASIL'YEV, P.V.; VOLOVICH, V.G.; GAGARIN, Yu.A.; GENIN, A.M.; GORBOV, F.D.; GORSHKOV, A.I.; GUROVSKIY, N.N.; YESHANOV, N.Kh.; YEGOROV, A.D.; KARPOV, Ye.A.; KOVALEV, V.V.; KOLOSOV, V.A.; KORESHKOV, A.A.; KAS'YAN, I.I.; KOTOVSKAYA, A.R.; KALIBERDIN, G.V.; KOPANEV, V.I.; KUZ'MINOV, A.P.; KAKURIN, L.I.; KUDROVA, R.V.; LEBEDEV, V.I.; LEBEDEV, A.A.; LOBZIN, P.P.; MAKSIMOV, D.G.; MYASNIKOV, V.I.; MALYSHKIN, Ye.G.; NEUMYVAKIN, I.P.; ONISHCHENKO, V.F.; POPOV, I.G.; PORUCHIKOV, Ye.P.; SIL'VESTROV, M.M.; SERYAPIN, A.D.; SAKSONOV, P.P.; TERENT'YEV, V.G.; USHAKOV, A.S.; UDALOV, Yu.F.; FOMIN, V.S.; FOMIN, A.G.; KHLEBNIKOV, G.F.; YUGANOV, Ye.M.; YAZDOVSKIY, V.I.; KRICHAGIN, V.I.; AKULINICHEV, I.T.; SAVINICH, F.K.; SIMPURA, S.F.; VOSKRESENSKIY, O.G.; GAZENKO, O.G., **SISAKYAN, N.M.**, akademik, red.

[Second group space flight and some results of the Soviet astronauts' flights on "Vostok" ships; scientific results of medical and biological research conducted during the second group space flight] Vtoroi gruppovoi kosmicheskii polet i nekotorye itogi poletov sovetskikh kosmonavtov na korabliakh "Vostok"; nauchnye rezul'taty medikobiologicheskikh issledovanii, provedennykh vo vremia vtorogo gruppovogo kosmicheskogo poleta. Moskva, Nauka, 1965. 277 p. (MIRA 18:6)

L 34093-65 EEC-2/EWG(a)/EWG(c)/EWG(j)/EWG(r)/EEC(k)-2/EWG(v)/EWT(l)/FS(v)-3/FSF(h)/
-2/EWA(d) Pe-5/Pi-4/Po-4/Pq-4/Pac-4/Pae-2 TT/DD/RD/GW

ACCESSION NR: AP5007275 S/0216/65/000/002/0274/0278

AUTHOR: Akulinichev, I. T.; Yemel'yanov, M. D.; Maksimov, D. G.

TITLE: Oculomotor activity in cosmonauts during orbital flight

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 2, 1965, 274-278

TOPIC TAGS: oculomotor activity, cosmonaut, space flight vestibular organ, nystagmus, EOG, electrooculogram

ABSTRACT: In order to evaluate the effect of weightlessness on the human vestibular organ, oculomotor activity and eye movements during special vestibular tests were studied during the flights of cosmonauts A. G. Nikolayev, P. R. Popovich, V. F. Bykovskiy, and V. V. Tereshkova. Measurement of oculomotor activity was based on recording the differences in corneoretinal potentials during eye movement. For this purpose, paste and silver electrodes were placed at both lateral corners of the eyes, two electrodes on each side. Signals from the electrodes were amplified and transmitted to ground stations. Analysis of EOG's (electrooculograms) indicated that at the beginning of the flight, all

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the cosmonauts underwent a stable increase in oculomotor activity. It was noted that at the beginning of the flight, large amplitude, "wandering" movements of the eyes predominated. These movements were particularly pronounced in V. V. Tereshkova. Later on in the flight, eye movements become more coordinated and quicker, and the frequency of eye movements decreased. A second increase in the amount of oculomotor activity was encountered towards the end of the flight. The nystagmus observed repeatedly in P. R. Popovich and V. V. Tereshkova can be attributed to changes in the condition of the vestibular analyzer. In Popovich's case the appearance of nystagmus was related to head movements. In Tereshkova's case nystagmus appeared just before she dropped off to sleep and shortly after awakening — the times when the coordination between the higher centers of the central nervous system and other physiological systems are weakest. The short duration and weak manifestation of these changes indicate the presence of active adaptive processes in the unusual environment. It can be concluded that an EOG during flight makes it possible to evaluate the general conditions of the cosmonauts and to obtain an objective evaluation of the functional conditions of the vestibular analyzer. Examination of the EOG data indicate that during the 3—5 day

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ACCESSION NR: AP5007275

orbital flight, none of the four cosmonauts showed permanent changes in the coordination of eye movements. Orig. art. has: 4 figures.

[BM]

ASSOCIATION: none

SUBMITTED: 08Jul64 ENCLOSURE: 00 SUB CODE: PH,LS

NO REF SOV: 005 OTHER: 004 ATD PRESS: 3209

Card 3/3

VOSKRESENSKIY, A.D.; GAZENKO, O.G.; IZOSIMOV, G.V.; MAKSIMOV, D.G.; YAZDOVSKIY, V.I.; KOPANEV, V.I.

Some physiological data for the evaluation of the state and efficiency of astronauts in orbital flights. Probl. kosm. biol. 4:227-236 '65. (MIRA 18:9)

L 64068-65 EEC-2/EWG(j)/FSS-2/EWG(r)/EWT(l)/FS(v)-3/EEC(k)-2/EWG(v)/EWA(d)/EWG(c)
TT/DD/ED

ACCESSION NR: AP5017761 UR/0216/65/000/004/0491/0499
629.195.2:612.1:612.2

AUTHOR: Vasil'yev, P. V.; Voskresenskiy, A. D.; Kas'yan, I. I.; Maksimov, D. G.; Pestov, I. D.; Chekhonadskiy, N. A.

TITLE: Reaction of the cardiovascular and respiratory systems of cosmonauts to orbital flight in Voskhod-1

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 4, 1965, 491-499

TOPIC TAGS: space physiology, cardiovascular system, cardiology, respiratory system, manned space flight, astronaut

ABSTRACT: Under normal conditions there is a close relationship between cardiovascular and respiratory reactions. Consequently, it was desirable to study changes in EKG and seismocardiogram (SKG) indices relative to changes in the time characteristics of pneumograms during the Voskhod-1 flight. The results of these investigations are given in the following figures:

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ACCESSION NR: AP5017761

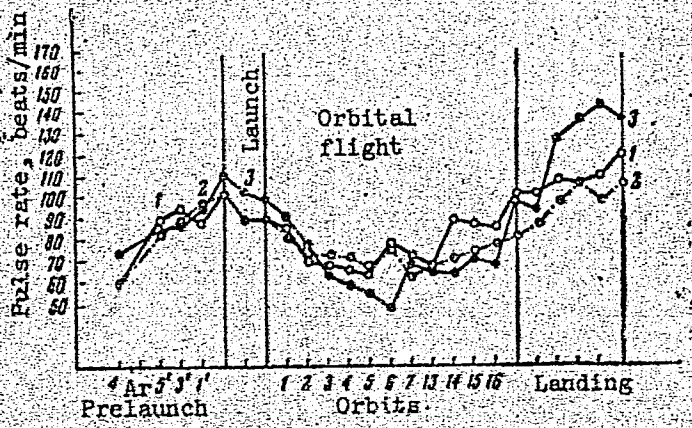

Fig. 1. Dynamics of mean pulse rate values of the cosmonauts during various periods

1 - V. M. Komarov; 2 - K. P. Feoktistov; 3 - B. B. Yegorov.

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ACCESSION NR: AP5017761

Table 1. Dynamics of the respiration rates of cosmonauts prior to and during the flight (mean values, cycles/min)

Cosmonauts	Day before flight	Prelaunch 4 hr before	Prelaunch 5 min before	Launch	Orbits 1st	Orbits 3rd	Orbits 6th	Orbits 13th	Orbits 16th	Landing
V.M. Komarov	10	18	23	15.8	10.8	10.1	21.8	17.1	18.2	20.1
K.P. Feoktistov	18	21	20	24.5	19.4	18.4	19.3	15.5	15.0	17.4
B.B. Yegorov	14	18	27	33.5	26.8	23.1	16.0	20.4	20.4	25.2

The data showed that pulse and respiratory dynamics, as well as electrocardiogram and seismocardiogram indices, had some individual peculiarities but generally did not differ from analogous preflight data. This indicated that there was no real cardiovascular or respiratory disruption as a result of the

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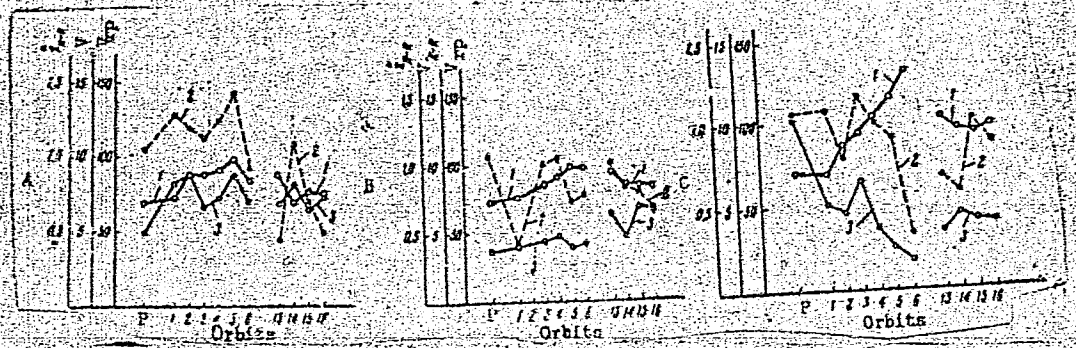

Fig. 2. Relationship of mean values of the EKG R-R interval, coefficients of variation R-R, and respiratory pauses (rp) during various flight periods

A - V. M. Komarov, B - K. P. Fecktistov, C - B. B. Yegorov; 1 - mean value of the EKG R-R interval (X_{R-R}, sec); 2 - coefficient of R-R variation (V_{R-R}, %); 3 - coefficient of respiratory pause variation (V_{rp}, %). P - Prelaunch.

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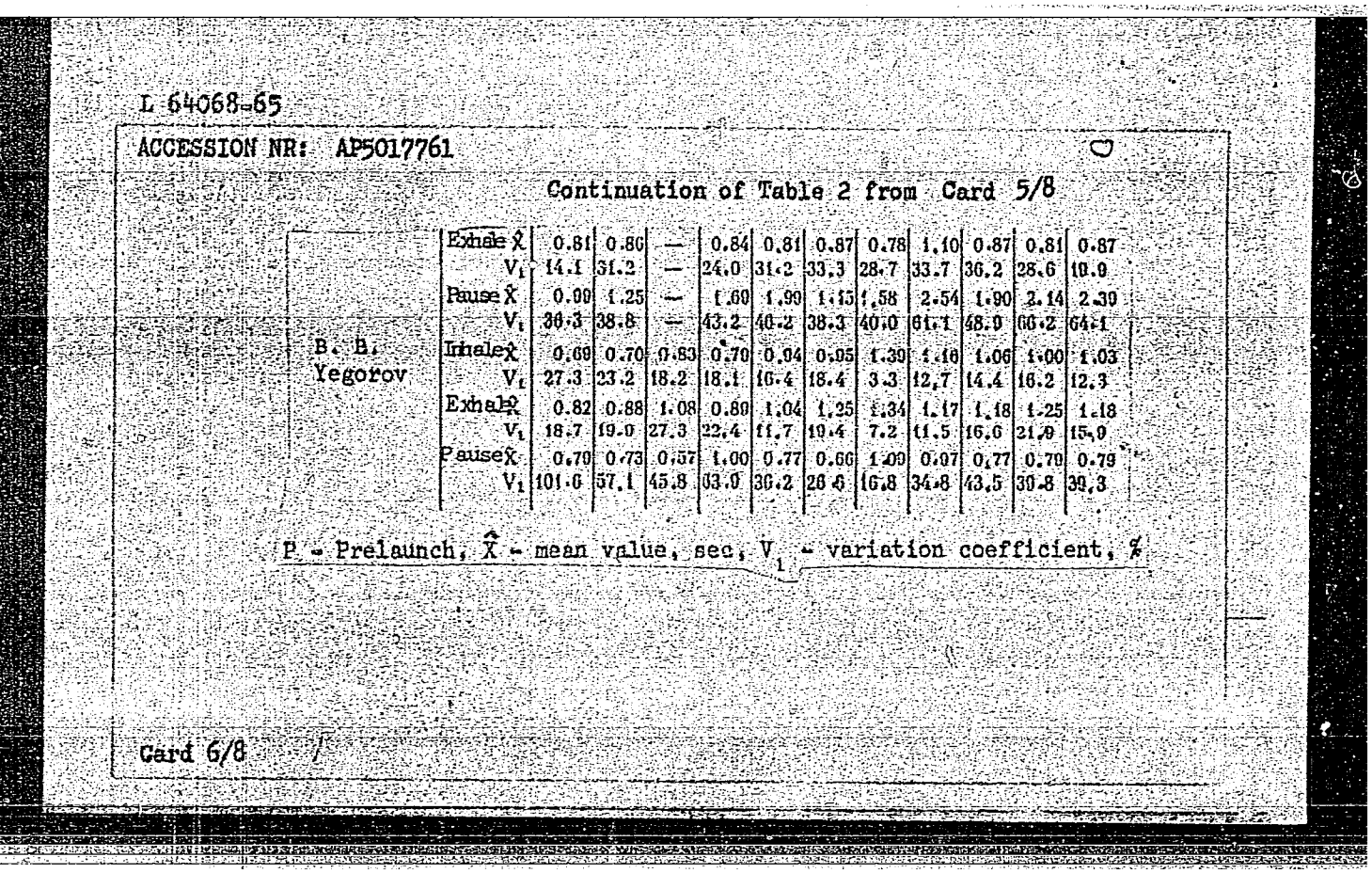
ACCESSION NR: AP5017761

Table 2. Relationship of cosmonaut pneumogram time characteristics during the flight

Cosmonauts	Index	Orbital periods of measurement										
		P	1	2	3	4	5	6	13	14	15	16
V. M. Komarov	Inhale t	1.07	1.07	1.12	1.11	1.16	1.28	1.12	1.18	1.08	1.19	1.10
	V_t	24.7	30.7	19.1	23.2	28.5	30.5	27.1	16.5	42.3	20.1	28.8
	Exhale t	0.82	0.85	1.02	1.28	1.44	1.54	1.37	0.96	1.30	1.45	1.23
	V_t	32.7	33.0	36.7	43.6	40.8	25.3	22.1	27.3	26.3	41.8	27.5
	Pause t	1.42	2.17	1.74	1.71	1.84	2.40	0.95	1.20	1.37	1.12	1.50
	V_t	49.4	81.8	87.1	66.0	72.6	86.0	68.9	67.1	70.6	63.3	71.7
K. P. Feoktistov	Inhale t	1.04	0.93	—	0.84	0.84	0.88	0.82	0.82	0.79	0.70	0.74
	V_t	20.1	25.7	—	22.0	24.3	19.6	21.4	41.7	25.1	24.8	22.3

Table Table 2 continued on Card 6/8



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ACCESSION NR: AP5017761

Continuation of Table 2 from Card 5/8

B. B. Yegorov	Exhale $\hat{X}$	0.81	0.80	—	0.84	0.81	0.87	0.78	1.10	0.87	0.81	0.87
	V_t	14.1	31.2	—	24.0	31.2	33.3	28.7	33.7	36.2	28.6	18.9
	Pause $\hat{X}$	0.09	1.25	—	1.60	1.99	1.15	1.58	2.54	1.90	2.14	2.30
	V_t	30.3	38.8	—	43.2	40.2	38.3	40.0	61.1	48.9	66.2	64.1
	Inhale $\hat{X}$	0.69	0.70	0.83	0.70	0.94	0.95	1.39	1.18	1.06	1.00	1.03
	V_t	27.3	23.2	18.2	18.1	16.4	18.4	3.3	12.7	14.4	16.2	12.3
	Exhale $\hat{X}$	0.82	0.88	1.08	0.80	1.04	1.25	1.34	1.17	1.18	1.25	1.18
	V_t	18.7	19.0	27.3	22.4	11.7	19.4	7.2	11.5	16.6	21.9	15.9
	Pause $\hat{X}$	0.70	0.73	0.57	1.00	0.77	0.66	1.09	0.97	0.77	0.70	0.79
	V_t	101.6	57.1	45.8	63.0	36.2	28.6	16.8	34.8	43.5	39.8	39.3

P - Prelaunch, $\hat{X}$ - mean value, sec, V_t - variation coefficient, %

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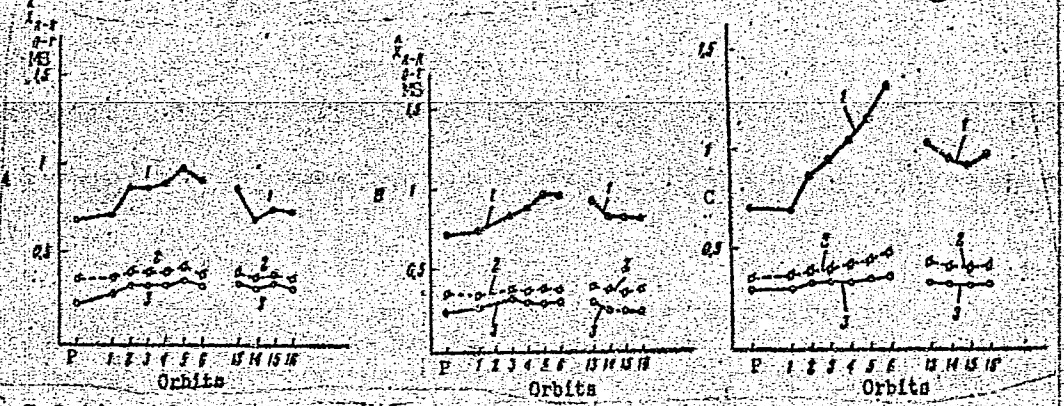

Fig. 3. Relationship of the mean values of EKG R-R and Q-T intervals and the duration of mechanical systole (ms) of cosmonauts during various space-flight periods

A - V. M. Komarov, B - K. P. Feoktistov, C - B. B. Yegorov; 1 - mean R-R value, sec; 2 - mean Q-T value, sec; 3 - mean ms value, sec. P - Preleunch.

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L 64068-65

ACCESSION NR: AP5017761

flight. It was noted, however, that B. B. Yegorov, the flight physician, exhibited a marked vagotonic reaction while sleeping during the 6th orbit of Voskhod-1. His pulse rate decreased to 45—48 beats/min.

As a rule, EKG R-R coefficient variations coincided with respiratory pauses in time and tendencies from one orbit to the next. The lowest R-R lability was exhibited by B. B. Yegorov during sleep.

It was concluded that pulse lability and time characteristics of the respiratory cycle can reflect changes in the general condition of cosmonauts when they are adapting to orbital flight. In particular, these parameters reflect the adaptation of the statokinetic analyzer to weightlessness. Orig. art. has: 2 tables, 7 graphs.

ASSOCIATION: none

SUBMITTED: 05Mar65 ENCL: 00 SUB CODE: LS, SV

NR REF SOV: 011 OTHER: 001 ATD Press: 4068-F

MLR

Card 8/8

L 16033-66 FSS-2/EWT(1)/FS(v)-3/EEC(k)-2/EWA(d) SCTB IT/DD/RD/GW

ACC NR: AP6003452 SOURCE CODE: UR/0216/66/000/001/0021/0028

AUTHOR: Voskresenskiy, A. D.; Kas'yan, I. I.; Maksimov, D. G.

ORG: none

TITLE: Changes in cardiac activity and respiration in cosmonauts during light physical work on the orbital flight of the Voskhod-1 spacecraft

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 1, 1966, 21-28

TOPIC TAGS: dynamometer, cardiac activity, respiratory activity, weightlessness effect, cosmonaut, Yegorov, Feoktistov, Komarov, EKG

ABSTRACT: In this article electrocardiograms, seismocardiograms, and pneumocardiograms recorded during work on a dynamometer by Voskhod-I cosmonauts are presented. Work with the dynamograph consisted of a series of rapid, rhythmical compressions of a wrist dynamometer for approximately 1 min, using a force of 2—3 kg. Each cosmonaut worked on the instrument in a different phase of the flight; Yegorov in the 2nd orbit, Feoktistov in the 5th, and Komarov in the 13th. Recording physiological parameters during programmed work is a well-known necessity. During the flight all three cosmonauts experienced a slight increase in pulse and respiration rates while performing this light work.

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ACC NR: AP6003452

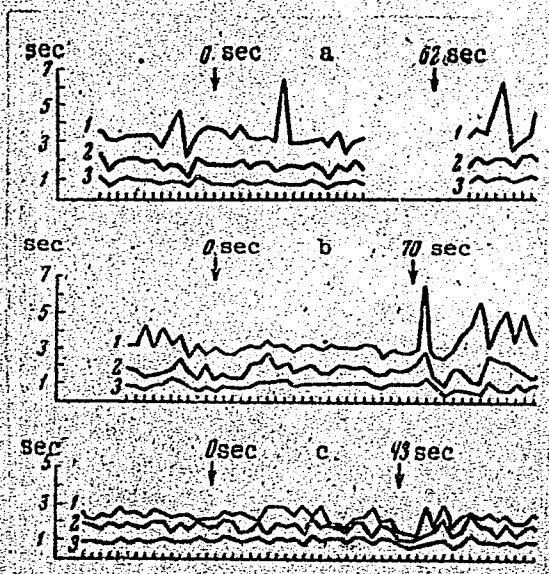

Fig. 1. Changes in the length of inspiration (3), in the total time of inspiration and expiration (2), and in the whole respiratory cycle (1) for cosmonauts V. M. Komarov (a), K. P. Feoktistov (b), and B. B. Yegorov (c).

The marks on the axis of the abscissas correspond to consecutive respiratory cycles. The arrows above the curves designate the beginning and end of work with the dynamometer.

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These reactions are considered the result of releasing influences of the nervous system, which accompany the beginning of work and the subsequent adaptation of respiratory and circulatory systems to the increasing oxygen requirement. A decrease in the variability of the R-R interval (EKG) was noted for cosmonauts Komarov and Feoktistov during work. In addition, a decrease in the length of their respiratory cycles was observed. These physiological shifts indicate that light physical work has a normalizing effect on cardiac and respiratory regulation during weightlessness. Yegorov, however, was affected differently: the variability of the R-R interval in his EKG increased during work. Periods of tachypnea showed up on Yegorov's pneumogram; the length of his respiratory cycle decreased to 2 sec (see Fig. 1). Analysis of dynamograms showed signs of Yegorov's rapid fatigue. His reactions are attributed to discomfort caused by spatial illusions. It is also possible that weightlessness directly affects external respiratory function. Orig. art. has: 4 figures. [JS]

SUB CODE: 06/ SUBM DATE: 23Jul65/ ORIG REF: 007/ OTH REF: 004/ ATD PRESS: 4/213

L 22873-66 FSS-2/EWT(1)/EEC(k)-2/EWA(d) TT/RD/GW

ACC NR: AP6012836 SOURCE CODE: UR/0293/66/004/002/0311/0319

AUTHOR: Akulinichev, I. T.; Antoshchenko, A. S.; Znachko, V. A.; Ivanov, A. Ye.; Lebedev, V. I.; Maksimov, D. G.; Uglov, A. Ye.; Khlebnikov, G. F.

ORG: none

TITLE: Some results of monitoring the medical condition of P. I. Belyayev and A. A. Leonov during training and during orbital flight

SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 2, 1966, 311-319

TOPIC TAGS: manned spaceflight, cosmonaut training, pressure chamber, human physiology, EVA / Voskhod-2

ABSTRACT: Training data for Leonov and Belyayev were compared with data from the Voskhod-2 flight. The cosmonauts were trained for rarefied atmosphere conditions by sequential exposure to pressure chamber altitudes of 5, 10, and 32—37 km. At an altitude of 5 km, neither cosmonaut required high altitude equipment or supplementary oxygen. At an altitude of 10 km, they breathed pure oxygen. In a rarefied atmosphere of 32—37 km, the cosmonauts wore suits analogous to those used on the Voskhod-2 flight. Flight system sensors and a stationary electrophysiological recorder were used. Pulse rate,

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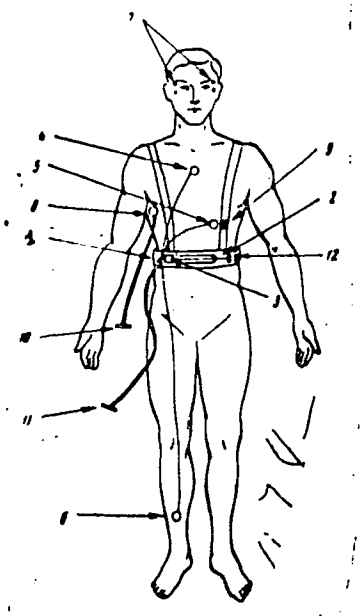

Fig. 1. Position of physiological sensors on the cosmonaut.

1 - Individual system of electrode and sensor positioning; 2 - ohmic respiration sensor; 3 - contact respiration sensor; 4, 5 - EKG electrodes; 6 - ground; 7 - EOG electrodes; 8 - body temperature sensor (submuscular area, Leonov only); 9 - SCG sensor; 10, 11 - detachable terminals; 12 - lacing.

Table 1. Changes in some physiological indexes of Belyayev and Leonov during space suit tests at 36km

Index	Belyayev			Leonov		
	Before	36 km	After	Before	36 km	After
Pulse rate, min.	12	9—18	12—28	16	12—18	12
Resp. rate, min.	67	60—67	62	63	67—68	67
P—Q, sec.	0,20	0,16—0,20	0,18	0,12	0,12—0,14	0,12
QRS, sec.	0,10	0,08—0,10	0,10	0,08	0,05—0,06	0,06
QRST, sec.	0,40	0,40	0,40	0,32	0,32—0,36	0,36
Systolic Index, %	42	40—42	40	33	33—41	36
P, mm	1	1	1	1	0,5—0,8	Weak
R, mm	9	11	8	22	19—23	15
S, mm	0,5	Weak	0,5	6,5	4	2
T, mm	5	3—4	3	6	4—6,5	3,5

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ACC NR: AP6012836

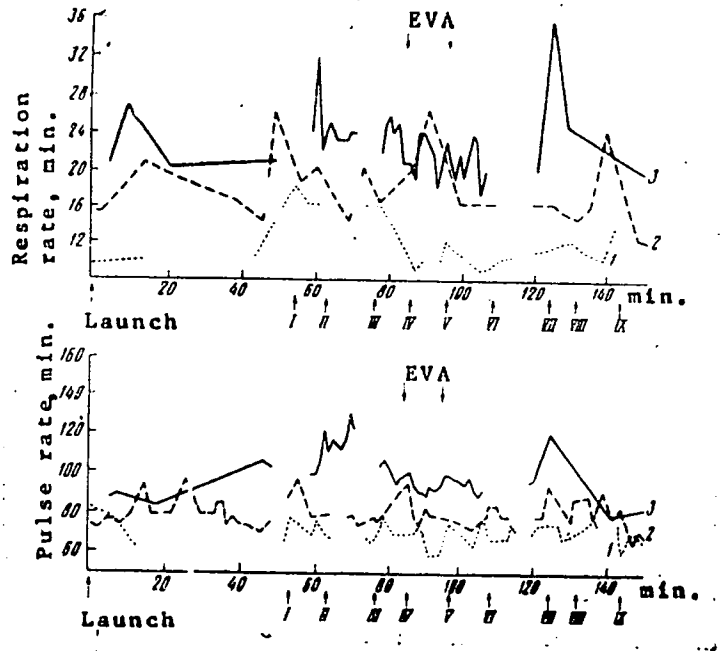

Fig. 2. Changes in the pulse and respiration rate of Belyayev when training and during the Voskhod-2 flight

I - Leonov entering the pressure lock; II - closing the cabin hatch; III - opening the pressure lock hatch; IV - Leonov's egress or imitated egress from the pressure lock; V, VI - Leonov's simulated or actual EVA; VII - Leonov's return to the cabin; VIII - closing the cabin hatch; IX - spacesuit pressure normalization to cabin atmosphere. 1 - training in a normal atmosphere; 2 - training at 37 km; 3 - orbital flight

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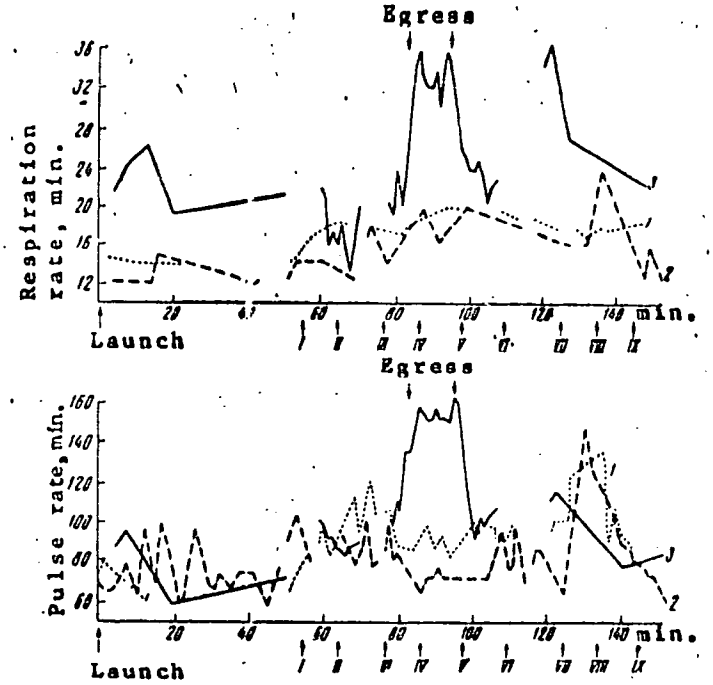

Fig. 3. Changes in the pulse and respiration rate of Leonov when training and during the Voskhod-2 flight

I - Leonov entering the pressure lock; II - closing the cabin hatch; III - opening the pressure lock hatch; IV - Leonov's egress or imitated egress from the pressure lock; V, VI - Leonov's simulated or actual EVA; VII - Leonov's return to the cabin; VIII - closing the cabin hatch; IX - spacesuit pressure normalization to cabin atmosphere. 1 - training in a normal atmosphere; 2 - training at 37 km; 3 - orbital flight

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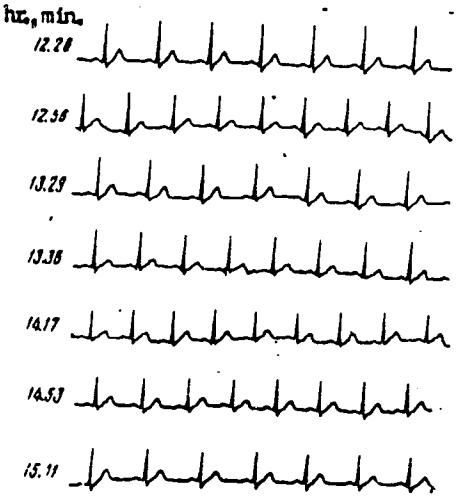

Fig. 4. Belyayev's EKG's when rehearsing the flight program in the spacecraft mockup (exercise no. 2, 37 km)

12.26 - normal condition; 12.56 - instrument check; 13.29 - prior to Leonov's entrance into the pressure lock; 13.36 - opening the cabin hatch; 14.17 - imitation of the egress; 14.53 - Leonov's return to the cabin; 15.11 - after the egress program and normalization of suit pressure

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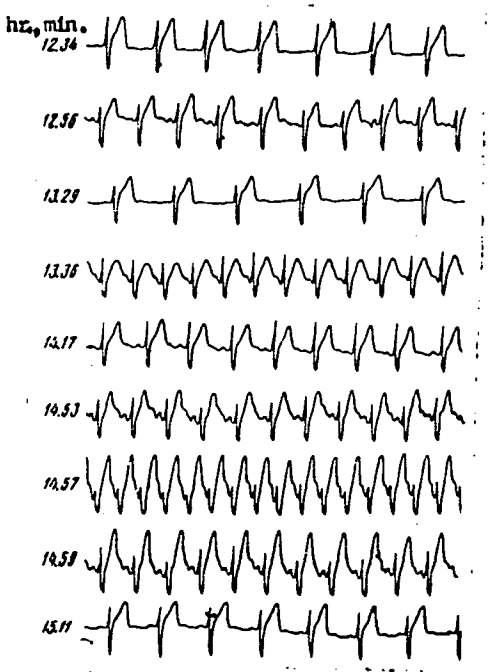

Fig. 5. Leonov's EKG's when rehearsing the flight program in the spacecraft mockup (exercise no. 2, 37 km)

12.34 - normal condition; 12.56 - instrument check; 13.29 - prior to entering the pressure lock; 13.36 - opening the cabin hatch; 14.17 - imitation of egress; 14.53 - return to the cabin; 14.57 - closing the cabin hatch; 14.59 - instrument check; 15.11 - after returning to the seat and normalizing suit pressure

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ACC NR: AP6012836

O

respiration rate, and EKG's were recorded along with visual (TV) observations. Two-way radio communication was maintained. A spacecraft mockup was used to test two series of exercises. In the first exercise, the cosmonauts rehearsed the program involving the movement of Leonov into the pressure lock under normal atmospheric conditions. The second exercise entailed the same regimen at an altitude of 37 km. A diagram of the sensors used is shown in Fig. 1. Results of the tests are given in Figs. 2—5 and Table 1. All Voskhod-2 systems and the newly designed suit used for Leonov's EVA functioned normally both during the training program and the flight itself. During training and the Voskhod-2 flight, the pressurization and egress program caused accelerated pulse and respiration rates and functional EKG variations in both cosmonauts. These were attributed to emotional stress, and in Leonov's case, physical strain. The training program was judged to be fully applicable to the Voskhod-2 program. Orig. art. has: 1 table and 5 figures. [CD]

SUB CODE: 05, 06/ SUBM DATE: 01Nov65/ ORIG REF: 006/ ATD PRESS: 4234

Card 8/8 LC

L 04589-67 FSS-2/EWT(l)/EEC(k)-2 SCTB TT/DD/GW
ACC NR: AP6033400 SOURCE CODE: UR/0293/66/004/005/0768/0780

AUTHOR: Bayevskiy, R. M.; Maksimov, D. G.

72
B

ORG: none

TITLE: Methods of programmed physiological measurements and their experimental use on the Voskhod-1 spaceship

SOURCE: Kosmicheskiye issledovaniya, v. 4, no.5, 1966, 768-780

TOPIC TAGS: programmed physiologic measurement, work capacity, vestibular analyzer, motor reaction, space physiology, biotelemetry/Voskhod-1

ABSTRACT: Methods, general principles, and laboratory testing of programmed physiological studies for spaceflight, with emphasis on work-capacity studies, are discussed; program variants are given and results of programmed investigations on the Voskhod-1 flight are presented. Functional division of medical control and medical investigations, use of intracabin telemetry, onboard computers, and memory devices, and the cosmonaut's participation in programming measurements facilitate expansion of information-collection systems. Programming a cosmonaut's activity requires selection of adequate functional tests for flight conditions, sequence of actions, and order and time of measurements. Programmed investigations, even when recordings are distorted, are an index of cosmonaut work capacity. The cosmonaut's accuracy in fitting sensors and electrodes is indicated by the quality of obtained recordings,

Card 1/2 UDC: 001.2 : 629.198.61 (018)

L 04589-67
ACC NR: AP6033400

his capacity for time orientation by the preciseness of the time chart, and his capacity to complete certain work by fulfillment of tests in a given program. A five-min program for general medical investigation which records seven physiological parameters on four recording channels is effective, but evaluates only the condition of the muscular system. A specialized program for studying vestibular and motor analyzers which includes the recording of motor acts during writing is highly effective, but requires ten min. Development of a combined program for studying fatigue and work capacity consists of three stages: 1) dynamography, 2) alternate muscular (static and dynamic work on the dynamogram) and mental (differentiation of three series of light stimuli) stresses, and 3) a combined seven-step program requiring 6.5 min, which investigates work capacity and coordination of motor acts during writing. The training of subjects and studies to reveal the nature of stresses and the structure of the writing test were included in this program which indicated the effectiveness of programmed investigation for studying work capacity and the possibility of developing programmed investigations for both general medical investigations and specific analysis of one part of an organism's function. Results of programmed investigations during the Voskhod-1 flight confirmed the possibility of programmed medical investigations by cosmonauts. Orig. art. has: 8 tables and 5 figures.

SUB CODE: 05, 06/ SUBM DATE: 26May66/ ORIG REF: 009/ OTH REF: 001/ ATD PRESS: 5100

Card 2/2 afs

ACC NR: AT6036561 SOURCE CODE: UR/0000/66/000/000/0169/0170

AUTHOR: Zharov, S. G.; Kuzminov, A. P.; Kas'yan, I. I.; Maksimov, D. G.; Onishchenko, V. F.; Popov, V. A.

ORG: none

TITLE: The problem of investigating pilot work capacity during long sojourns in spaceship mockups [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 169-170

TOPIC TAGS: isolation test, human physiology, hypodynamia, respiratory system, space physiology

ABSTRACT: On prolonged spaceflights, cosmonaut work activity will take place during the exposure of the organism to a whole group of unusual factors (weightlessness, prolonged isolation, hypodynamia, altered gas medium, and so forth). Study of the effect on man of these factors is of great practical importance.

The purpose of the present investigation is to study the condition and work capacity of man during a prolonged sojourn in a spaceship mockup.

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For this purpose, four 3-day experiments and one 12-day experiment were conducted (the latter was a control experiment without special countermeasures against hypodynamia). The volunteer subjects wore ventilated suits. They remained seated in a space cabin couch throughout the whole time of the experiment. The couch was fully isolated from the external environment. The work activity of the subjects was carried out according to a schedule approximating spaceflight conditions. At scheduled times they performed test tasks in the operation of a manual attitude control system, information transmission, correction tests, and so forth. During the experiment complex recordings were made of physiological functions (EEG, EKG, PG, EMG, and galvanic skin response).

Analysis of the experimental data showed that during a three-day stay in a spaceship mockup, the general condition of the subjects was practically unchanged. The investigated physiological indices remained within normal limits. The work activity of the subjects dropped off a bit in the first day, but returned to initial levels on the second and third days of the experiment.

In the 12-day experiment, the tendency toward lowered work capacity

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001031620012-5"

ACC NR: AT6036561

was more pronounced. Thus, on the first, fifth, seventh, and eleventh days, a one and one-half to two-fold decrease in the accuracy of ship attitude control from angular coordinates was recorded. The time required for information transmission increased toward the end of the experiment by an average of 10%. In the correction tests, the information capacity of the visual analyzer dropped from 1.7 to 1.3—1.5 bits/sec. The red and blue light contrast sensitivity of the eyes decreased 35% and 40%, respectively, from L. N. Meyer's data.

Numerous changes in physiological indices were also noted toward the end of the experiment. Thus, for example the EEG's showed a stagnant exaltation of alpha rhythms. Tests with sudden random signals requiring a response reaction from the subject showed a decrease in electromyogram amplitude from 300—200 μv and a galvanic skin response amplitude decrease from 650—480 μv.

The observed functional shifts in the state of the subject during a 12-day stay in a spaceship mockup indicate that further study of pilot work capacity under analogous conditions is necessary, as is an effort to find optimal work-rest schedules for cosmonauts on prolonged spaceflights. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 3/3

ACC NR: AT6036472 SOURCE CODE: UR/0000/66/000/000/0018/0019

AUTHOR: Akulinichev, I. T.; Baykov, A.Yo.; Vasil'yev, P. V.; Kas'yan, I. I.; Maksimov, D. G.; Uglov, A. Ye.; Chekhonadskiy, N.A.

ORG: none

TITLE: Some data from electrophysiological investigations conducted on the crew of the Voskhod-2 during spaceflight (Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966)

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 18-19

TOPIC TAGS: space physiology, manned space flight, Leonov, extravehicular activity, cardiology, cardiovascular system, electrooculogram, electrocardiogram, body temperature, electrophysiology, respiration, heart rate / Voskhod-2

ABSTRACT:
Electrocardiograms, pneumograms, seismocardiograms, and electro-oculograms were registered on the Voskhod-2 cosmonauts, Belyayev and Leonov. In addition, Leonov's body temperature was measured. After the spaceship attained orbit, the frequency of cardiac contractions continued to increase and to exceed the levels registered

Card 1/3

during active acceleration. These changes in pulse rate were due to the preparations for Leonov' s EVA. During EVA, their heart rates reached the maximums of 129 and 162 beats/min. By the third orbit, the heart rate and respiration frequencies of the two cosmonauts became normal, equaling prelaunch magnitude. Further changes were comparable to those noted in preceding flights. The lowest heart rates were recorded during the seventh orbit. From the thirteenth to the eighteenth orbit there was a gradual increase in the rate of cardiac contractions (86—111) and an increase in respiration rate up to 18—20 cycles/min, which was related to the performance of a series of tasks according to the program, and to the emotional strain induced by preparation for manual re-entry.

Analysis of the EKG indicated that the significance of the Q—T and R—R intervals in both cosmonauts corresponded to changes in frequency of the heart rate. The lability of the Q—T coefficient was higher at the beginning and end of the flight in both cosmonauts and diminished noticeably during the middle of the flight. The same was observed in relation to the amplitude of the EKG peaks. The duration of the mechanical systole in general followed changes in pulse rate from the third to the sixteenth orbit; the duration of Leonov' s mechanical systole varied from 0.32—0.35

sec. During the 17th and 18th orbits, the duration of the mechanical systole diminished to 0.29—0.27 sec simultaneously with an increase in the pulse rate. Electromechanical lag was determined only in Leonov and during various times of the flight varied from 0.02—0.06 sec.

Oculomotor activity during the first two orbits rose in both cosmonauts to 105—111 movements/min. During the third and fourth orbits the number of oculomotor reactions diminished and after that varied within relatively low limits: 10—40 movements/min. The dynamics of the electro-oculogram corresponded to changes in the pulse and respiration frequency and reflected, apparently, the general condition of the cosmonauts. An analysis of the amplitudes and the curve of the EOG indicated that eye movements in the cosmonauts were rather symmetrical during the entire duration of the flight.

Leonov's armpit temperature varied during the flight from 35—37.6° C. The higher temperatures were recorded during the 2nd, 16th, and the 17th orbits. This can be explained by emotional strain and performance of physical tasks by the cosmonaut. [W. A. No. 22; ATD Report 66-116]

SUB CODE: 06,22 / SUBM DATE: 00May66

ACC NR: AP6033399 SOURCE CODE: UR/0293/66/004/005/0755/0767

AUTHOR: Volynkin, Yu. M.; Akulinichev, I. T.; Vasil'yev, P. V.; Voskresenskiy, A. D.; Kas'yan, I. I.; Maksimov, D. G.

ORG: none

TITLE: Some data on the condition of cosmonauts during the flight of the Voskhod-1 spacecraft

SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 5, 1966, 755-767

TOPIC TAGS: manned spacecraft, space physiology, space medicine, human physiology, cardiovascular system, nervous system, vestibular analyzer/Voskhod 1 spacecraft

ABSTRACT: A diagram of the biomedical monitoring parameters and some results of a further statistical analysis of the Voskhod-1 flight are presented in the following figures and tables. As in other discussions of this flight, the general conclusion was that none of the observed physiological shifts were of a pathological nature, and therefore, were reversible. The most significant finding of the flight was a confirmation of the possible specific effect of weightlessness on the statokinetic

Card 1/6 UDC: 629.198.61

ACC NR: AP6033399

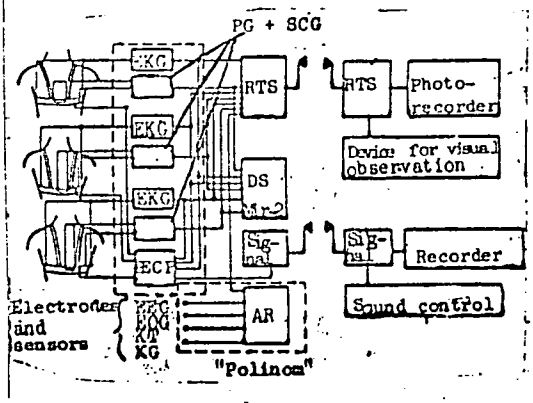

Fig. 1. Block diagram of physiological parameters recorded during the flight of Voskhod-1

EKG - Electrocardiogram; PG, SCG - pneumogram plus seismocardiogram; EEG - electroencephalogram; PECP - pulmoelectrocardiophone; EOG - electrooculogram; KT - coordination test; KG - kinetogram; RTS - radiotelemetry system; DS-Mir-2 - data storage unit; AR - amplifier-readout.

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Cosmonauts	Physiological index	Before flight						After flight	
		8.X	8.X	11.X	4 hr Pre-launch (12 X 1964)	5 min Pre-launch	1 min Pre-launch	1st day	15 th day
		1964							
V. M. Komarov	Pulse	76	68	72	87	89	89	80	68
	Respiration	8	12	10	18	23	20	11	10
	Arterial pressure	115/75	115/70	120/75	—	—	—	115/80	115/75
K. A. Feoktistov	Pulse	80	84	80	78	80	97	84	72
	Respiration	12	16	18	21	20	21	16	11
	Arterial pressure	110/75	105/75	125/85	—	—	—	105/85	115/80
B. B. Yegorov	Pulse	72	64	64	81	88	93	84	68
	Respiration	14	14	14	18	25	21	10	16
	Arterial pressure	100/70	105/65	120/70	—	—	—	120/80	110/65

Table 1. Dynamics of the pulse rate, respiration rate, and arterial pressure of the Voskhod-1 cosmonauts before, during, and after the flight (from the data of M. D. Nikitin et al).

Card 3/6

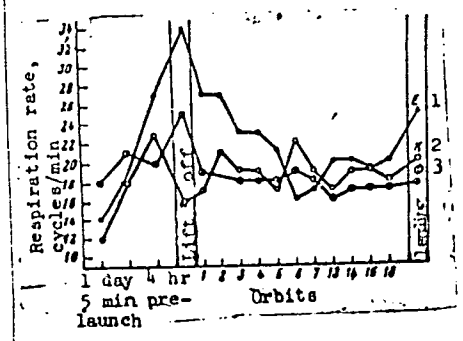

Fig. 2. Dynamics of the average respiratory rates of V. M. Komarov (2), K. P. Feoktistov (3), and B. B. Yegorov (1) before, during, and after the Voskhod-1 flight

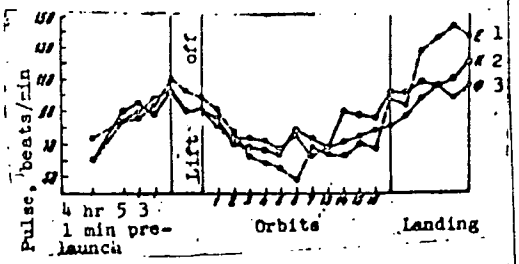

Fig. 3. Dynamics of the average pulse rates of B. B. Yegorov (1), V. M. Komarov (2), and K. P. Feoktistov (3), before, during, and after the Voskhod-1 flight

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ACC NR: AP6033399

Parameters	Cosmonauts	2.5 hr before launch	Orbits 1	2	3	4	5	6	7	12	14	15	16
P-Q, sec	V. M. Komarov	0,12	0,10	0,11	0,10	0,12	0,11	0,11	0,11	0,10	0,10	0,10	0,10
	K. P. Feoktistov	0,15	0,14	—	0,13	0,16	0,13	0,16	0,14	0,11	0,12	0,12	0,12
	B. B. Yegorov	0,12	0,12	0,12	0,13	0,13	0,14	0,14	0,16	0,10	0,12	—	0,10
Q-T, sec	V. M. Komarov	0,34	0,34	0,37	0,36	0,37	0,38	0,38	0,38	0,39	0,36	0,34	0,34
	K. P. Feoktistov	0,30	0,30	—	0,36	0,37	0,37	0,37	0,42	0,38	0,39	0,37	0,36
	B. B. Yegorov	0,33	0,34	0,37	0,38	0,39	0,41	0,44	0,39	0,40	0,38	—	0,37
R-R, sec	V. M. Komarov	0,69	0,61	0,78	0,70	0,86	0,99	0,61	0,76	0,89	0,71	0,72	0,75
	K. P. Feoktistov	0,75	0,69	—	0,82	0,88	0,91	0,90	0,98	0,87	0,82	0,80	0,78
	B. B. Yegorov	0,67	0,69	0,73	0,88	0,98	1,13	1,24	0,98	1,03	0,87	—	0,90
Systolic index,	V. M. Komarov	49,9	57,7	48,7	51,7	43,7	40,0	58,2	50,7	45,0	51,1	47,2	45,3
	K. P. Feoktistov	47,6	52,9	—	44,8	42,4	40,0	41,3	43,3	44,2	47,9	48,6	44,6
	B. B. Yegorov	49,2	58,6	50,7	43,4	39,7	36,2	35,6	40,1	39,2	44,2	—	41,0

Table 2. Some indices of the cardiac activity of V. M. Komarov (1), K. P. Feoktistov (2), and B. B. Yegorov (3) before and during the flight of Voskhod-1

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Orbits	V. M. Komarov			K. P. Feoktistov			B. B. Yegorov		
	M, sec	σ, sec	C, %	M, sec	σ, sec	C, %	M, sec	σ, sec	C, %
5 min before	0,68	0,07	10,5	0,72	0,076	10,56	0,70	0,073	10,50
1	0,72	0,08	12,8	0,75	0,031	4,16	0,69	0,074	10,74
3	0,87	0,098	11,26	0,84	0,084	9,96	0,94	0,109	11,55
6	0,82	0,075	9,14	0,86	0,074	7,66	1,31	0,044	3,36
13	0,87	0,038	4,34	0,93	0,091	9,80	1,02	0,067	6,58
16	0,74	0,043	5,82	0,81	0,053	6,60	0,93	0,082	8,60

Table 3. Results of a statistical analysis of R-R intervals for V. M. Komarov (1), K. P. Feoktistov (2), and B. B. Yegorov (3) before and during the Voskhod-1 flight

analyzer and its interaction with other analyzers leading to the possible development of prolonged spatial disorientation illusions and prolonged vestibuloautonomic reactions which decrease the work capacity of cosmonauts. Orig. art. has: 4 figures and 4 tables.

SUB CODE: 06/ SUBM DATE: 26May66/ ORIG REF: 010/ OTH REF: 001/ ATD PRESS: 5100

Card 6/6

ACC NR: AP7005701 SOURCE CODE: UR/0216/67/000/001/0104/0115

AUTHOR: Kas'yan, I.I.; Vasil'yev, P.V.; Maksimov, D.G.; Akulinichev, I.T.; Uglov, A.Ye.; Baykov, A.Ye.; Chekhonadskiy, N. A.

ORG: none

TITLE: Some cardiovascular and respiratory system reactions of the cosmonauts during the orbital flight of the Voskhod-2 spacecraft

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no 1, 1967, 104-115

TOPIC TAGS: weightlessness, cardiovascular system, respiratory system, electrocardiography, psychologic stress, SPACE PHYSIOLOGY

ABSTRACT:

Cardiovascular and respiratory system data for A. A. Leonov and P. I. Belyayev monitored during the March 18, 1965 Voskhod-2 spacecraft flight and extravehicular excursion is analyzed. The significance of the R-R, PQ, QT and QRS intervals and the P, R, S and T waves of the EKG's was determined. Pulse rate, respiration frequency, and systolic index were found on the basis of pneumogram data. The EKG and pneumogram data were mathematically processed for each orbit. Findings show that under conditions of weightlessness the general condition of the cosmonauts was not marked

Card 1/2 UDC: 612:523

ACC NR: AP7005701

by any significant disorders with the exception of some functional shifts in the cardiovascular system: marked reduction of heart contraction frequency, sometimes lower than initial values; more marked fluctuation of time intervals and amplitudes of EKG waves; and, in the case of P. I. Belyayev, the presence of ventricular extrasystoles. Analysis of the respiratory cycle phases and their coefficients of variation indicates relative stability of respiratory functions. Postflight medical examinations did not disclose any significant functional system shifts. Pulse rate increases by 12 to 16 beats/min, systolic arterial pressure increases by 10 to 15 mm Hg, and the diastolic pressure remained practically the same. Respiration frequencies corresponded to initial values. The most pronounced cardiovascular and respiratory reactions were displayed by Belyayev during the second orbit when his companion returned to the spacecraft and during the seventeenth orbit when he operated the controls manually. The highest reactions displayed by Leonov were during the second orbit at the time of his extravehicular excursion and return to the spacecraft. These shifts are attributed to the emotional strain involved in performing the most difficult tasks of the flight mission. The medical data show that the orbital flight and extravehicular excursion did not produce any sharp changes in the basic functional system and did not reduce the work capacities of the cosmonauts. Orig. art. has: 7 figures and 1 table. [06]

SUB CODE: 06/ SUBM DATE: 26Apr66/ ORIG REF: 006/ OTH REF: 003/
ATD PRESS: 5116

Card 2/2

MAKSIMOV, Dmitriy Georgiyevich; KIRIYENKO, P.S., polkovnik, red.; SOLOMONIK, R.L., tekhn.red.

[Course of electric engineering] Kurs elektrotekhniki. Izd. 3-e, perer. Moskva, Voen. izd-vo M-va obor. SSSR, 1958. 786 p. (MIRA 11:5)
(Electric engineering)

MAKSIMOV, D.K., mayor

A high and honorable trust. Vest.protivovozd.obor. no.10:17-19
O '61. (MIRA 15:2)
(Communist Party of the Soviet Union)
(Russia--Armed forces)

MAKSIMOV, D.S.

Supplemental fertilization of perennial grass. Zemledelie 6 no.6:51-54 Je '58. (MIRA 11:6)
(Fertilizers and manures)
(Grasses)

MAKSIMOV, D.S., agronom

Selecting cover crops for perennial grasses. Nauka i pered. op. v sel'khoz. 9 no.3:18 Mr '59. (MIRA 12:5)
(Cover crops) (Grasses)

MAKSIMOV, D. S.

Cand Agr Sci - (diss) "Problems of agro-techniques of perennial grasses for hay in the southern part of non-chernozem belt." Gor'kiy, 1961. 28 pp; (Ministry of Agriculture RSFSR, Gor'kiy Agr Inst); 100 copies; price not given; (KL, 7-61 sup, 252)

MAKSIMOV D. S.

Torgovlya Grammofonnymi Plastinkami (Trade in Gramaphone Records, by) K. I. Yegorov, D. S. Maksimov (1) I. M. Sizov. Moskva, Gostorgizdat, 1952.
79 P. Illus., Diagrs., Tables (V Pomoshch' Prodavtsu i Zaveduyushchemu Sektsiyey Promtovarnogo Magazina).

SO: N/5
749.4
.Y4

MAKSIMOV, D.S., nauchnyy sotrudnik

Labor productivity in caring for young animals. Zhivotnovodstvo 20 no.11:28-30 N '58. (MIRA 11:11)

1. Opornyy punkt Vsesoyuznogo instituta ekonomiki sel'skogo khozyaystva.
(Moscow Province--Calves)

KHAZHINSKAYA, G.N., kand.tekhn.nauk; MAKSIMOV, D.V., inzh.

Floatability of pyrrhotite and sphalerite. Nauch. soob. IGD 16:83-87 '62. (MIRA 16:8)
(Flotation) (Pyrrhotite) (Sphalerite)

1. MAKSIMOV, D.Ye.
2. USSR (600)
4. Technology
7. Course in electrical enginereering. 2-e. Moskva, Boenizdat. 1952

9. Monthly List of Russian Accessions Library Of Congress, March, 1953. Unclassified.

L 5445-66 EWT(l)/EWT(m)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2/EWP(t)/EWP(b)
ACC NR: AP5025094 IJP(c) JD/AT SOURCE CODE: UR/0368/65/003/003/0265/0267

AUTHORS: Rudnevskiy, N. K.; Maksimov, D. Ye. 44,55

ORG: none 49 B

TITLE: Use of discharge in a hollow cathode for the quantitative spectral determination of elemental cadmium excess in cadmium sulfide and of zinc in zinc sulfide 21,44,55

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 3, 1965, 265-267

TOPIC TAGS: spectrum emission analysis, spectrum analysis, spectrometry, cadmium, zinc, cadmium sulfide, zinc sulfide

ABSTRACT: A method for the quantitative determination of super-stoichiometric components in binary semiconductor compounds is described. The method is based on the different rate of vaporization of salt and metal in a hot hollow cathode discharge. The method was tested on Cd + CdS and Zn + ZnS specimens of known composition. The experimental results are shown graphically (see Fig. 1). It was found that the sensitivity of the determination was 10^{-2}%.

Card 1/2 UDC: 543.42

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ACC NR: AP5025094

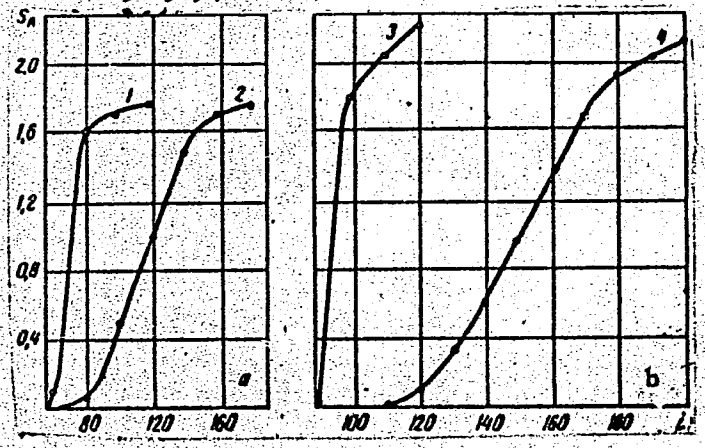

Fig. 1. Dependence of line density CdI 228.02Å (a) and ZnII 2502.00 Å (b) on the current strength (ma) at 25 mm Hg of He pressure; 1 and 3 metallic cadmium and zinc respectively; 2 and 4 sulfides of cadmium and zinc respectively.

Orig. art. has: 1 graph.

SUB CODE: OP/ SUBM DATE: 17May65/ ORIG REF: 001/ OTH REF: 001

Card 2/2 nd

MAKSIMOV, E.

"K. V. Pavlov's Osnovi na tekhnikata na bezopasnostta v minnata promishlenost (Principles of Safety Engineering in the Mining Industry); a book review of a translation from the Russian."

p.104 (Minno Delo, Vol. 12, no. 2, Mar./Apr. 1957, Sofiia, Bulgaria)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 8, August 1958

AUTHOR: Maksimov, Ye., Mining Engineer (Bulgarian [illegible])

TITLE: The Lead and Zinc Industry of the Rodop Basin (Svintsovo-tsinkovaya promyshlennost' Rodopskogo basseyna

PERIODICAL: Gornyy zhurnal, 1958, Nr 9, pp 50-51 (USSR)

ABSTRACT: The author describes the history and the conditions under which the abovementioned region was developed.
There is 1 chart, 7 graphs and 1 diagram.

1. Mining industry--USSR 2. Lead--Production--USSR 3. Zinc--Production--USSR

Card 1/1

MAKSIMOV, E.

Siliceus properties of the fine dust in the coal mines. p. 41
Minno Delo Vol. 13, No. 3, May/June 195[illegible], Sofiia, Bulgaria.

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 10,
Oct. 58

MAKSIMOV, E.

TECHNOLOGY

Periodicals: MINYO DELO. Vol. 13, No. 5 Sept./Oct. 1958

MAKSIMOV, E. Device for fast determination of dust in the air of mines. p. 30.

Monthly List of East European Accession (EEAI) LC Vol. 8, No. 4, April 1 59, Unclass.

GLEBOVSKAYA, Ye.A.; MAKSIMOV, E.I.; PETROV, A.K.

Possibility of determining CH_3- and CH_2- groups by infrared absorption spectra within the 3000 - 2700 cm^{-1} range. Trudy VNIGRI no.123:243-252 '58. (MIRA 11:12)
(Hydrocarbons--Spectra) (Spectrum, Infrared)

MAKS, MOU E, I.

5(3) SOV/79-14-4-17/30

AUTHORS: Glebovskaya, Ye. A., Makiyenko, E. I., Petrov, A. K.

TITLE: Quantitative Determination of CH_2-Groups in Open Chains With Not Less Than Four Links

PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 4, pp 479-482 (USSR)

ABSTRACT: The methane-naphthene parts of the hydrocarbons in petroleum or bitumen can be characterized by their CH_3 and CH_2 group content by application of infrared spectroscopy. These two groups are separately determined by the oscillations of the CH-bonds. The deformation vibrations as well as the valency vibrations of the groups CH_3 and CH_2 have different frequencies and are characterized by the difference in the absorption intensity. In the present paper the deformation vibrations of the CH-bonds are used for the quantitative determination of the CH_2-group-content in open chains with more than four links. The deformation vibrations of CH-bonds in methylene groups appear in the range of 600-700 cm^{-1} as wide absorption bands. Liquid normal paraffins

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give one single band at 720 cm^{-1}. This band is divided into two components (Refs 1, 2) in the case of crystalline normal paraffins, fatty acids, and other compounds with methylene chains. Table 1 gives the relation between the characteristic frequencies of the deformation vibrations of the CH_2-group and the length of the chain (Ref 4). Molecules not containing chains of more than four links of the CH_2-group do not absorb in the range of 13.8 - 13.9 μ (725 - 720 cm^{-1}). The authors investigated the absorption in the range from 13.2 to 14.4 μ. Measurements were made by means of the one-ray instrument IKS-11; no solvent was considered has to be determined for the quantitative determination of the CH_2 group, as this coefficient has different values in different instruments and under different determination conditions. In the determination of liquid and solid substances it is necessary to know the molecular weight and density of the substance to be able to determine the CH_2 group content as a

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number of CH_2 groups per molecule. For computing the part by weight of the CH_2 groups in the solution only the molecular weight must be known. The accuracy of the determination is 1 in the computation of the number of the CH_2 groups in the molecule and ~10% in the determination of the part by weight. 2 tables show the results of the measurements of the integral intensity of the absorption in the range 13.2 - 14.4 μ for the computation of the number of CH_2 groups per molecule for the paraffins from heptane to heptadecane (Table 2) and for the solid paraffins $C_{36}H_{74}$, $C_{20}H_{42}$ and stearic acid (Table 3). Table 4 gives the results of the measurement of the integral intensity of absorption in the range 13.2 - 14.4 μ for the determination of the part by weight of CH_2 groups for the alkanes from heptane

Card 3/4

to heptadecane. Table 5 gives the results of ... artificial mixtures of hydrocarbons concerning their contents of CH_2 groups (n > 4). There are 1 figure, 5 tables, and 8 references, 2 of which are Soviet.

ASSOCIATION: Vsesoyuznyy neftyanoy nauchno-issledovatel'skiy geologorazvedochnyy institut, Leningrad (All-Union Scientific Research Institute for Geologic Prospecting of Petroleum, Leningrad)

SUBMITTED: March 19, 1957

24(7),7(3)

AUTHORS: Glebovskaya, Ye. A., Maksimov, E. I. SOV/48-23-10-9/39

TITLE: The Quantitative Determination of the CH_2-Groups of Open Chains by Means of Infrared Absorption Spectra

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 10, pp 1194-1195 (USSR)

ABSTRACT: The authors give a report on some results obtained by their investigations within the frequency range of 700 - 800 cm^{-1} (deformed CH-oscillations of the CH_2 groups), which aimed at determining the number of CH_2 groups in a chain. For these investigations a spectrometer of the type IKS-11 was used. The hydrocarbons were investigated, without a solution being produced, in layers of 0.06 mm thickness. As quantitative measure of absorption the integral band intensity, which is measured in cm^2 - the area that is bounded by the curve of optical density and the "base line" (cf. figure 1) was used. In this way the absorption coefficient was determined empirically for a great

Card 1/3

number of hydrocarbons, by using the formula $K = \frac{SV_M}{n}$, where S denotes the measured area of the absorption band, V_M - the molecular volume (M/d, where M is the molecular weight and d density), and n - the number of CH_2 groups in the molecule.

The K-values found according to this formula are given by table 1. The mean value of K-(205)- may be used for determining n in mixtures of methane-naphthene hydrocarbons. The authors recently synthesized such mixtures and also measured and calculated the mean n-value (Table 2); agreement is good. These results relate to liquid samples. Also crystalline substances were investigated and the following K-values were determined empirically:

$n\text{-}C_{36}H_{74}$	n=34	K=163
$n\text{-}C_{20}H_{42}$	18	162
$n\text{-}C_{17}H_{35}COOH$	16	164

For the purpose of determining n by means of K according to the above formula it is necessary to know V_M, i.e. M and d.

If only the CH_2 group-content in percentage by weight is determined, the formula $K_1 = S/c_1 dx$ (c_1 - weight concentration of the CH_2 groups, d - specific weight, x - layer thickness, S - the measured area of the absorption band) may be used. If the determination is carried out in solution, the process is even more simple: the formula $K_2 = S/c_2 n$ is used, where c_2 is the molecular concentration of the standard in the solution, and $c_2 n$ - the CH_2 group concentration. In this case d need not be known. There are 1 figure, 2 tables, and 3 references, 1 of which is Soviet.

Card 3/3

L 11228-63 EPF(c)/EWT(m)/BDS--AFFTC/RPL--Pr-4--RM/BW/WW/JWD/H
ACCESSION NR: AP3000423 S/0076/63/037/005/1129/1132

65
62

AUTHOR: Maksimov, E. I.

TITLE: A study of luminosity pulsations in the combustion of nitroglycerin powders

SOURCE: AN SSSR. Zhurnal fizicheskoy khimii, v. 37, no. 5, 1963, 1129-1132

TOPIC TAGS: nitroglycerin powder, combustion, solid rocket propellant, luminosity pulsation

ABSTRACT: The combustion of nitroglycerin powders was studied in a thermostated, constant-pressure bomb at 0—40 atm and 10—100C initial temperature to determine the effect of pressure, temperature, and powder type on the frequency of luminosity pulsations. The burning rate and the pulsation frequency were measured with a Hungarian-made photoregister, the "Orion"; the development of the pulsations was studied by high-speed motion picture photography at 300—2000 frames/sec. Specimens 0.8 cm in diameter and 3.1—3.3 cm long, with their side walls coated with plexiglass, were used. The results disclosed that the pulsations are connected with the combustion mechanism and that they are unrelated to the natural frequency of gas oscillations. Also the volume of the bomb and the cladding had no effect

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on the pulsations. The pulsation frequency increased linearly with increasing initial temperature. With an increase in pressure, the frequency passed through a maximum at 11—12 atm. In the pressure range of 3—15 atm, the frequency varied from 0 to 5 cps. At less then 3 and greater then 15 atm the pulsations were less pronounced. At less than 16 atm, a number of well-defined circular carbon deposits were observed in the bomb. The number of the carbon spots was equal to the number of pulsations. No pulsations were observed with pure pyroxilin. The total carbon deposit at 11 atm was about 15% of the weight of the original powder specimen. Evaluation of the results suggests that the luminosity at the burning end increases gradually as a carbon lamela is formed. Subsequently the lamela detaches from the powder and luminosity ceases. The lamela moves at a velocity of 1 m/sec, which is equal to the gas velocity. This mechanism indicates that the formation and separation of lamelas does not affect the processes in the gaseous and condensed phases. The findings contradict Haffington's theory, proposed on the basis of experiments with nitroglycerin powders in a rocket combustion chamber model, that pulsations are caused by consecutive thermal explosions. "I express great thanks to A. G. Merzhanov for his evaluation of the subject, his constant interest, and aid in the work, and also to A. F. Belyayev for his valuable observations." Orig. art. has: 7 figures.

ACCESSION NR: AP4042212 S/0020/64/157/002/0412/0415

AUTHOR: Maksimov, E. I.; Merzhanov, A. G.

TITLE: A model of burning of nonvolatile explosives

SOURCE: AN SSSR. Doklady*, v. 157, no. 2, 1964, 412-415

TOPIC TAGS: explosive, nonvolatile explosive, liquid explosive, solid explosive, theoretical burning model, combustion, propellant

ABSTRACT: Parr and Crawford's theory of burning of liquid explosives through the formation of foam in the condensed reaction zone (J. Phys. Coll. Chem., 54, no. 6, 1950, 927) has been further developed by theoretically treating the problem of the mechanism of dispersion during the burning of nonvolatile liquid and solid explosives. A single-stage model of the burning process is considered which takes into account reactions in the liquid phase with a large expansion in volume caused by the formation of foam, which is transformed into an aerosol. The reaction in the gaseous phase, the dissolution of the gaseous reaction products in the liquid phase, and the heat

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ACCESSION NR AP4042212

losses from the reaction zone are neglected. The heat capacity is assumed to be constant. The equation of state for an ideal gas is applied to the pressure in the foam bubbles and the aerosol. An approximate solution of the initial system of equations derived for the burning process with a large expansion in volume was obtained by using Zeldovich and Frank-Kamenskiy's assumption that the convective heat transfer in the reaction zone may be neglected. Numerical values of various parameters of the burning process were calculated on an electronic computer to verify the approximation. The data were in fair agreement with the theory. Thus, the proposed model may be used for calculating the burning velocities of liquid and melting, solid explosives. Orig. art. has: 2 figures, 1 table, and 6 formulas.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 23Jan64 ATD PRESS: 3067 ENCL: 00

SUB CODE: WA, FP NO REF SOV: 009 OTHER: 002

Card 2/2

L 15624-65 EPA/EPA(s)-2/EWT(m)/EPF(c)/EPR/T Pae-4/Pr-4/Pt-10 ASD-3/AFFTC/SSD/
APGC/ESD(gs)/RAE(t)/AEDC(a)/AEDC(b)/SSD/SSD(...)/ESD/AFWL/ASD(...)-3/AFETR/AFTC(p)
EM/WW/JWD/WE/PM

ACCESSION NR: AP4044888 S/0020/64/157/006/1427/1430

AUTHOR: Grigor'yev, Yu. M.; Maksimov, E. I.; Merzhanov, A. G.

TITLE: Ignition of explosive particles in a hot gas

SOURCE: AN SSSR. Doklady*, v. 157, no. 6, 1964, 1427-1430

TOPIC TAGS: explosive, ignition, combustion, propellant, solid propellant, ignition delay

ABSTRACT: The ignition of spherical barium azide particles produced by abrasion of crystals on emery paper was studied at 260—650C in an assembly containing an electrically heated vertical glass tube into which a particle was introduced from the top and preheated air or nitrogen from the bottom. The falling speed of the particle could be controlled by regulating the countercurrent air flow. For shorter ignition delays a horizontal quartz tube was used. The ignition process was photographically scanned and a plot of ignition delay vs. temperature was obtained for different particle diameters (see Fig. 1 of the Enclosure). Each point represents the average of 15—20 measurements. The figure shows that the curves for different particle diam-

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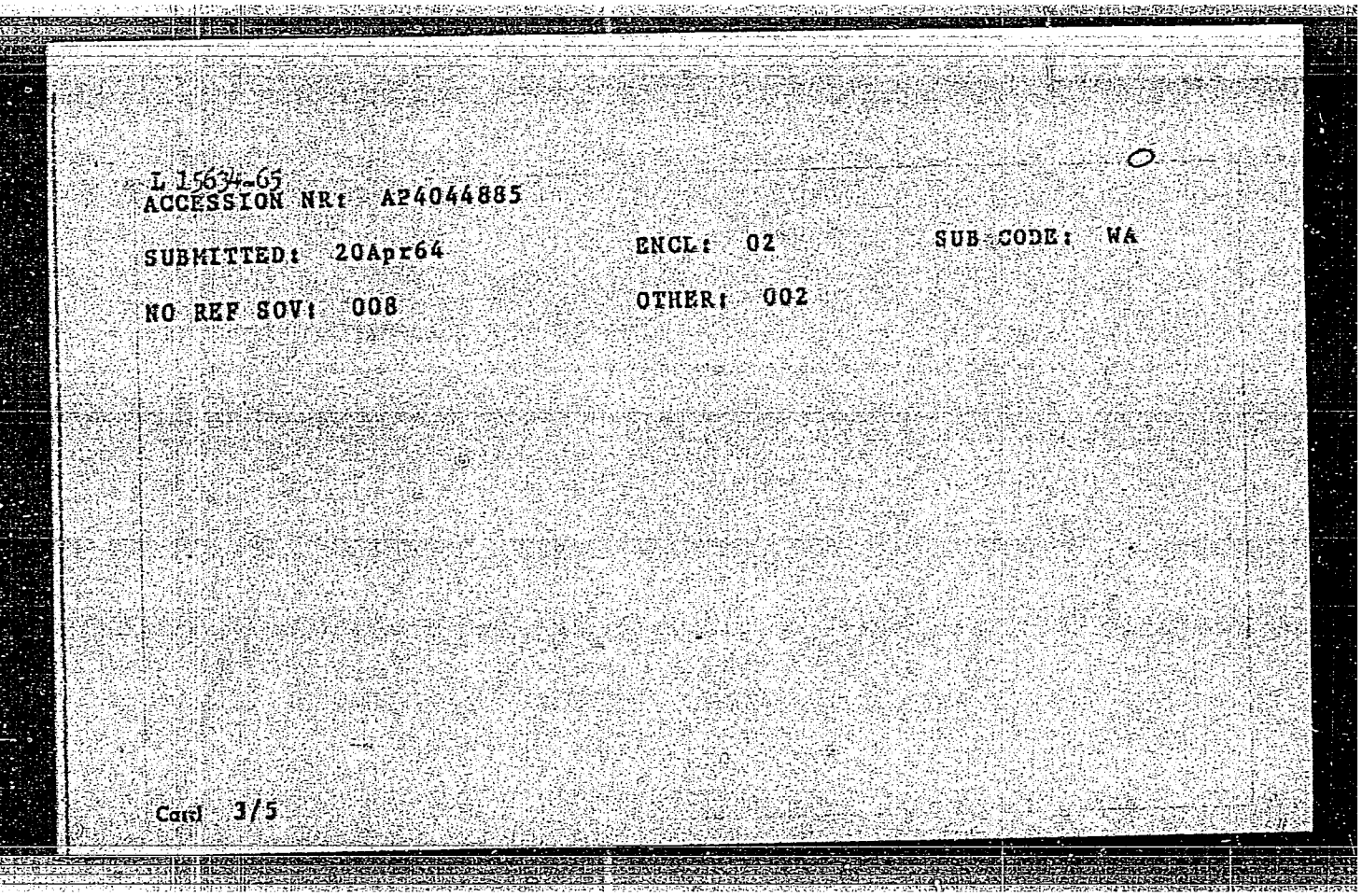
eters intersect. The ignition delay increased with increasing particle dfameter at higher temperatures. The particle radius (r_o) was correlated with the critical temperature $T_{o,cr}$ (the mean between the explosive and nonexplosive decomposition temperatures) by the following formula:

$$\ln \frac{T_{o,cr}^2}{r_o^2}\left(1+\frac{\psi_{av}T_{o,cr}^2}{\lambda_{av}}\right)=\ln\frac{Qk_oEe}{3R\lambda_{av}}-\frac{E}{R}\frac{1}{T_{o,cr}}.$$

where E = 35,000 cal/mole, $Qk_o = 4.10^{15}$ cal/cm^3 sec, $\lambda_{av} = 10^{-4}$ cal/cm. sec deg, and $\psi = 4$ (E activation energy; Q, heat release rate; k_o, preexponential factor; λ, thermal conductivity; R, gas constant). With this formula, the critical temperature was plotted versus the radius in Fig. 2. Orig. art. has: 4 figures and 2 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)



L 1563-65
ACCESSION NR: AP4044885

SUBMITTED: 20Apr64 ENCL: 02 SUB CODE: WA

NO REF SOV: 008 OTHER: 002

Card 3/5

L 15624-65
ACCESSION NR: AP4044685

ENCLOSURE: 01

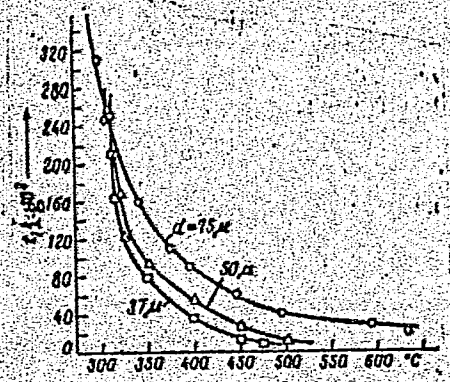


Fig. 1. Dependence of the ignition delay time of barium azide particles of different size on temperature in the range of 280—650C.

Card 4/5

L 15634-65
ACCESSION NR: AP4044885

ENCLOSURE: 02

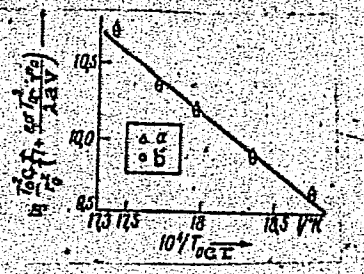


Fig. 2. Dependence $T_{0,cr}(r_б)$

$\varepsilon_i = 1$; б – $\varepsilon_i \neq 0$.

Card 5/5

L 7703-66 EPA/EWA(j)/EWT(m)/EWP(f)/EWA(b)-2/EWA(c)/ETC(m) WW/JWD

ACC NR: AP5026031 SOURCE CODE: UR/0405/65/000/001/0093/0102

AUTHOR: Grigor'yev, Yu. M. (Moscow); Maksimov, E. I. (Moscow); Merzhanov, A. G. (Moscow)

ORG: none

TITLE: Relationships of ignition of homogenous explosive particles in hot gas

SOURCE: Nauchno-tekhnicheskiye problemy goreniya i vzryva, no. 1, 1965, 93-102

TOPIC TAGS: combustion, explosion, explosive, propellant, solid propellant, ignition

ABSTRACT: A theory of the kinetics of decomposition of nonvolatile explosive particles in a hot gas has been developed on the basis of a simple model which assumes that the exothermal reaction takes place on the surface of the condensed particle which does not undergo phase transformation or change of size in the pre-explosion period, that the spherical explosive particle enters a cavity filled with hot gas, that heat transfer inside the particle takes place by conduction and external heat transfer by conduction and radiation, and that convective transfer is absent. The analysis yielded expressions for the temperature profile in the gas and inside the particle, for the time required to heat the particle, and for the induction period. To verify the theoretical relationships, experiments were made with nitrocellulose-pyroxyline powder particles (50—150 μ particle size) in horizontal and vertical glass tubes. The ignition temperatures of 50 μ particles were 255C in air and 246C

Card 1/2

L 7703-66

ACC NR: AP5026031

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in argon. This difference is attributed to the higher thermal conductivity of argon. Ignition delay times determined as a function of temperature were in good agreement with the theory. Orig. art. has: 9 figures. [PV]

SUB CODE: FP/ SUBM DATE: 18Dec64/ ORIG REF: 005/ OTH REF: 001/ ATD PRESS: 4141

Card 2/2

L 61694-65 EPA/EPA(s)-2/EWT(m)/EPF(c)/EWP(f)/EPR/EWP(j)/EWA(c) Pc-4/Paa-4/Pr-4/
Ps-4/Pt-7 RPL WW/JW/JHD/PM

ACCESSION NR: AP5017461 UR/0020/65/162/005/1115/1118

61
60
B

AUTHOR: Maksimov, E. I.; Merzhanov, A. G.; Kolesov, Yu. R.

TITLE: Density distribution in the combustion zone of condensed systems

SOURCE: AN SSSR. Doklady, v. 162, no. 5, 1965, 1115-1118

TOPIC TAGS: combustion, solid propellant, hexogen, combustion mechanism, condensed phase reaction

ABSTRACT: An experimental method based on x-ray absorption measurements was developed for determining the density profile at the burning surface of a solid propellant. The method applied to hexogen combustion at 0.5 to 5 atm showed that the density profile changes considerably with pressure and that the density change is gradual. The thickness of the zone in which the density changes can be calculated as a function of the propellant density by means of a formula derived. Motion picture photography showed that foam formed in the molten propellant layer leads to aerosol formation. Foam formation is attributed to the chemical reaction in the liquid melt rather than to passage of gases or to boiling of the overheated melt. The chemical conversion in the liquid phase was evaluated as 0.15—0.35. Comparing the velocity of the reaction front propagation with the burning velocity actually observed, it showed that the former is one order of magnitude smaller than the latter and that

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L 61694-65

ACCESSION NR: AP5017461

the gas phase reaction must thus be the controlling step in the overall combustion process. The study reconfirmed a previous theoretical result that the density changes gradually and not stepwise. Values of the surface temperature, which are the basis for many combustion theories, should therefore be considered with reservations. Orig. art. has: 4 figures and 4 formulas. [PV]

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, SSSR)

SUBMITTED: 07Dec64 ENCL: 00 SUB CODE: FP

NO REF SOV: 006 OTHER: 001 ATD PRESS: 4039

Card 2/2

L 23275-66 EWT(m)/EPF(n)-2/T/EWP(t) IJP(c) JD/WW/JW/JWD/WE

ACC NR: AP6012523 SOURCE CODE: UR/0062/66/000/003/0422/0429

AUTHOR: Maksimov, E. I.; Grigor'yev, Yu. M.; Merzhanov, A. G.

ORG: Institute of Chemical Physics Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: The rules and mechanism of ammonium perchlorate combustion

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 3, 1966, 422-429

TOPIC TAGS: ammonium perchlorate, combustion, solid propellant

ABSTRACT: The thermal decomposition of ammonium perchlorate (AP) is discussed extensively in the literature. PA sublimes on heating under high vacuum. Sublimation is suppressed with rising pressure and decomposition with evolution of heat takes place. Burning of PA occurs only at higher pressures. The purpose of this work was to investigate the nature of combustion of PA depending on temperature, pressure, particle size, density, and addition of ammonium chloride. Experiments were conducted in a constant-pressure bomb under nitrogen. The temperature was maintained by circulation of a thermostated liquid. The rate of combustion was determined photographically on a moving film. Technical grade PA was used; results obtained from PA purified by recrystallization differed by no more than experimental error (±4%). Samples were obtained by pressing PA which had been ground and graded according to size. Formation

Card 1/4 UDC: 541.126+541.124

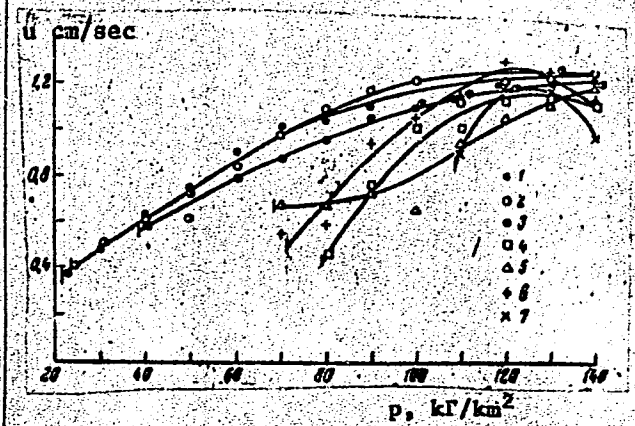

Fig. 1. Dependence of burning rate on pressure at 20C for particle sizes: 1 - 315—400; 2 - 250—315; 3 - 160—250; 4 - 100—160; 5 - 63—100; 6 - 50—63; 7 - less than 50 μ

and scattering of dispersed particles of PA were observed together with sublimation. The temperature factor of the rate of combustion

$$\alpha = \frac{1}{u}\left(\frac{\partial u}{\partial T_0}\right)_p$$

decreases with rising pressure and particle size, tending toward a saturation value.

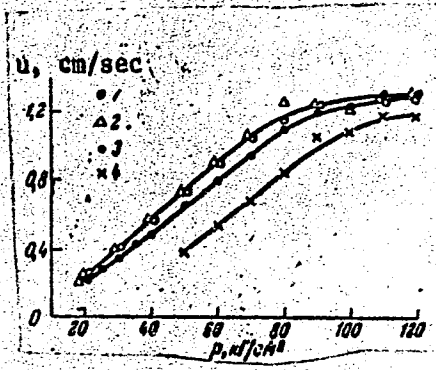

Fig. 2. Dependence of burning rate and pressure at 20C for particle sizes: 1 - 315—400; 2 - 250—315; 3 - 100—160; 4 - less than 50 μ

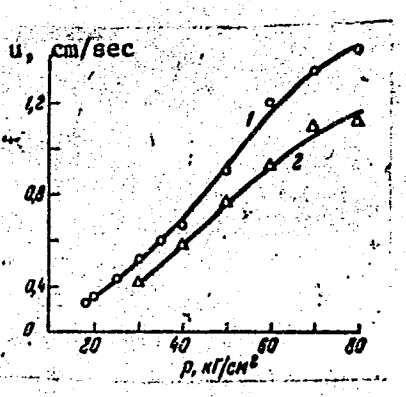

Fig. 3. Dependence of burning rate and pressure at 120C for particle sizes: 1 - 1.90; 2 - 1.5 g/cm^3

The data obtained led to the formulation of a mechanism which in a number of cases does not agree with the combustion theory of volatile substances developed by Belyayev and Zeldovich. The authors wish to thank G. B. Manelis and V. A. Strunin for

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001031620012-5"

L 23275-66

ACC NR: AP6012523

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pointing out the part played by the reaction in the condensed phase in the course of PA combustion, and V. A. Linde, and Ye. I. Dmitriyeva for the chemical analyses. [VS]
Orig. art. has: 9 figures and 2 tables.

SUB CODE: 21/ SUBM DATE: 31Oct63/ ORIG REF: 010/ OTH REF: 005/ ATD PRESS: 4235

Card 4/4 ULR

L 21465-66 EWT(m)/T/EWP(t) IJP(c) WW/JW/JD/WE

ACC NR: AP6008096 SOURCE CODE: UR/0076/66/040/002/0468/0470

AUTHOR: Maksimov, E. I.; Merzhanov, A. G.; Shkiro, V. M.

ORG: Branch of the Institute of Chemical Physics, Academy of Sciences SSSR (Filial Instituta khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Self-ignition of thermite mixtures

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 2, 1966, 468-470

TOPIC TAGS: ignition temperature, thermite mixture, activation energy

ABSTRACT: The previously described method for studying thermal explosions (A. G. Merzhanov, V. G. Abramov, F. I. Dubovitskiy, Dokl. AN SSSR, 128, 1238, 1959; V. V. Barzykin, A. G. Merzhanov, Zh. fiz. khim. 38, 2640, 1964.) was modified and used for investigating the reaction kinetics and self-ignition temperature of a thermite mixture consisting of Fe_2O_3 52.5, Al 17.5, and Al_2O_3 30%. The mixture was pressed to form cylindrical specimens with a constant length to diameter ratio l/d = 0.2, a density $\rho \simeq 2.3$ g/cm^3, and a thickness varying from 0.095 to 0.320 cm. The specimen was immersed in molten Pb and heated in an electric furnace. The temperature at which a "surf" appeared on the lead surface was found to be the critical self-ignition temperature of the thermite specimen. The critical temperature decreased as the thickness of the specimen increased from 810C for a 0.095 cm thick specimen to 676C for a 0.320 cm thick specimen. The activation energy and the rate of the

Card 1/2 UDC: 541/.545

L 21485-66

ACC NR: AP6008096

heat of reaction were calculated to be 40,000 cal/mole and 4.5×10^8 cal/g-sec, respectively. Since there is no gas evolution during a thermite reaction, thermite mixtures may be used as simple models for studying thermal explosions and the self-ignition of condensed systems. Orig. art. has: 2 figures, 1 table, and 4 formulas. [PS]

SUB CODE: 19/ SUBM DATE: 05Jan65/ ORIG REF: 007/ ATD PRESS: 4218

Card 2/2

ACC NR: AP6020552 SOURCE CODE: UR/0414/66/000/001/0047/0058

AUTHOR: Maksimov, E. I. (Moscow); Merzhanov, A. G. (Moscow)

ORG: none

TITLE: Theory of combustion of condensed substances

SOURCE: Fizika goreniya i vzryva, no. 1, 1966, 47-58

TOPIC TAGS: condensed substance, combustion theory, vinyl nitrate polymer

ABSTRACT: A quantitative theory is proposed for the combustion of homogeneous, nonvolatile condensed systems (liquids or solids which melt during the combustion). The following physical model is considered: the reaction determining the combustion rate occurs in the liquid phase with the formation of gaseous and solid combustion products; the gas is evolved in the form of bubbles, whose number and size increase with the reaction time to form a froth which is subsequently transformed into an aerosol. It is assumed that there is either no reaction between the gaseous decomposition products or the reaction has no effect on the combustion velocity in the liquid phase. It is also assumed that in the reaction zone, the initial substance and the products of its decom-

Card 1/2 UDC: 536.46

L 33436-66
ACC NR: AP6020552

position have the same velocity in the froth and in the aerosol. The pressure within the bubbles in the froth is close to the external pressure. Equations of state, heat capacity, thermal conductivity, and first order reaction kinetics were written for this model and used to derive a system of equations describing the combustion process. The system of equations was solved numerically on an electronic computer and experimental determination of combustion parameters of poly(vinyl nitrate) was made to verify the proposed theory. The combustion velocity of poly(vinyl nitrate) was measured as a function of pressure (0—100 atma), initial temperature (0—90°), and density of the initial compound. Microscopic studies were also made of the surface of poly-(vinyl nitrate) specimens which were extinguished after a certain period of burning. The calculated data are in good agreement with the experimental data. The author thanks B. M. Andryukhin and A. A. Tkachenko for their aid in conducting the experiment. Orig. art. has: 7 figures and 2 tables. [PS]

SUB CODE: 21/ SUBM DATE: 14Nov65/ ORIG REF: 014/ OTH REF: 003/
ATD PRESS: 5023

Card 2/2

MAKSIMOV, Em., inzh.

Symposium on the Protection of Respiration. Mekh. i avtom. p-va no.3:24-25 JI-S '64.

MAKSIMOV, F.

Equipment lies in the storeroom. Muk.-elev. prom. 27 no.7:29 Jl '61.
(MIRA 14:7)

1. Starshiy krupchatnik Pavlodarskogo mel'kombinata.
(Pavlodar--Flour mills--Equipment and supplies)

TOMAROV, Moisey Markovich; MAKSIMOV, F.G., retsenzent; SHEKHTER, V.Ya., kand. tekhn. nauk, red.; BELYAYEVA, L.A., red. izd-va; KARPOV, I.I., tekhn. red.

[Safety measures in sheet-metal work]Tekhnika bezopasnosti pri kholodnoi shtampovke listovogo metalla. 2 izd., perer. i dop. Moskva, Oborongiz, 1962. 442 p. (MIRA 16:1)
(Sheet-metal work--Safety measures)

MAKSIMOV, F.I.

Prospects for the development of fruit growing on the state farms of the Crimean Canning and Preserving Trust. Kons.i ov.prom. 15 no.1:34-35 Ja '60. (MIRA 13:5)

1. Krymskiy konservnyy trest.
(Crimea--Fruits)

MAKSIMOV, F.K.; KOSTROMIN, Ye.P.; VOLKOV, M.V.; KRYUKOV, A.M.; SHABANOV, T.D.

Preparation of concrete mix in a mixing and crushing machine. Rats. i izobr.predl. v stroi. no. 75:3-4 '53. (MLRA 7:7)
(Concrete)

MAKSIMOV, F. K.

MAKSIMOV, F. K., geroy sotsialisticheskogo truda; KLIMUSHKIN, M., kand.tekhn. nauk.

Coarse porous concrete. Nauka i pered. op. v sel'khoz. 8 no.1:34 Ja '58. (MIRA 11:2)

1.Predsedatel' kolkhoza "Krasnyy Oktyabr'", Ryl'skogo rayona, Kurskoy oblasti.

(Concrete)

MAKSIMOV, F N

USSR/General and Special Zoology. Insects. Injurious Insects and Ticks. Pests of Fruit and Berry Crops

Abs Jour : Ref Zhur - Biol., No 11, 1958, No 49629

Author : Livshits I.Z., Petrushova N.I., Parfenov A.T. Maksimov F.N.

Inst : State Nikita Botanical Garden

Title : New Acaricides in the Control of the Brown Fruit Mite (Preliminary Report).

Orig Pub : Byul. nauchno-tekhn. inform. Gos. Nikitsk. botan. sad, 1957, No 2, 7-12

Abstract : Ether sulfonate of 0.2-0.3% is highly toxic against the eggs and larvae of the mite and retains its action for a long time. The most suitable time for spraying are the periods of the emergence of first and second generation larvae. The use of DDT suspension against the leaf-roller moth was combined with acaricide

Card : 1/2

USSR/General and Special Zoology. Insects. Injurious Insects and Ticks. Pests of Fruit and Berry Crops

Abs Jour : Ref Zhur - Biol., No 11, 1958, No 49629

spraying. 1% chlorthane and chlorphene emulsions are sufficiently effective against mites only when used four or five times in early spring treatment with oily emulsions, but are phytocidal and therefore unfit for practical use. Spraying once with a 0.05-0.15% Mercaptophos emulsion prior to the flowering of the apple trees, or right after that, almost completely destroys the mites, retains its effectiveness up to 2.5 months and does not cause any scalds. 0.3-0.5% octamethyl solutions are phytocidal, have little effect on contact and therefore offer few prospects for use in fruit gardens. Spraying five times with 0.25-0.3% Metaphos and Carbophos* emulsions did not check the growth of the mites' number. -- A.P. Adrianov

*/Carbophos is 0,0-diethyl-S-(1,2-dicarboethoxyethyl)-dithiophosphate $(CH_3O)_2$ P-SCHCH$_2$COOC$_2$H$_5$/
S COOH$_2$C$_5$

Card : 2/2

P

Harmful Insects and

: GENERAL&SPEC.ZOOLOGY.INSECTS

Mites.

: Zool Zhur -Zoology yr, Vo.2 , 1957, No. 6982

: Petrova-Sova,N.I.; Starostin,S.G., Maksimov,F.N

: Not given

: The Experiment in the Aerial Spraying of Mercaptophos.

: Vinogradarstvo i sadovostvo Kryma, 1958, No.1, 28-30

: No abstract

USSR / General and Special Zoology. Insects. Harmful Insects and Mites. Fruit and Berry Crop Pests.

Abs Jour: Ref Zhur-Biol., No 1, 1959, 2326.

Author : Petrushova, M. I.; Starostin, V. G.; Maksimov, F. N.
Inst : Not given.
Title : Control of Fruit Mites.

Orig Pub: Sad i ogorod, 1958, No 2, 61-62.

Abstract: The sovkhoz orchards in Crimea were sprayed with a Mercaptophos (M) emulsion from AN-2 planes within 20 m. working area. Some orchards were sprayed prior to blooming (April 24-25) without preliminary control of the mites at rate of 0.5, 1 and 1.5 litres/ hectare of the concentrated M in 100 litres/ hectare of water and with 1.2 litres/ hectare of M in 60 litres/ hectare of

Card 1/3

USSR / General and Special Zoology. Insects. Harmful Insects and Mites. Fruit and Berry Crop Pests. P

Abs Jour: Ref Zhur-Biol., No 1, 1959, 2326.

Abstract: water. The mite infestation decreased 17 days after the spraying from 23.8-43.4 per 1 leaf to 0.3, 0.1, 0.0 and 0.1 per leaf and after 35 and 56 days on sections sprayed with 1 and 1.5 kg/ha of M it decreased only to 0.03-0.1 mite per single leaf. Due to the increase of the number of mites on the section sprayed with 0.5 kg/ha of M the treatment was repeated after 3 weeks. Other orchards were treated with carbolineum in the early spring, with M after blooming (4-13 May). When outlays of 1 and 1.5 litres/hectare of M in 100 litres/ hectare of water and 2 litres/ hectare of M in 100 litres hectare of water were made, only 0.03-0.07 mites per one

Card 2/3

USSR / General and Special Zoology. Insects. Harmful Insects and Mites. Fruit and Berry Crop Pests. P

Abs Jour: Ref Zhur-Biol., No 1, 1 59, 2326.

Abstract: leaf remained 37 days after treatment, while they were sprayed with 1.2 litres/ hectare of M in 50 litres/ hectare of water only 0.8 mites remained. A medical inspection disclosed that the health of the workers was not affected by the dusting. -- A. P. Adrianov.

Card 3/3

MAKSIMOV, F.N.

Experience in obtaining high yields of pome fruits on state farms of the Crimea. Kons. i ov. prom. 14 no.4:29-30 Ap '59. (MIRA 12:5)

1.Krymskiy konservnyy trest.
(Crimea—Fruits)

LUGOVKIN, V.D.; MAKSIMOV, F.N.

Work experience of communist labor brigades of the Chkalov state farm. Kons.i ov. prom. 15 no.6:27-29 Je '60. (MIRA 13:9)

1. TSentral'nyy nauchno-issledovatel'skiy institut konservnoy i ovoshchesushil'noy promyshlennosti (for Lugovkin). 2. Krymskiy konservnyy trest (for Maksimov).
(Bakhchisaray—Canning and preserving)

MAKSIMOV, F.N.

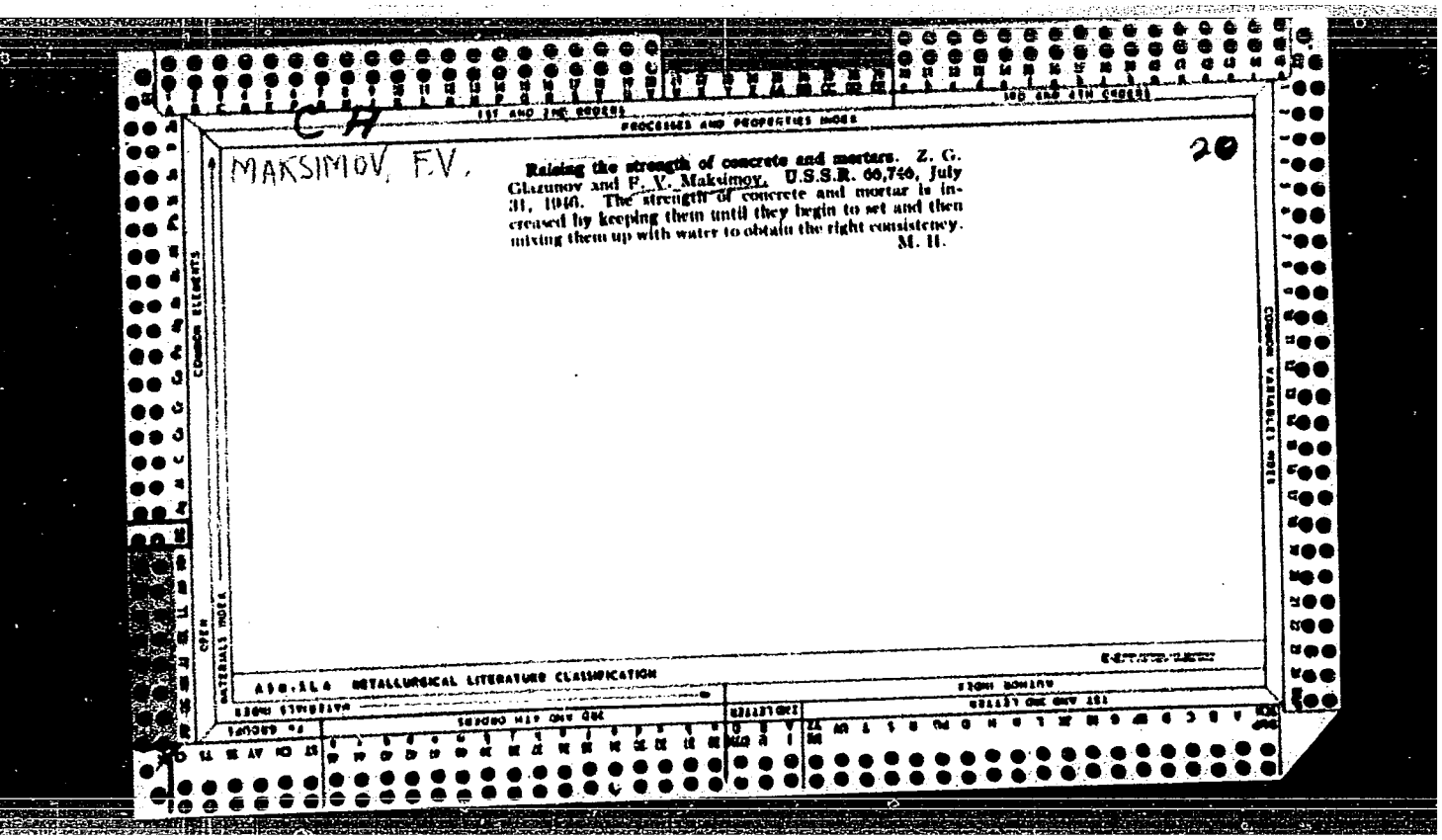
Pome fruit yields on state farms of the Crimea. Kons. i ov. prom. 16 no.7:32-33 Jl '61. (MIRA 14:8)

1. Krymskiy sovnarkhoz.
(Crimea--Fruit culture)

MAKSIMOV, F.N.

In cooperation with science. Zashch. rast. ot vred.i bol. 4 no.2:8-10 Mr-Ap '59. (MIRA 16:5)

1. Glavny agronom Krymkonservtresta.
(Crimea—Spraying and dusting in agriculture)



MAKSIMOV, F.V.

20

Raising the strength of concrete and mortars. Z. G. Glazunov and F. V. Maksimov. U.S.S.R. 60,746, July 31, 1940. The strength of concrete and mortar is increased by keeping them until they begin to set and then mixing them up with water to obtain the right consistency.
M. H.

A 10-11 6 METALLURGICAL LITERATURE CLASSIFICATION