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TRUSS MOVING ON PILES PROPOSED AS  
MEANS OF TRANSPORT IN SIBERIA (U)

TRANSPORTATION

The Russian periodical Sotsialisticheskaya Industriya on 26 July 1979 carried an article authored by V. Istomin which briefly recounts a conversation with Candidate of Technical Sciences I. Beskin at a recent conference on prospective types of transportation. Beskin and his colleagues at the Bratsk affiliate of the Irkutsk Polytechnical Institute are working on new types of transportation for Siberia and the Far North. Explaining that in addition to environmental problems created in permafrost terrain by motor vehicles, tractors and caterpillar vehicles, which damage the surface layer of the tundra, there are also complex technical and

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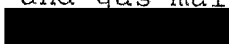
17 Aug 79

SECRET

supply problems involved in the building and maintenance of roads in these areas, Beskin commented on a means of transportation called a "fermobil" (truss vehicle) as a solution to these problems. It is a vehicle designed in the form of a single-truss bridge. It would ride on a series of sets of two or three piles driven into permafrost ground, the tops of the piles being about two meters above the ground. Short guide tracks for the roller wheels of the truss vehicle would be installed on top of each set of piles. The potential load capacity of the "fermobil" could be as large as 100 tons. The vehicle's size would determine the distance between the sets of piles -- 50 meters in the case of a vehicle 120 meters long, for example.

The economy of this transport innovation is cited as one of its potential advantages. The cost of building the system of pile supports for the "fermobil" has been estimated at 50,000 rubles per kilometer. Its designers believe that the driving of the piles could be accomplished relatively simply by a special machine running along the piles already installed. The same piles could also be used for communications and power transmission lines, as well as oil pipelines and gas mains.

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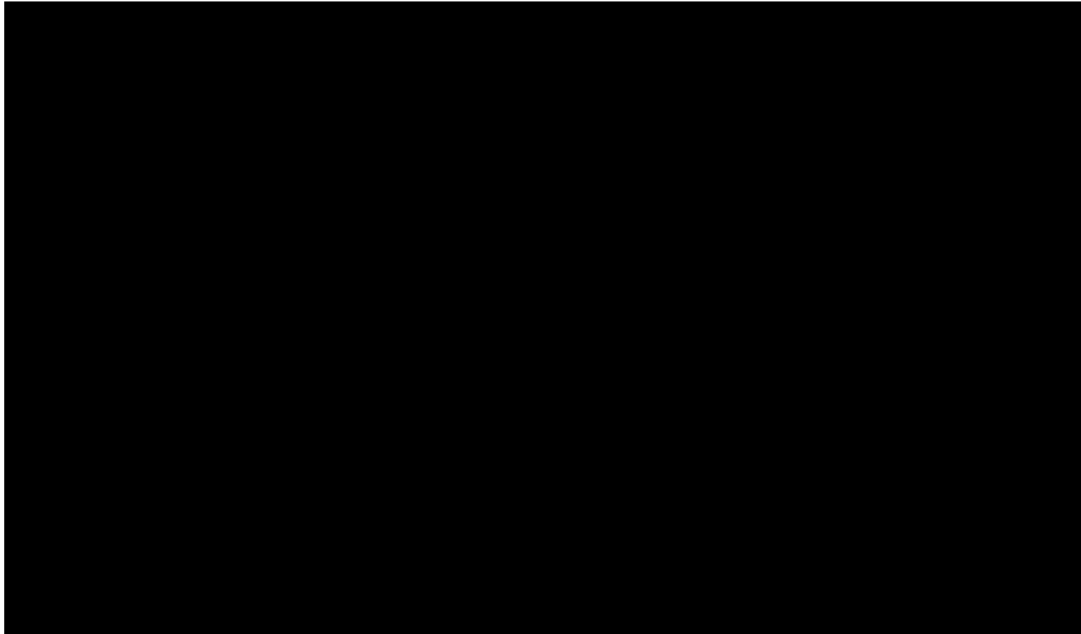


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SUBJ

MPR: POLYTECHNICAL INSTITUTE, SOVIET SCHOOL COOPERATE  
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ULAANBAATAR MONTSAME IN ENGLISH 1706 GMT 5 NOV 85  
((TEXT)) ULAANBAATAR, NOVEMBER 5 (MONTSAME) -- CLOSE TIES  
BETWEEN THE MONGOLIAN POLYTECHNICAL INSTITUTE (MPI) AND THE  
IRKUTSK POLYTECHNICAL INSTITUTE (IPI) (SOVIET TOWN IN SIBERIA)  
ARE A STRIKING EVIDENCE OF THE FRUITFUL MONGOL-SOVIET COOPERATION  
IN THE FIELD OF HIGHER EDUCATION.

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FIRST CONTACTS BETWEEN THE MPI AND THE IPI WERE ESTABLISHED  
IN 1967 AND SINCE THEN THESE TIES HAVE BEN DEVELOPED INTO ACTIVE  
COOPERATION IN THE SPHERE OF SCIENTIFIC RESEARCHES. THE JOINT  
MONGOL-SOVIET KERULEN GEOLOGICAL EXPEDITION HAS BEEN SUCCESSFULLY  
FUNCTIONING FOR ALREADY 10 YEARS, WHICH IS MAINLY ENGAGED IN  
PROSPECTING AND LOCATING NATURAL RESOURCES IN CENTRAL AND EASTERN  
MONGOLIA. SCIENTIFIC CONFERENCES TO REVIEW THE ACTIVITIES OF THIS  
EXPEDITION ARE BEING REGULARLY HELD IN ULAANBAATAR AND IRKUTSK  
RESPECTIVELY. AT PRESENT, TEACHERS AND STUDENTS OF THE TWO  
INSTITUTIONS ARE WORKING HARD TO SOLVE IMPORTANT NATIONAL ECONOMIC  
TASK IN MONGOLIA: TO COMPREHENSIVELY STUDY ROCKS IN THE AREAS  
OF LARGE OPERATIONAL DEPOSITS IN THE COUNTRY TO DETERMINE AN OPTIMUM  
PARAMETER FOR BOREBLASTING OPERATIONS.

THE COOPERATION OF THE TWO INSTITUTIONS IS CONDUCIVE TO  
IMPROVING THE QUALITY OF TRAINING NATIONAL TECHNICAL PERSONNEL  
OF MONGOLIA.

IPI IS DIRECTLY INVOLVED IN TRAINING SPECIALISTS FOR THE  
MPR. FOR THIS SERVICE IPI WAS AWARDED WITH THE ORDER OF RED  
LABOUR BANNER OF THE MPR.



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FIRM NO. <b>Approved For Release 2000/08/07 : CIA-RDP96-00787R000500280003-6</b>		CLASSIFICATION <b>UNCLASSIFIED</b>		PROCESSING DATE <b>JUN 1962</b>		<b>FBG</b>	
CODE 491	COUNTRY USSR	PS 1131	AF CHART	ACTIVITY CODES <b>4AA 403</b>			
LOCATION <b>IRKUTSK</b>		S/T	NAME OF INSTALLATION <b>POLYTECHNICAL INST</b>			PL. NO.	
DATE/ INFO		DATE/SOURCE				PF	
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PRINCIPAL RADIOTELESCOPES OF THE SOVIET UNION

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OVER

14. IRKUTSK POLYTECHNICAL INSTITUTE

Alternate Name:

Subordinate to:

Location: Irkutsk, RSFSR  
52° 17' N- 104° 20' E

Functional Description

Technical Description

Personalities

Other Information

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*Irkutsk*

In 1956 a polytechnical Institute is being opened in Krasnoyarsk and a university is being established in Yakutsk, and Valdivostok University is being reopened.

Research laboratories are being organized in the leading technical schools for work in connection with the most important problems of specific branches of science and the national economy of the USSR. In Saratov, Rostov, and Tomsk Universities, for example, nuclear laboratories equipped with accelerators (cyclotrons and betatrons) of various capacities will be set up for studying atomic nuclei, along with laboratories for the study of cosmic rays and special semiconductor laboratories.

The Moscow Nonferrous Metals and Gold Institute, the Leningrad Mining Institute and the Northern Caucasus, Kazakh and Irkutsk Ore Mining Institutes, which are conducting research in nonferrous metallurgy, have established close links with enterprises and with the Ministry of Nonferrous Metallurgy. The ministry is now strengthening the higher schools' laboratory facilities and is giving expert assistance in the selection of the most topical themes for research.

(Investiya, Aug 23, 1956)

SO: Current Digest of the Soviet Press, Vol VIII, no 34, 1956, Unclassified. Complete article on file in Ministry of Higher Education folder. ash/pr

*ANGARSK or - Irkutsk Mining & Metall.*

Angarsk

GENERAL -- Moscow, Ekonomicheskaya Gazeta, 8 Jun 60

*Dist - 619  
Folder on Mining & Metallurgy list - MDR*

In January 1959, the population of Angarsk was 132,000. Up to 100,000 sq m of housing per year is put in use, and during the Seven-Year Plan period, housing will increase 150 percent in Angarsk. A branch of the Irkutsk Mining and Metallurgical Institute, with chemical, machine-building, and construction facilities, and a Scientific Research Institute of Occupational Diseases and Labor Protection will be open for the new school year. The Irkutskiy Sovnarkhoz is creating a mechanization and automation institute of the chemical industry in Angarsk. It is planned to establish a chemical and engineering institute in the city.

*MHE  
USSR*

*Irkutsk Polytech Inst?*

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USSR REGIONAL AFFAIRS  
June 7, 1956

IRKUTSK MINING SCHOOL OPENS ENROLLMENT

FBIS # 111

Khabarovsk, Krai Regional Service, in Russian, June 6, 1956, 2135 GMT--H

(Text)

The Irkutsk Mining and Metallurgical Institute has announced enrollment of students for the 1956-57 academic year in the following branches: the branch for the development of ore layers, coal deposits, and deposits of natural resources; the branch for the development of concentrated (rudnykh) and dispersed (rassypnykh) natural resources, and mining electromechanics; the nonferrous metallurgy branch; and branches for the concentration of natural resources, machine-building technology, metal-cutting machine tools and instruments, industrial and civil construction of the metallurgical faculty, geological prospecting for natural resources, techniques of prospecting for natural resources, and mine surveying.

Men and women under 35 years of age are eligible. Documents required for enrollment are a detailed autobiography, an original middle school certificate three 3 x 4 centimeter photos, certificate of employment stating length of employment, occupation, and speciality signed by the chief of the enterprise and the chief of the department of cadres, form No. 286 of the certificate of health, residence certificate, and a draft card for persons subject to military service. The certificate of registration (pripisnoye svidetelstvo) and the passport must be presented personally. The faculty and the branch desired must be stated in the application.

Technical school graduates will be accepted in the institute after the expiration of a 3-year probation period in production (proizvodstvennyy stazh) set for them by law. An exception will be made for those persons who are included in 5 percent of specified students graduated from technical schools.

Entrance examinations are in written Russian and literature and oral mathematics, physics, drawing, and foreign-language for construction branches, and in written Russian and literature and oral mathematics, chemistry, physics, and foreign language for other branches.

Stipends ranging from 290 to 395 rubles will be granted students making good progress in all subjects in the first term, and stipends ranging from 395 to 480 rubles to higher term students. Twenty-five percent higher stipends will be granted to excellent students.

Applications for enrollment will be accepted from June 20 until July 31 and must be addressed to the reception committee at the following address: No. 3 Krasnaya Zvezda Street, Irkutsk city.

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USSR REGIONAL AFFAIRS  
June 7, 1956

W E S T E R N U S S R

UKRAINIAN HANDBOOK---The regular edition of the Ukrainian AGITATOR'S HANDBOOK of June 1 contains the following articles: "Step Up Competition Among Agricultural Workers," "Oxygen Serves Metallurgy," by an engineer of the Zaporozhye steel plant (zavod zaporizhstal), "Vocational Training For Students," by a secondary school director, "New success in the Policy of Peaceful Coexistence," devoted to the French-Soviet talks, "Prospects for the Development of the Donbas During the Sixth Five Year Plan," and information on the use of ferroconcrete props in coal mines. (Kiev, Ukrainian, June 1, 1956, 1500 GMT--M)

TRANSCARPATIAN HANDBOOK---The 10th edition of the Transcarpathian Obkom AGITATOR'S HANDBOOK published June 1 features articles: "Party and Government Care for the People's Well-Being," "To Improve Implementation of Progressive Experiences in Production," and "Friendship and Cooperation Among Socialist Countries," and correspondence by an agronomist "Carry Out Tending of Crops in Exemplary Manner." (Uzhgorod, Ukrainian, June 1, 1956, 1520 GMT--M)

PARTY MEMBERS--Golovnyanskiy Raikom recently held a plenum to discuss education of young Communists. It was revealed at the plenum that during the past year the rayon Party organization increased by 72 persons, among them 22 kolkhoz workers. Nearly 20 persons, mostly kolkhoz workers, became Party members in 1956. (Lutsk, Ukrainian, June 6, 1956, 0520 GMT--M)

RR  
AGRICULTURAL CONFERENCE--The first congress of agricultural specialists of the Ukraine has been held in Kiev. A report by Gureyev, First Deputy Chairman of the Council of Ministers of the Ukrainian SSR, on the tasks of Ukrainian agricultural specialists in carrying out the decisions of the 20th CPSU Congress was debated. Speeches were made by 118 people. (Moscow, Home, June 1, 1956, 0400 GMT--L)

LVOV LANDSCAPING CONFERENCE--The second conference on landscaping conveyed by the Presidium of the All-Union Geographic Society, Lvov University, and the Lvov branch of the All-Union Geographic Society opened in Lvov May 31. More than 100 scientists and geography teachers of higher educational institutions in Moscow, Leningrad, Kiev, Voronezh, Kharkov, Tbilisi, Lvov, and Riga are taking part. The conference will hear and discuss more than 30 reports on general questions of the landscaping program, cartography, and the problems of studying the landscape of the western oblasts of the Ukrainian SSR. The conference will last several days. (Kiev, Russian, June 1, 1956, 0730 GMT--M)

WCH  
ESTONIAN NUCLEAR PHYSICS LABORATORY--The Council of Ministers of Estonia has assigned 20 million rubles for a new laboratory at Tartu University including a laboratory for nuclear physics. (Moscow, English, June 6, 1956, 1730 GMT--E)

IRKUTSK INSTITUTE OF MINING AND METALLURGY

3226401 Approved For Release 2000/08/07 : CIA-RDP96-00787R000500280003-6

The Irkutsk Institute of Mining and Metallurgy is subordinate to the Ministry of Higher Education, USSR, the Main Administration of Higher Educational Institutions of Mining and Metallurgy. It has courses in Geology and prospecting, mining, and metallurgy. It is located in Irkutsk Oblast, Irkutsk, ulitsa Krasnoy Zvezdy, 5.

SO: CIA FDD Summary 53, 19 March 1952, Secret, Info 1950/52

(Page 446)

Bol'shaya and ed Vol 18 1953

IRKUTSK MINING AND METALLURGICAL INSTITUTE

Higher educational institution in eastern Siberia, created in May 1930 in the city of Irkutsk. Has 3 departments (1951): mining, with the specialties: working of deposits of useful minerals and mining electromechanics; geological prospecting, with the specialties: geology and prospecting for deposits of useful minerals, the technique of prospecting for deposits of useful minerals, mine surveying and geophysical methods of prospecting for deposits of useful minerals; and metallurgy, with the specialties: metallurgy of nonferrous metals, dressing of useful minerals, and the technology of machine building. The institute

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institute graduated 1,880 engineers.

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P.M.

29 MAR 1963

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(Editor's note: The following, entitled "Let Us Discuss This," is from the feature program "Evening Irkutsk" and consists of notes by "Evening Irkutsk" correspondents Leonid Bogdanov and Sergey Prokhorov entitled "Scientists and Students.") In reading the materials of the November plenum of the CPSU Central Committee one notes the speech by the chairman of the presidium of the Siberian department of the USSR Academy of Sciences, Lavrentyev. In his speech this prominent scientist stated that the training of scientific cadres is one of the most urgent problems and is of particular significance to Siberia and the Far East. [What is the situation in this regard in Irkutsk? It must be noted that in the past several years a considerable team of scientists has appeared in the city. In 1962 alone more than 20 Irkutsk residents became candidates and doctors of sciences. All scientific research institutes of the oblast capital are engaged in the training of highly qualified cadres. Scientific cadres are also being trained by the city's higher educational establishments. The Irkutsk polytechnical institute is one of the largest higher educational establishments of the city, having more than 10,000 students and 500 instructors. It is evident that there is a great need for scientist-instructors. The institute takes great interest in the training of cadres. In the past 2 years alone more than 40 young, capable instructors were assigned for postgraduate work to the best institutes of Moscow and Leningrad. They will return to the institute as candidates of sciences in 2 or 3 years.] (Continued on Card 62 H 13354)

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CODE 491	COUNTRY USSR		PS 11	AF CHART	ACTIVITY CODES (-)			
LOCATION			S/T	NAME OF INSTALLATION				PL. NO.
DATE/ INFO		DATE/ SOURCE		SG1A				PF
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**HELP WANTED:**

Stokers, painters, yardmen, and typists -- by the Irkutsk polytechnical institute; apply Studgorodok (student township), ulitsa Lermontova 83.

(Irkutsk Domestic 0900 GMT 20 December 1962)

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FORM 12-60 326a USE PREVIOUS EDITIONS.

PM

FIRM NO. 3226401		CLASSIFICATION <b>FOR OFFICIAL USE ONLY</b>			PROCESSING DATE 20 APR 1963
CODE 491	COUNTRY USSR	PS 11	AF CHART	ACTIVITY CODES (-)	
LOCATION		S/T	NAME OF INSTALLATION		PL. NO.
DATE/INFO		DATE/SOURCE			PF
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**HELP WANTED:**

Senior bookkeeper -- by the capital construction department of the poly-technical institute; apply Studgorodok, ulitsa Lermontova 73, building E, room 108.

(Irkutsk Domestic 0900 GMT 28 November 1962)

FORM 12-60 326a USE PREVIOUS EDITIONS.

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JUN 1962

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USSR	OFFICIAL USE ONLY	FBIS 62 H 3707
<p>Anatoliy Andreyevich Yegoshin, rector of the Irkutsk polytechnical institute, states that in the new academic year the institute will organize training courses for engineers of new skills (spetsialnostyan). According to plan the institute will enroll 3,350 students in the first course in 1962. They will be trained in 31 skills and receive general technical training. Almost 2,000 people will receive on-the-job training at the institute. By the end of 1962 the institute will expand the network of educational and consultative points and will increase enrollment in evening departments in Cherekhovo, Angarsk, and Bratsk. Organizational and methodical work will be accelerated in Zheleznogorsk and at the construction site of the Bratsk industrial lumbering complex where many youth are anxious to obtain higher education without leaving their work. (Irkutsk Domestic 1400 GMT 7 April 1962)</p>		

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4/10/63 15 MAY 1963 P.M.

USSR	OFFICIAL USE ONLY	FBIS 62 H 12427
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Representatives of higher educational establishments and scientific research enterprises of Irkutsk and other cities of the Soviet Union frequently visit mines and open-face mines of the Cheremkhovo coal trust. Representatives of the Irkutsk polytechnical institute are working on designing new types of drilling bits which are more suitable for work under present conditions. They have already worked out five types of such bits. Representatives of the Leningrad mine survey institute recently completed work on the compilation of recommendations for the construction of buildings and structures on the terraces of worked out (open-face mines?). The collective of the Ural institute of coal chemistry is working on a mixture (shikhtu) for obtaining coke (kampanentom) from Cheremkhovo semicoke for use in the future at the Tayshet metallurgical plant. The Irkutsk (Irdevetmet?) institute has prepared recommendations on the short-delay (korotko-zamedlenomu) blasting of coal rock. A group of scientific workers of the Kuznetsk scientific research institute will work on a plan for the automation of concentrating factories. (Irkutsk Domestic 0900 GMT 7 December 1962)

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FBIS 61 H 5592

More than 10,000 leading workers, farm workers, demobilized soldiers, and secondary school graduates have applied for entrance examinations to higher educational establishments which start in Irkutsk 1 August. The Irkutsk polytechnical institute received 5,300 applications in 1961 from youth in Irkutsk Oblast and other oblasts in Eastern Siberia, with the majority of youth applying for the machine building, industrial and civil construction, and metallurgical faculties. (Irkutsk Domestic 1400 GMT 1 August 1961)

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NEW HIGHER EDUCATIONAL ESTABLISHMENTS ARE (PLANNED?) IN THE NEXT FEW YEARS IN THE CITIES OF THE EASTERN AREAS OF THE COUNTRY. THE BIGGEST WILL BE THE IRKUTSK POLYTECHNICAL INSTITUTE AND THE COMPLEX OF HIGHER EDUCATIONAL ESTABLISHMENTS IN Khabarovsk, WHICH INCLUDES LUMBER TECHNOLOGY, MOTOR HIGHWAY, AND BUILDING INSTITUTES. THE MAIN BUILDING OF THIS SETTLEMENT IS INTENDED FOR 6,000 STUDENTS. AT THE IRKUTSK POLYTECHNICAL INSTITUTE, WHICH IS BEING BUILT IN A NEW QUARTER ON THE LEFT BANK OF THE ANGARA, 7,000 STUDENTS WILL STUDY. ITS BUILDINGS WILL OCCUPY 60 HECTARES. AT PRESENT AT GIPRO-VUZ (STATE PLANNING INSTITUTE FOR HIGHER EDUCATIONAL ESTABLISHMENTS) PLANS FOR 98 NEW ESTABLISHMENTS ARE BEING DEVELOPED.  
(MOSCOW 0600 GMT 4 APRIL 1961)

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C111/C333

JAA

AUTHOR: Voylokov, V. I.

TITLE: On the approximative integration of non-linear differential equations of an oscillating motion with one degree of freedom

PERIODICAL: Vysshieye uchebnyye zavedeniya. Izvestiya. Matematika, 1962, no. 4, 19-32

TEXT: In order to solve

$$\ddot{x} + x + \alpha f(x, \dot{x}) = 0 \quad (1)$$

one searches the solution of the auxiliary equation

$$\ddot{x} + x + \alpha f(x, \dot{x}) + \alpha^n \lambda x = \alpha^{n+1} x, \quad (1.1)$$

with the set-up

$$x = x_0 + \alpha x_1 + \alpha^2 x_2 + \dots + \alpha^i x_i + \dots \quad (1.2)$$

where  $n=2$ , if in all terms  $a_{ij} x^i \dot{x}^j$  of  $f(x, \dot{x})$  the sum  $i+j$  is even;

Card (1/4)

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On the approximative integration ...

otherwise it is  $n=1$ . After introducing (1.2) into (1.1) and comparing the coefficients at equal powers of  $\alpha$  one obtains for the determination of  $x_0, x_1, x_2, \dots$  the equations

$$\ddot{x}_0 + x_0 = 0 \quad (1.4)$$

$$\ddot{x}_1 + x_1 = -f_0(x_0, \dot{x}_0) - \lambda x_0 \quad (1.5)$$

etc. Out of (1.4) there follows

$$x_0 = a_0 \cos t + b_0 \sin t. \quad (1.8)$$

Then left hand of (1.5) is expanded in a Fourier series:

$$\begin{aligned} \ddot{x}_1 + x_1 = & - [M_0(a_0, b_0) + \lambda a_0] \cos t - [N_0(a_0, b_0) + \lambda b_0] \sin t - \\ & - \sum_{k=2}^1 (m_{k,1} \cos kt + n_{k,1} \sin kt) \quad (1.9) \end{aligned}$$



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C111/0333

On the approximative integration . . .

In order  $x_1$  to be periodic, one demands

$$\begin{aligned} M_0(a_0, b_0) + \lambda a_0 &= 0 \\ N_0(a_0, b_0) + \lambda b_0 &= 0 \end{aligned} \quad (1.10)$$

etc. After  $x_0, x_1, x_2, \dots, x_{i-1}$  having been determined, one determines  $x_i$  out of

$$\ddot{x}_i + x_i = -f_{i-1}(x_0, x_0, \dots, \dot{x}_{i-1}) - \lambda x_{i-1} + x_{i-2} \quad (1.7)$$

The convergence of the solution thus obtained is proved. The solvability of the system (1.10) with  $\omega = \lambda$  is investigated. One shows that the solvability of the corresponding systems at the determination of  $x_2, x_3, \dots$

depends on one and the same double-row determinant  $\Delta_1$ . It follows that  $\Delta_1 \neq 0$  is necessary and sufficient for the existence of a  $2\pi$ -periodic solution of (1). It is shown that by an analogous method one is also able to calculate forced oscillations

$$\ddot{x} + x + \alpha f(x, \dot{x}) = \varphi(t), \quad (2)$$

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On the approximative integration . . . S/140/62/000/004/001/009  
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where  $\varphi(t)$  is periodic. As an example for application one discusses the Duffing equation; one points to the existence of several periodic solutions.

ASSOCIATION: Irkutskiy politekhnicheskiy institut (Irkutsk Polytechnical Institute)

SUBMITTED: June 8, 1959

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CODE 491	COUNTRY USSR	CODE 1131	POLITICAL SUB-DIVISION AND ECONOMIC REGION <b>PROD</b>						
LOCATION Irkutsk		INDUSTRIAL CATEGORY CODES 40							
DATE/INFO		DATE/SOURCE	EVAL.	MN. AND AF CHART					
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					Polytechnical Inst				

There will be many new higher educational establishments built in Siberia. In Irkutsk a group of three institutes - mining, politechnical, and engineering-construction- will be set up. The Altai Agricultural Institute and the Institute of Agricultural Machine Building are organized in Barnaul. Livestock breeders of Buryat-Mongolia can learn in the new Institute of Zootechnology under construction in Ulan-Bator.

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USSR

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FBIS - 159199

The first scientific establishment has opened in Angarsk: the chemistry re-  
search institute of the East-Siberian branch of the USSR Academy of sciences has  
been moved here from Irkutsk. Ever more scientific establishments are built in  
Irkutsk Oblast. Institutes of Geology and Biology will be built in the eastern  
suburbs of Irkutsk next to the polytechnical and agricultural institutes, and a  
large students settlement is under construction.

(Moscow, Home, Aug. 8, 1956 0500 GMT---L.)

FIRM NO		CLASSIFICATION			PROCESSING DATE	
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CONTROL NO.			SOURCE			
			KOMSOMOL'SKAYA PRAVDA # 155 (11399)			

*LIST OF FACULTIES IN IRKUTSK AND BRANCH FACULTIES IN OTHER CITIES*

**Иркутский ПОЛИТЕХНИЧЕСКИЙ ИНСТИТУТ**

принимает на очные, вечерние, общетехнические и заочные факультеты и дневного обучения

- I. Горный факультет по специальностям: разработка месторождений полезных ископаемых, горная электромеханика, маршейдёрское дело, электрические станции, электроснабжение промышленных предприятий и городов, электропривод и автоматизация промышленных установок.
- II. Metallurgical факультет по специальностям: металлургия цветных металлов, обогащение полезных ископаемых, автоматизация производственных процессов, технология пластических масс, технология основного органического синтеза и синтетического каучука, промышленная теплоэнергетика, теплоэнергетические установки электростанций, технология электрохимических производств, технология силикатов, технология нефти и газа.
- III. Геологоразведочный факультет по специальностям: геология и разведка месторождений полезных ископаемых, техника разведки месторождений полезных ископаемых, геофизические методы поисков и разведки месторождений полезных ископаемых.

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- IV. Строительный факультет по специальностям: промышленное и гражданское строительство, производство бетонных и железобетонных изделий и конструкций для сборного строительства, теплогазоснабжение и вентиляция, водоснабжение и канализация, автомобильные дороги.
- V. Механический факультет по специальностям: технология машиностроения, металлорежущие станки и инструменты, технология и оборудование сварочного производства, строительные и дорожные машины и оборудование, машины и аппараты химических производств, автомобильный транспорт, эксплуатация самолетов и двигателей.
- 1. Вечерний факультет в г. Иркутске: технология машиностроения, металлорежущие станки и инструменты, технология и оборудование сварочного производства, строительные и дорожные машины и оборудование, промышленное и гражданское строительство, производство бетонных и железобетонных изделий и конструкций для сборного строительства, теплогазоснабжение и вентиляция, водоснабжение и канализация, автомобильный транспорт, электроснабжение промышленных предприятий и городов, промышленная теплоэнергетика, электрические станции, теплоэнергетические установки электростанций, общетехническая подготовка.
- II. Вечерний факультет в г. Ангарске: технология машиностроения, металлорежущие станки и инструменты, промышленное и гражданское строительство, технология пластических масс, производство бетонных и железобетонных изделий и конструкций для сборного строительства, теплогазоснабжение и вентиляция, водоснабжение и канализация, технология силикатов, технология электрохимических производств, автоматизация производственных процессов, машины и аппараты химических производств, общетехническая подготовка, технология основного органического синтеза и синтетического каучука, электроснабжение, промышленная теплоэнергетика, теплоэнергетические установки электростанций, технология пластических масс.
- III. Вечерний факультет в г. Черемхове: разработка месторождений полезных ископаемых, горная электромеханика, технология машиностроения, металлорежущие станки и инструменты, промышленное и гражданское строительство, общетехническая подготовка.
- IV. Общетехнический факультет в г. Братске: промышленное и гражданское строительство, общетехническая подготовка.
- Заочное обучение
- Общетехнический факультет в г. Братске: строительные и дорожные машины и оборудование, промышленное и гражданское строительство, производство бетонных и железобетонных изделий и конструкций для сборного строительства, общетехническая подготовка.

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Заочный факультет в г. Иркутске: геология и разведка месторождений полезных ископаемых, геофизические методы поисков и разведки месторождений полезных ископаемых, техника разведки месторождений полезных ископаемых, горная электромеханика, промышленное и гражданское строительство, электрические станции, промышленная теплоэнергетика, машины и аппараты химических производств; автомобильные дороги, производство бетонных и железобетонных изделий и конструкций для сборного строительства, теплогоснабжение и вентиляция, водоснабжение и канализация, автомобильный транспорт, строительные и дорожные машины и оборудование, электроснабжение промышленных предприятий и городов, теплоэнергетические установки электростанций, технология нефти и газа, электропривод и автоматизация промышленных установок.

Учебно-консультационный пункт в г. Улан-Уде: строительные и дорожные машины и оборудование, промышленное и гражданское строительство, производство бетонных и железобетонных изделий и конструкций для сборного строительства, теплогоснабжение и вентиляция, водоснабжение и канализация, технология машиностроения, металлорежущие станки и инструменты.

Прислуживание производится по правилам, являющимся общими для всех вузов страны; на обучение с отрывом от производства по 31 июля, вступительные экзамены с 1 по 20 августа; на вечерние факультеты по 20 августа, вступительные экзамены с 1 по 20 августа; на заочный факультет (включая ва-очное обучение общетехнического факультета в г. Братске и УИП в г. Улан-Уде) до 25 июля, вступительные экзамены по 31 июля и с 1 по 20 октября; на заочный факультет геологоразведочных специальностей проводится с 1 ноября по 15 января, вступительные экзамены с 16 января по 15 марта. Заявления подаются на имя ректора института с приложением документов, перечисленных в правилах приема.

Адрес института и факультетов:

I. г. Иркутск, ул. Лермонтова, 73. По этому адресу следует направлять заявления и документы поступающим на дневное обучение, а также на вечерний и заочный факультет в г. Иркутске.

II. г. Ангарск, ул. Московская, 19. По этому адресу принимаются документы от поступающих на Ангарский вечерний факультет.

III. г. Черемхово, ул. Куйбышева, 44. По этому адресу принимаются документы от поступающих на Черемховский вечерний факультет.

IV. г. Братск, пос. Постоянный, ул. Гидростроителей, 87. По этому адресу принимаются документы от поступающих на заочное и вечернее обучение Братского общетехнического факультета.

V. г. Улан-Уде, железнодорожный техникум, УИП. По этому адресу принимаются документы от поступающих на заочное обучение Улан-Удского УИП.

- ADDRESSES OF ~~INSTITUTES~~ INSTITUTES AND FACULTIES:
1. IRKUTSK: ULITSA LERMONTOVA 73
  2. ANGARSK: ULITSA MOSKOVSKAYA 19
  3. CHEREMKHOV: ULITSA KUYBYSHEVA 44
  4. BRATSK: VILLAGE OF POSTOYANNYY ULITSA GIDROSTROITEL' 87
  5. ULAN UDE: RR TEKNICUM

FIRM NO. <b>3226701</b>		Release 2000/08/07		<b>CONFIDENTIAL</b>		00787R000500280003-6		DATE 22 OCT 1962		FBI	
CODE 491	COUNTRY USSR	PS 1131	AF CHART	ACTIVITY CODES 403							
LOCATION Irkutsk		S/T	NAME OF INSTALLATION Polytechnical Inst.							PL. NO.	
DATE/INFO		DATE/SOURCE								PF	
DA	MO	YR	DA	MO	YR						
-	-	-	5	SEP	62	CONTROL NO.	SOURCE				EVAL
						CIA/FDD SUMMARY No. 3840 PHYSICS AND MATHEMATICS (20)					

149. Approximate Integration of Nonlinear Equations

"An Approximate Integration of Nonlinear Differential Equations for Oscillatory Action With One Degree of Freedom," by V. I. Voylovok, Irkutsk Polytechnic Institute; Kazan, Izvestiya Vysshikh Uchebnykh Zavedeniy. Matematika, No 4 (29), 1962, pp 19-32

OVER

In the paper, a method is indicated for obtaining approximate periodic solutions, for a period of  $2\pi$ , for equations of the form

$$\ddot{x} + x + \alpha f(x, \dot{x}) = 0,$$

where  $\alpha$  is a small parameter and  $f(x, \dot{x})$  is an analytic function of variables  $x$  and  $\dot{x}$ . The conditions for the existence and the number of such equations, as well as the amount of deviation of the system from the condition of equilibrium, are studied. It is possible to study the stability of the solutions obtained by a method of I. G. Malkin (Nekotoryye Zadachi Teoriyil Nelineynykh Kolebaniy, [Some Problems in the Theory of Nonlinear Oscillations], Moscow, 1956). The results obtained are used for approximating the solutions of nonlinear equations expressing forced oscillations.

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## Catalogue of USSR Institutions of Higher Education for 1962

Irkutsk Polytechnical Institute (RSFSR Ministry of Higher and Secondary Specialized Education). Irkutsk, ul. Krasnoy Zvezdy 3.

**Geological Exploration:** geology and exploration of industrial mineral deposits; geophysical methods of exploration and prospecting of industrial mineral deposits; exploration equipment.

**Mining:** mine surveying; development of industrial minerals deposits; mining electromechanics; electric power stations; electric servicing of industrial enterprise and cities; electrical drive and automation of industrial installations.

**Metallurgy:** refining of industrial minerals; non-ferrous metallurgy; automation of production processes; technology of elementary organic synthesis and of synthetic rubber; plastics engineering; technology of petroleum and gas; technology of electrochemical plants; technology of silicates.

**Mechanics:** machine construction engineering; metal-cutting lathes and tools; welding equipment and technology; construction and road machinery and equipment; machines and apparatus of chemical plants; auto transport; operation of aircraft and motors; thermal power installations in electric power stations; industrial heat and power engineering.

**Construction:** industrial and civil construction; production of concrete and reinforced concrete items and frames for prefabricated constructions; heat and gas supply and ventilation; water supply and sewage; highways.

**Evening Courses:** development of industrial mineral deposits; mining electromechanics; electric drive and automation of industrial installations; electric power stations; electric servicing of industrial enterprises and cities; thermal power installations of electric power stations; industrial heat and power engineering; machine construction engineering; metal-cutting lathes and tools; welding equipment and technology; construction and road machinery and equipment; machinery and apparatus of chemical plants; automation of production processes; technology of electrochemical plants; technology of silicates; technology of elementary organic synthesis and of synthetic rubber; plastics engineering; industrial and civil construction; production of concrete and reinforced concrete items and frames for prefabricated construction; heat and gas supply and ventilation; water supply and sewage; auto transport; operation of aircraft and motors.

Evening Courses Faculties in Angarsk and Cherekhovo

General Technical Faculty with Evening and Correspondence Course in Bratsk.

**Correspondence Courses:** geology and exploration industrial mineral deposits; geophysical methods of prospecting and exploration of industrial mineral deposits; exploration equipment; development of industrial mineral deposits; mining electromechanics; electric power stations; electric servicing of industrial enterprises and cities; thermal power installations in electric power stations; electric drive and automation of industrial installations; industrial heat and power engineering; machine construction engineering; metal-cutting lathes and tools; welding equipment and technology; construction and road machinery and equipment; machinery and apparatus of chemical plants; industrial and civil construction; production of concrete and reinforced concrete items and frames for prefabricated construction; heat and gas supply and ventilation; water supply and sewage; auto transport; highways.



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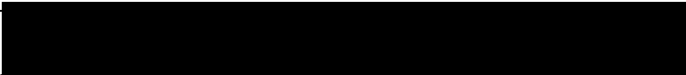
ECONOMIC-TECHNICAL-GEOGRAPHIC ABSTRACT.

According to Prof. Mikhail Konstantinovich Kosygin, prorector for scientific work of the Irkutsk polytechnical institute, the ~~institute has close ties with many industrial enterprises and construction projects~~ of Eastern Siberia. It has been ~~constantly rendering assistance to a number of plants, factories, mines, construction projects, and expeditions through direct participation in various research together with engineers and technical workers of enterprises.~~ In 1964 scientific workers of the laboratory of complex mechanization and automation of production head by senior instructor Yuriy Mikhaylovich Ilin, together with engineers and technicians of some plants, designed and introduced into production a number of installations and systems for the automatic collection and analysis of production information. The installation of the aforementioned automatic controllers has increased the level of efficiency in the supervision of shops and plants and also raised the profitableness of the goods produced by them. Scientific workers of the mining machines and mine transport faculty headed by docent Vadim Afanasyevich Politukhin have performed extensive scientific research work on raising the productivity of drilling machines at openface mines of the Cheremkhovskiy coal trust. (Continued on Card No. 65 H 2755--Irkutsk Russian 1100 GMT 10 March 1965)

The  
Irkutsk State University has doubled  
its enrollment and a new polytechnical  
institute for at least 7,000 students is  
nearing completion/

FORM 12-60 326a USE PREVIOUS EDITIONS.

5 Mar 63

FIRM NO. <b>322 6401</b>			CLASSIFICATION <b>SECRET/NOFORN</b>			PROCESSING DATE <b>12 AUG 1963</b>			<b>PPM</b>		
CODE <b>491</b>	COUNTRY <b>USSR</b>		PS <b>11</b>	AF CHART	ACTIVITY CODES <b>(E)</b>						
LOCATION			S/T	NAME OF INSTALLATION <b>SG1A</b>						PL. NO.	
DATE/ INFO		DATE/SOURCE								PF	
DA	MO	YR	DA	MO	YR						
-	-	-	-	<b>JUN 63</b>		CONTROL NO. 			EVAL		

**NEW SCIENTIFIC COMMUNITIES ARE BEING BUILT IN SIBERIA**

More Expansion

The  
Irkutsk State University has doubled  
its enrollment and a new polytechnical  
institute for at least 7,000 students is  
nearing completion.

FORM 12-60 **326a** USE PREVIOUS EDITIONS.

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<b>5 Mar 63</b>
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20 JUN 1963

PPM

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<p>On 10 April a 3-day interblast scientific and technical seminar devoted to modern methods of metallization and production of (metallized?) machine components completed its work in Irkutsk. (Garbych?), professor and doctor of technical sciences, and others reported. Participants laboratory of the polytechnical institute. (Irkutsk Domestic 1100 GMT 11 April 1963)</p>		

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81 MAY 1963

USSR	<b>OFFICIAL USE ONLY</b>	FBIS 63 H 1698
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Belykh, chief of construction administration No. 1 of the Vostoksibelektrosetstroy trust, states that the administration is constructing the polytechnical institute of the USSR Academy of Sciences. (Irkutsk Domestic 1200 GMT 28 January 1963)

1-57 USE PREVIOUS EDITIONS (44)

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31 MAY 1963

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FBIS 63 H 3625

Recently much has been said and written about individual institutes and scientific establishments which engage in parallel work and research. This practice has resulted in unnecessary expenditures and has not helped more rapidly to advance science. The first steps have already been taken to eliminate these shortcomings. On 14 March the first session of the East Siberian Council completed its work, which lasted 3 days. In this period the session discussed the coordination and planning of scientific research work at (sectors?) of higher and secondary specialized educational establishments. "Evening Irkutsk" interviewed a group of participants in the session. According to Anatoliy Andreyevich (Yegozhin?), chairman of the East Siberian Council and rector of the Irkutsk Polytechnical Institute, in the overall plan of measures for raising the role of science which were outlined at the 22d CPSU Congress, an important place belongs to the councils for the coordination and planning of scientific research work, which are the centers for the organization of efforts of the scientific community in the struggle for the successful fulfillment of scientific and technical problems which come up in the course of development of production forces in an economic region. (Continued on Card 63 H 3626)

## Engineering Work Demands Automation

N. Ustinin

*Chief Engineer, Angarsk Electromechanical Plant*

Although the proverb, "We jump fast but take a long time to harness," is far older than today's advanced technology, its message speaks accurately of current problems in many production plant engineering departments. Product design is much more time consuming than production.

The following picture is all too common: During the first ten days of the month, the assembly shops are quiet while the engineering and design sections are bustling. Final designs are not put into production until the second or third week; the delay causes irregular output, irritability, and chaos. In a futile effort to avoid this problem, enterprises increase the number of engineering and design workers.

Until recently, this was the situation at the Angarsk Electromechanical Plant. The Plant produces magnetic control stations and low-voltage instruments specially designed for machine building. The products are exported to 20 foreign countries. In a comparatively short time, the production volume has increased several fold. At present, 20,000 different parts are produced at the Plant annually. Each requires precise structural development, and accurate, efficient calculation. To promptly handle the large production volume, the Plant was forced to increase engineering and technical personnel to 20% of the total number of employees. But this did not help.

Backward methods hindered success. For example, the coordinating group of the chief designer's section spent 60% of its time transferring various technical data to a standard consolidated report. Even without this task, work-load norms in the design and engineering bureau were 1.5 times higher than at other machine construction plants.

Then the Plant began to consider mechanizing engineering labor. Five years ago, the first step was taken: the chief engineer's section introduced a tabular method for the output of technical documentation on batch products. This decreased by three to four times the engineers and technicians involved in processing information. A significant effect was produced by establishing a machine accounting station at the Plant. However, it was soon concluded that today's problems cannot be solved without computers, especially in compiling specifications for batch products.

This union with electronics required a re-examination and improvement of the entire production control process. Staff members from the Computer Department of Irkutsk Polytechnic Institute, under the direction of Candidate of Technical Sciences E. I. Popov, assisted. They agreed to develop and introduce an automated production control system. Today, problems that seemed insurmountable before have been solved.

The application of computers is not limited strictly to compiling specifications. Information on receipt and expenditures of equipment is regularly dispatched from the Plant's warehouse. The computer can compare needs for equipment with that available, and issue a list of required equipment for the coming month or the next quarter.

### Minsk-22 System

Much time used to be spent on compiling production schedules, on payroll accounting, etc. The automated system based on the Minsk-22 computer greatly simplifies this work.

As indicated by experience, the main difficulty lies not in installing the computer, but in the correct use of the system. Therefore, the Plant's specialists have taken special courses organized at Irkutsk Polytechnic Institute.

In the next two years, the enterprise will add new buildings and production volume will increase four times.

Translation of the article "After the First Step—the Second" ("Za pervym shagom—vtoroj"), in the newspaper *Socialist Industry (Sotsialisticheskaya industriya)*, July 7, 1970, p. 2; translated from the Russian by Irene Agnew.

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