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UDC 529

DYNAMICS OF FINLAND WOOD SQUARE

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On site http://metla.fi/ we fast have found statistical data on Finland wood square modification in a period of 1921-2007 years. The Finland wood statistics is rich by table models, for example in the wood program, and also always Q-factor of sampling is visible. However we an-ywhere have not found yet statistical models of dynamics, in particular, statistical models on such major landscape parameter as wood square.

Keywords: Biotechnical regularity of dynamics, wooden square, statistical model

Introduction. On site http://metla.fi/ we fast have found statistical data [1, c. 51] on Fin-land wood square modification in a period of 1921-2007 years. The Finland wood statistics is rich by table models, for example in the wood program [2], and also always Q-factor of sampling is visible. However we anywhere have not found yet statistical models of dynamics, in particular, statistical models on such major landscape parameter as wood square. The biotechnical regularity examples are indicated in our books [3-6], and at that in the book [6] detailed examples on timber trade of Finland among 30 advanced countries are indicated. The mathematical modelling technology is indicated in study guide for the bachelors and magisters [7].

The article purpose – to show the biotechnical regularities of Finland wood square dy-namics in a period of 86 years, revealed by us, and also wave dynamics of oscillatory perturba-tion of the Finnish experts in wood management on an example [1, c.51]. On a ready model prognostic wood square dynamics is shown provided that in Finland the modern wood policy up to a 2100 will be continued without radical modifications. Earlier on data [8] the portrait of tim-ber this country trade [6] in a period of 1961-2005 years was composed.

Time scale. 1921 year is a beginning of coordinates $t = 0$ on an abscissa.

Two statistical numbers – on left t_1 and right t_2 time scale boundaries (table 1) on wood square S_1 and S_2 inclusive of different wood inventory periods were received.

If the wood parameter actualization was annual, with cyclicity of Earth rotation round the Sun one time scale would be natural.

Wood grounds. All wood parameters are subjected identification by the biotechnical law [3-7] uniformly. Let's show two ready models of a structural type $S_1 = f(t_1)$ and $S_2 = f(t_2)$ On two scales two models of 86-year's Finland wood square dynamics (fig. 1) were obtained.

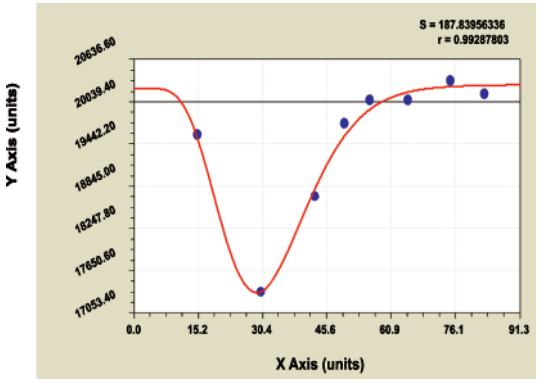
$$S_1 = 20223{,}37\exp\left(3{,}08483\cdot10^{-5}t\right) - 3{,}64168\cdot10^{-5}t^{7{,}49898}\exp\left(-0{,}19715t^{1{,}06256}\right); \quad (1)$$

$$S_2 = 20179{,}95\exp\left(5{,}34623\cdot10^{-5}t\right) - 3{,}60103\cdot10^{-6}t^{7{,}97308}\exp\left(-0{,}16816t^{1{,}08126}\right). \quad (2)$$

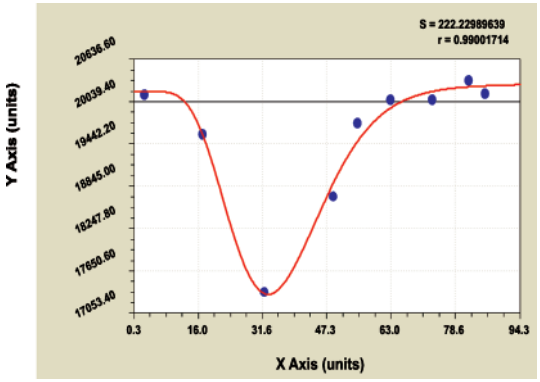
Table 1

Finland wood square dynamics

The code	Period	Time t, years		Square, 103 ha	
		t_1	t_2	S_1	S_2
VMI 10 – NFI 10	2004–07	83	86	20150	20150
VMI 9 – NFI 9	1996–2003	75	82	20338	20338
VMI 8 – NFI 8	1986–94	65	73	20074	20074
VMI 7 – NFI 7	1977–84	56	63	20065	20065
VMI 6 – NFI 6	1971–76	50	55	19738	19738
VMI 5 – NFI 5	1964–70	43	49	18697	18697
VMI 3 – NFI 3	1951–53	30	32	17352	17352
VMI 2 – NFI 2	1936–38	15	17	19580	19580
VMI 1 – NFI 1	1921–24	0	3	20138	20138



The left boundary of a time scale



Right boundary of a time scale

Fig. 1. Dynamics of Finland wood square in a period of 1921-2007 years (in a right upper angle the sum of squared deviations and formula correlation coefficient are shown)

The correlation coefficients are accordingly equal 0,9929 and 0,9900. For the further analysis we shall accept the formula (2), substituting tabulated model from data of table 1.

First component is the stable exponential growth law. At that this main trend shows ra-ther small growth on a comparison with the time scale beginning. And second component, with negative sign before itself, shows crisis excitation of national economy with 1925 on 2007 years and further in a period of 110 years.

Together schedules will show (fig. 2) possible scatters of data on a wood parameter.

The comparison of the schedules shows, that, since 2000 both scales begin to coincide. Therefore it is possible to make a conclusion that the national wood inventory have improved as the years go by. At that country has overcome territorial wood crisis.

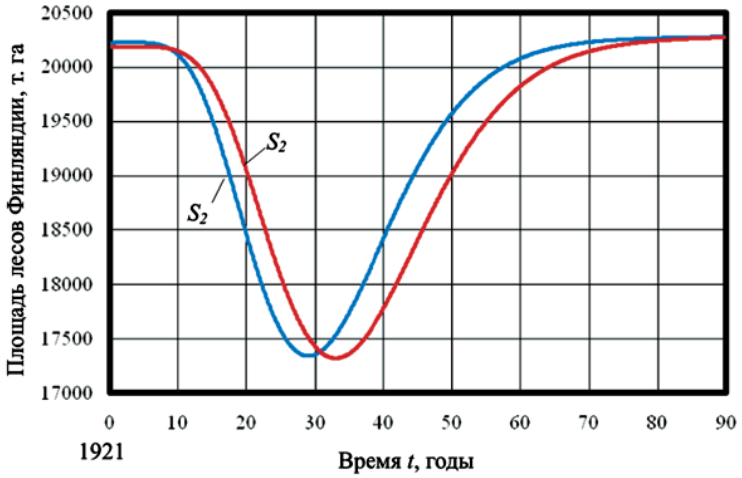


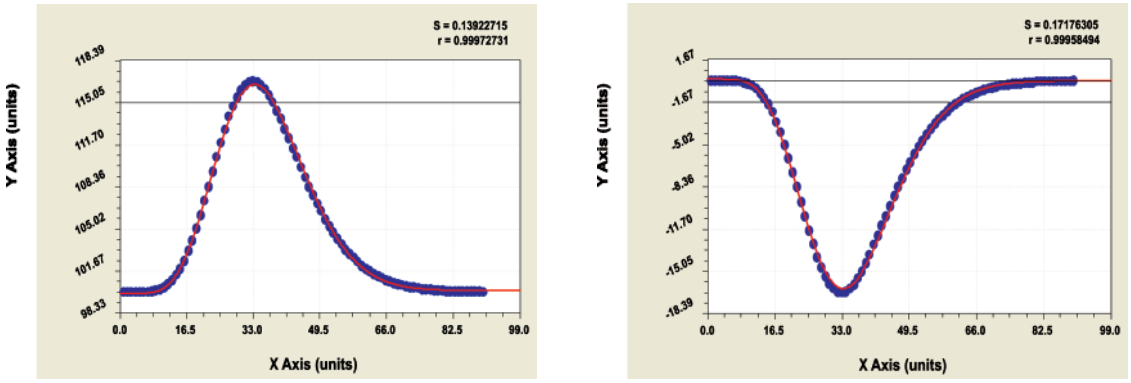
Fig. 2. Dynamics of wood square on taxation periods

From a fig. 1 it is visible, that there are points near schedules, that specifies on realized adaptability of the experts and population to wood square dynamics. Russia sharply differs in timber trade [6] from a fig. 2.

Crisis significance. The deal each component of a general trend (2) shows a significance of rather settlement wood square significances. The expressions $\alpha_2 = 100S_2 / S$ and $\alpha_1 = 100S_1 / S$ give from data of table 1 significance parameter dynamics (fig. 3):

$$\alpha_1 = 99{,}8883\exp\left(2{,}79112\cdot 10^{-5}t\right) + \\ +1{,}80118\cdot 10^{-7}t^{6{,}57849}\exp\left(-0{,}035133t^{1{,}39840}\right); \quad (33)$$

$$\alpha_2 = 0{,}16186\exp\left(-0{,}038453t\right) - \\ -2{,}47049\cdot 10^{-7}t^{6{,}47619}\exp\left(-0{,}035997t^{1{,}38907}\right). \quad (4)$$

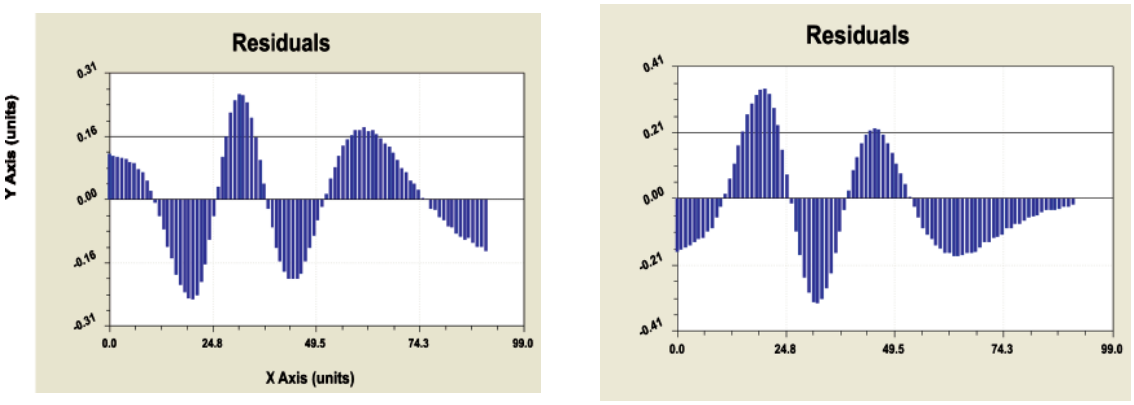


First component (2) Crisis component of model (2)

Fig. 3. Dynamics of significance coefficient of Finland wood square model (2) components

On a construction the models (3) and (4) are similar to a trend (2). Here both formulas were identified on settlement significances obtained on (2) in the software environments Excel. The residuals after (3) and (4) are indicated in a fig. 4, from which it is visible, that wave func-tion exists in addition to (2). Or else, not only crisis, realized by the Finns, but also natural oscil-latory wood square perturbation exist. Therefore, third component as a perturbation wave can be refered, apparently, to a wood behaviour.

Obviously, that the sum of significance coefficients of two components trend model (2) is equal 100%, that is $\alpha_1 + \alpha_2 = 100$.



Residuals after the formula (3) Residuals after the formula (4)

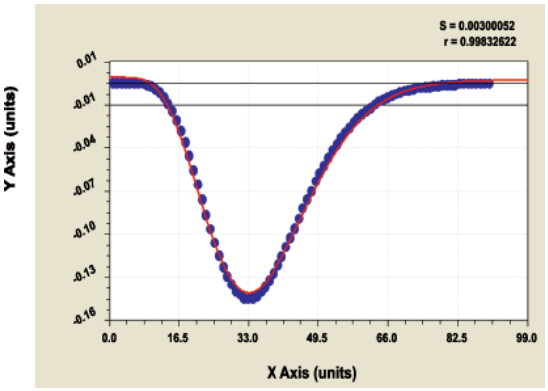
Fig. 4. Dynamics of residuals from models of significance coefficient of model (2) components

Staff adaptability. The realized professional activity of Finland wood line is known all over the world. For revealing regularities of staff behaviour, in the given example of the Finnish society, it is necessary in the beginning to accept, that first component of the formulas (2) characterizes natural process or main tendency, and second and consequent components in main depend on activity of the people. Thus, in the polynomial formula second and consequent not wave or wave components of general model characterize man impact. The second effect kind is precisely cha-racteristic for Finland wood economy. In substance it also is actual manifestation of a people and wood tree symbiosis.

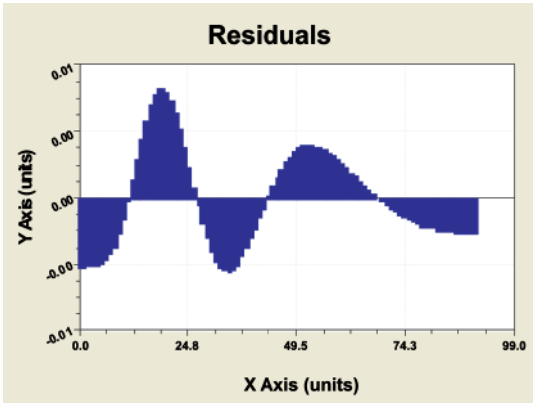
Significance coefficient k, for the formula (2) calculated as the relation k_2 / k_1, ambassa-dor structural – parametrical identifications [7] has received (fig. 5) formula

$$k = 0,0040897 \exp(-0,0065310t) - \\ -1,52343 \cdot 10^{-8} t^{6,00609} \exp(-0,069697 t^{1,21925}). \quad (5)$$

The more significance k in absolute magnitude, the activity of the given people popula-tion on use national natural riches becomes more intense. The negative sign shows crisis process. It will be stopped in Finland by a 2035 year.



The schedule of significance coefficient (5)



Dynamics of residuals after a model (5)

Fig. 5. Dynamics of adaptability of the population and Finland wood economy to wood territory

The wave perturbation small and it coincides by time. The wood square in dynamics could be shown with high adequacy only on a trend (2). Though the oscillatory perturbation sig-nificance is small, however from a methodical view point wave perturbation has scientific and common sense. The oscillation can affect the future.

Wave perturbation. For the analysis of wave dynamics we shall accept a trend (2) $S = S_2$ and on its residuals shall obtain the asymmetric wavelet-function [5, 6] (fig. 6a). And after joint parametrical identification we have received trinomial dynamics model:

$$S = S_1 - S_2 - S_3; \tag{6}$$

$$S_1 = 20198{,}054; \qquad S_2 = 1{,}90352 \cdot 10^{-6} t^{8{,}19420} \exp\left(-0{,}15924 t^{1{,}10266}\right);$$

$$S_3 = A\cos\left(\frac{\pi t}{p} - 1{,}38781\right);$$

$$A = 8{,}65852 \cdot 10^{-13} t^{10{,}77139} \exp\left(-0{,}13253 t^{1{,}06568}\right);$$

$$p = 11{,}56241 - 0{,}21116 t^{0{,}32671},$$

where S – square of woods of Finland for 86 years in dynamics in a period of 1921–2007 years, t/ha;

S_1 – stable wood square part in a period of wood measurements, t/ha;

S_2 – critical wood square part in a period of 1925–2035 years. By a duration per 110 years a part of woods, т. Га;

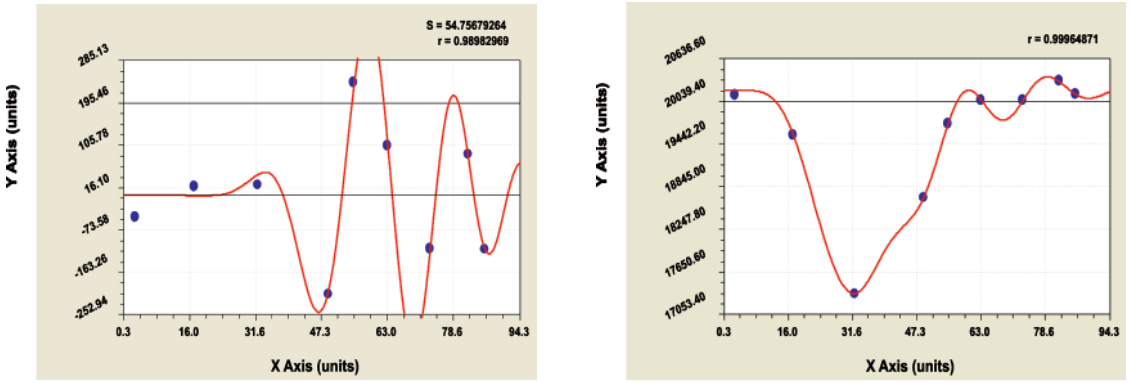
S_3 – oscillatory perturbation of woods on square, which is response to a behaviour of the people, t/ha;

A – amplitude half of wave perturbation of a wood as organism, t/ha;

p – half of variable period of oscillatory perturbation of a wood on square, years.

The period of oscillation in 1921 year was equal to 2·11,56241 ≈ 23,1 years or is approx-imately equal to two cycles of solar activity on Tchizhevsky effect [3–6]. In a period of 86 years the Finns have reduced in wood perturbation frequency increase, and this frequency in 2007 year was equal to 1/(2·10,66) = 0,0469 year–1 and by a 2100 year the half cycle of wood perturbation will decrease to 10,41 years, that is all on 100·(11,56 – 10,41)/11,56 = 9,95%. The woods of Fin-land on square and in XXI century will change within the limits of the double cycle of solar ac-tivity till 2035 year. It means, that the interference of the Finns in life of the woods is eco-logical-ly responsible, and they reach an economic acceptability of wood exploitation at the expense of import of sticks [6].

Hereafter it is possible to conduct a component analysis for revealing a complex of bio-technical regularities of dynamics of woods on such parameters as geostatistical distribution of subcompartment, pfytocenosis elements, specific structure of wood trees, their age structure, vo-lumes of trunk timber, category of a sanitary state and other.



a) wave component of model (6) b) the schedule on all triadic model (6)

Fig. 6. Finland wood square dynamics in a period of 1921-2007 years

Though we have not found the publications under the wave wood theory of Finland and other countries, but the realized behaviour of the people, to begin with wood experts, in Finland is visible under the schedules in a fig. 6 as realized measures and outcomes in wood management.

Avareness of wood policy. The amplitude-frequency characteristic of wave component shows scientific validity forestry-based measures (fig. 7). Wood policy clearly preempts programs of timber trade, and it was visible 40 years back [2].

In the beginning XXI centuries the priorities of Finland were changed and timber trade has become active to develop. Experience of forestry management and, in particular, the reach-ings in wood statistics, can give new breathing to all wood economy sector of this wood country. In particular this experience will be useful to Russia.

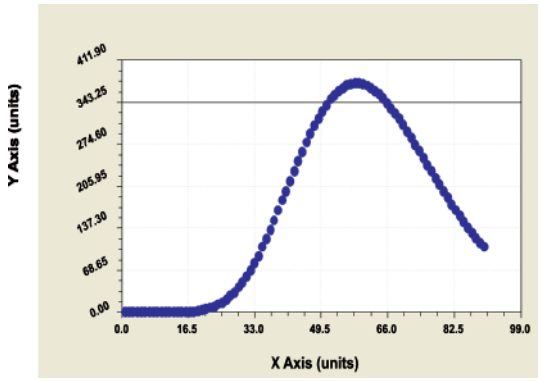
Wood management dynamism. Dynamism coefficient $K_д$ is determined as the relation of the sum of a wave model component to a class of trend parts, that is not wave model compo-nents (6), that is on expression $K_д = S_3 / (S_1 - S_2)$.

After identification the model (fig. of 8) of wood dynamism coefficient is obtained

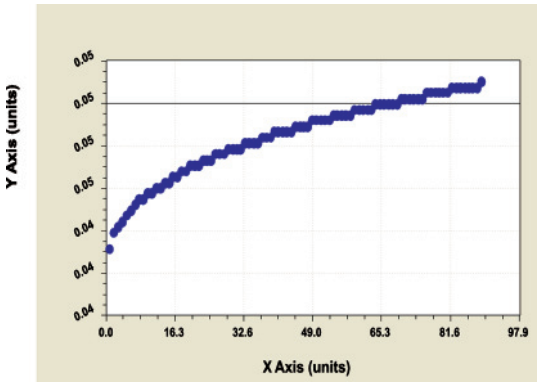
$$K_д = A\cos\left(\frac{\pi t}{p} - 1,66671\right);$$

$$A = 3,32793 \cdot 10^{-12} t^{7,26959} \exp\left(-0,10811 t^{1,03192}\right);$$

$$p = 10,65031 - 0,00073133 t^{1,09209}.$$

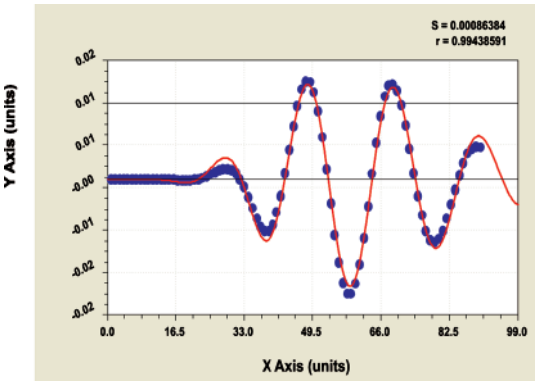


Amplitude of oscillatory perturbation of the Finnish woods

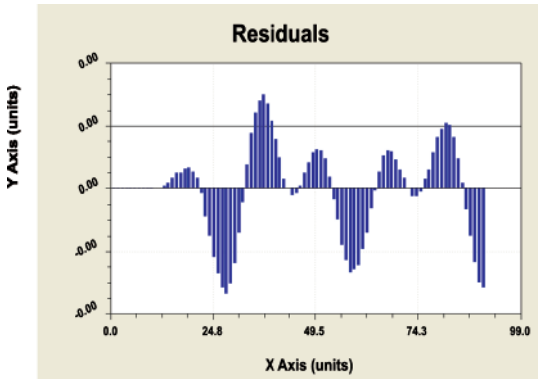


Frequency of wave wood behaviour

Fig. 7. Dynamics of amplitude and frequency of Finland wood oscillation on square



Dynamism coefficient of the Finnish woods on (7)



Residuals after a model (7)

Fig. 8. Dynamics of Finland wood square dynamism coefficient

The high adequacy to a model (7) allows to approve, that management of woods in Finland re-sults in stabilization using decrease of dynamism coefficient on wood square (table 2).

From the residual schedule in a fig. 8 it is visible, that the microwaves begin since 1933 year. However, the data of wood statistics on wood farms are necessary for their identification. Models (6) and (7) are high-precision within the limits of a Finland wood square measurement error.

Table 2

Dynamism of Finland wood square

Years	Time *t*, years	Extremum $K_д$	
		growth	recession
basis of the prognosis			
1930	9	-	0,00001
1940	19	0,00048	-
1949	28	-	0,00360
1959	38	0,00994	-
1969	48	-	0,01563
1980	59	0,01724	-
1990	69	-	0,01518
2000	79	0,01114	-
Advance of the prognosis			
2010	89	-	0,00709
2021	100	0,00416	-
2031	110	-	0,00223
…	…	…	…
2078	157	-	0,00001

In data of table 2 the maxima (wood square recession) and minima (parameter growth) under the schedule in a fig. 8 are indicated. Let's remind that the wave perturbation in the formula (6) has negative sign. Therefore global minimum in a fig. 8 $|K_{д\,max\,max}| = 0{,}01724$ shows a forest yield.

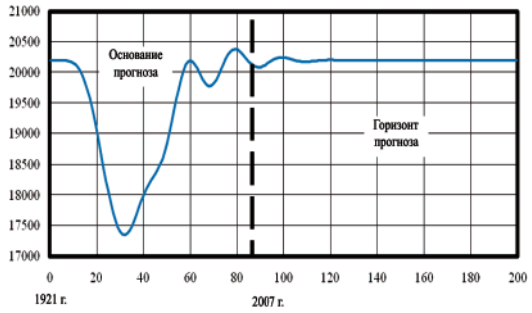
The half-cycle of dynamism coefficient have a remarkable property. They in time period of 1990–2010 years almost coincide with the solar activity cycle beginnings. Finnish foresters have managed actively to use Tchizhevsky effect on 23-th cycle of solar activity in a period of 1999–2009 years, most force from measured by the astronomers. Apparently, concurrence is not casual, and quite realized. System of wood statistics and data vsk 08_01 pdf help revelation this coincidence.

Prognostic model. Under the formulas (6) and (7), and also data of table 2, the cycle of modern wood policy of Finland on a wood square parameter will be finished in a 2078 year and will proceed 148 years. Dynamism coefficient is extremely small in relation to an allowable

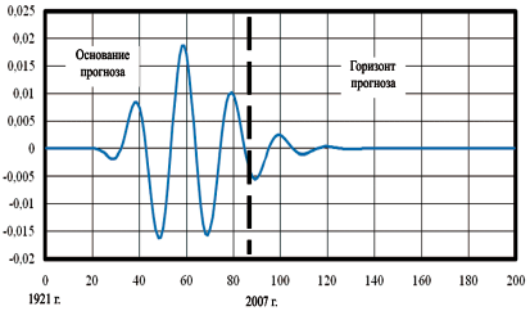
condition $K_д \leq 1$. At that it the maximum significance of wave component in the formula (6) is equal to 1,84% for 1980 year, and zero significance is achieved by 2055 year.

Therefore for an evaluation macroeconomic parameters of a wood sector it is enough to accept trend of the formula (6) for drawing up prognostic model. In an outcome is received, that the 1921 year wood square level Finland will achieve by 2020 year. Hereafter national wood can qualitative be improved without square growth. But the dynamic numbers on other wood para-meters are necessary for the analysis.

Finland wood square forecasting. When model (6) adequacy with a coefficient of cor-relation 0,9996 (see fig. 6) is high it is quite possible to accept horizon of the prognosis equal to prognosis basis length. The basis is equal to 86 years, therefore under horizon of the prognosis also in a period of 86 years the limit of all time series per 192 years or per 1921 + 192 = 2113 years is received. The schedules in a fig. 9 and fig. 10 are constructed in a period of 200 years, that is till a 2121 year.

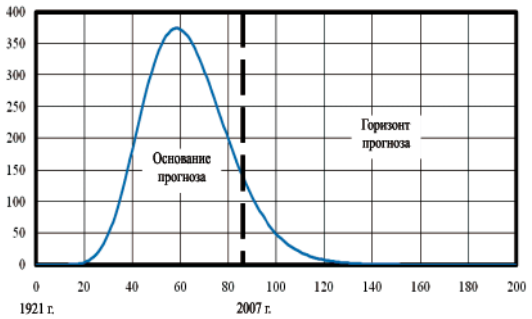


a) schedule on all triadic model (6)

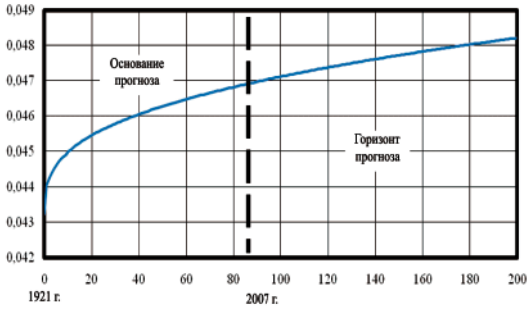


b) dynamism coefficient of wood on square

Fig. 9. Prognostic Finland wood square dynamics



Amplitude of oscillatory Finnish wood perturbation



Frequency of a wave wood behaviour

Fig. 10. Prognostic dynamics of amplitude and frequency of Finland wood oscillation on square

Two variants prognostic models are possible: at first, by forecasting till a 2040 year all construction of a model (6) is accepted; secondly, since 2040 year it is possible to accept only equation $S = S_1 = 20198{,}054$ without second and third components.

Conclusions. It is possible to suppose, that on other parameters of Finland woods the sta-tistical models with high adequacy to appropriate dynamic numbers accepted from wood statis-tics of this country will determined.

On wood square dynamics we formulate the following main conclusions:

1) The territorial principle is precisely executed and recovery for 86 years with 1921 for a 2007 years specifies on that. At that rather small significance crisis trend and oscillatory compo-nents of dynamics model on wood square confirms excellence of long-term wood management;

2) Adaptability of Finland to the woods is very high, at that without high society tug, and the crisis on wood square was overcome on regularity of aperiodic oscillation;

3) Small on amplitude the wave perturbations will cease in the near future, though force the microoscillations will possible at a level of separate composite of wood farms; prognostic model shows an approximation of national wood square to constant significance, and it specifies high skill Finnish foresters, and their centenary wood management experience will be distributed and to other wood countries, including Russia;

4) For revealing a full limit of growth on square and other wood parameters it is necessary to conduct a component analysis in an annual mode and on other parameters all wood sub-compartments, and also to reveal biotechnical regularities of dynamics in geostatistical distribu-tions of country territory on land cadastre categories.

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UDC 529

REALIZED MODERNIZATION IN FORESTRY OF JAPAN AND FINLAND

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Crisis management of forests and rapid modernization and rationalization of forest has been established in Japan and Finland after World War II. This has helped a large-scale conversion of military-industrial complex in these countries.

Keywords: forest case, the limits of growth, streamlining forest

The crisis wood management and fast wood exploitation modernizing were adjusted in Japan and Finland at once after the Great Patriotic War. Conversion of defense industry of these countries was helped by this [1].

Finland has achieved territory woodiness maximum, therefore square it's wood changes about one level, trying for growing advanced wood processing volumes to receive maximal raw wood from Russia, first of all, maintaining Karelian and other nearborder woods another's for Finland.

Such policy hereafter will not give Finland anything good, if it, as well as Sweden, other meas-ures will not overcome growth limit on square of national wood. Differently in 10–15 years it is neces-sary consciously to reduce issue of wood production (if, certainly, Russia will begin to increase issue not less qualitative wood production).

The regularity of dynamics (table 1, fig. 1) is determined by the statistical equation

$$S = 22502,60\exp\left(0,021025t^{0,16935}\right) + A\cos\left(\pi t / p - 4,99580\right), \quad (1)$$

$$A = 18183558,0t^{4,04845}\exp\left(-8,45422t^{0,27051}\right),$$

$$p = 0,0049231 + 0,32123t^{1,00236}.$$

In the formula (1) all is positive: the main trend has exponential growth law kind, before second component there is a positive sign, and half of period of positive oscillatory perturbation grows in due course (so positive wood adaptation to the external medium happens). Because of period magnification and oscillation amplitude decrease the wood of Finland has dynamics under the law of aperiodic oscil-lation that is the gradual degeneration of wave perturbation happens. However in the period half formu-la the initial significance in a 1971 year was only 0,0049 years or only 0,06 months (or only 1,8 days). Since 1985 year (only 10,4 thousand ga of positive adaptation on second component) the oscillatory perturbation has become to grow, since a 1986 year has turned by negative sign in the crisis party, and by 1994 year has achieved 107,6 thousand ga. Crisis amplitude magnification has taken place in 10 times. Though the significance of a crisis wave makes only

100·107,6/23214,2 = 0,465, however for past 12 years this amplitude can be quite enlarged also. That is to say the orientation of the Finnish en-terprises completely on Russian sticks can appear rather crisis for all Finland.

In our country long time the economists did not recognize the theory of cyclicism and wave os-cillatory perturbation of economy.

After all, as the practice of development advanced and economically developed countries has shown, wave of slack periods and takeoffs is not terrible, if they do not introduce disbalance to all sys-tem.

Therefore, if anything the small oscillatory movement of economic parameters, in this case country wood square

Table 1

Finland wood square dynamics, thous. ga

Accountable year	Time *t*, years	The fact *S*	Settlement significances (1)			Components	
			S	ε	Δ, %	S_1	S_2
1971	0	22530	22502,6	-27,40	-0,12	22502,6	0,0
1972	1	22690	22686,9	-3,06	-0,01	22980,7	-293,8
1973	2	22840	22834,5	-5,45	-0,02	23041,0	-206,4
1974	3	23000	23025,1	25,12	0,11	23079,7	-54,6
1975	4	23160	23169,3	9,33	0,04	23108,9	60,4
1976	5	23321	23261,5	-59,45	-0,25	23132,6	128,9
1977	6	23321	23313,3	-7,65	-0,03	23152,7	160,7
1978	7	23321	23337,1	16,14	0,07	23170,1	167,0
1979	8	23321	23342,7	21,74	0,09	23185,6	157,1
1980	9	23321	23337,2	16,20	0,07	23199,6	137,6
1981	10	23321	23325,4	4,39	0,02	23212,3	113,1
1982	11	23321	23310,5	-10,48	-0,04	23224,0	86,5
1983	12	23321	23294,7	-26,28	-0,11	23234,9	59,8
1984	13	23321	23279,3	-41,71	-0,18	23245,1	34,2
1985	14	23222	23265,0	43,05	0,19	23254,6	10,4
1986	15	23222	23252,4	30,43	0,13	23263,6	-11,2
1987	16	23222	23241,6	19,65	0,08	23272,1	-30,5
1988	17	23222	23232,8	10,76	0,05	23280,2	-47,4
1989	18	23222	23225,7	3,73	0,02	23287,9	-62,1
1990	19	23373	23220,5	-152,55	-0,65	23295,2	-74,8
1991	20	23222	23216,8	-5,19	-0,02	23302,3	-85,4
1992	21	23186	23214,6	28,64	0,12	23309,0	-94,4
1993	22	23186	23213,8	27,81	0,12	23315,5	-101,7
1994	23	23186	23214,2	28,16	0,12	23321,8	-107,6

oscillations, shows good adaptive possibilities for the account of constantly up-dated economic mechanisms of wood management and development programs adapted to really changed natural real conditions.

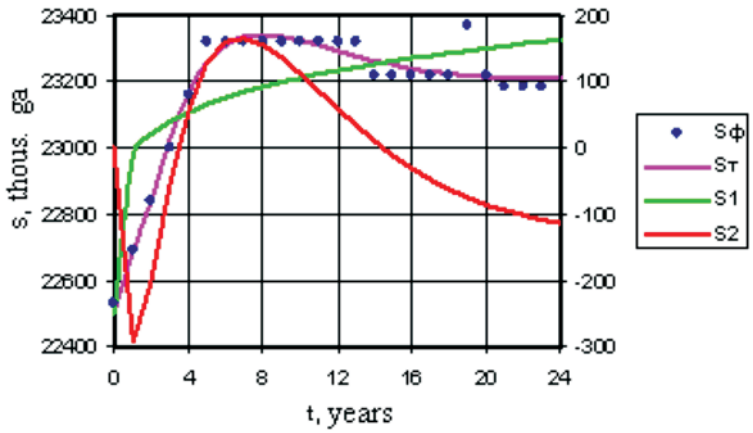


Fig. 1. Dynamics of Finland wood square

Russians, instead of Finns are guilty in that Finland maximally consumes Russian, besides low-price, raw wood for the wood enterprises and protects the wood resources.

Japan territory is congested (main limit of growth [2]) and consequently it should manoeuvre on a limit of practically possible woodiness. Therefore, as well as in Finland, the Japan wood has growth limits on square (table 2, fig. 2) under the formula (the aperiodic oscillation law without wave wood square perturbation because of rigid wood management under the mechanics law is applied):

$$S = 24228,66\exp\left(8,7169\cdot 10^{-7}t^{2,66692}\right)+10,7037t^{2,47066}\exp\left(-0,19469t\right). \quad (2)$$

Totally adaptability factor of Japan [2] to the wood was equal to 481,4/24248,4 = 0,0199 or 1,99% in a 1984 year. Therefore it is necessary to expect, that the Japaneses necessarily will invent the program of forest science, overcoming by the measures an existing territorial wood growth limit. Transformation of house roofs in cities in green gardens, growth rooms and growth rooms in Japan has become one from far-seeing measures. Apparently, while only any mountain territory, which is expen-sive and difficult for using but on slopes it will be quite possible to cultivate new wood plots, is partial free. Thus on the future there will be a main wood development trend on the first component model (2).

From the graphs in a fig. 2 it is visible, that after a 2006 year second component of aperiodic oscillations will probably can be absent in Japan wood development. Then there will be a main trend.

Wood stability and sticks production. The most difficult management by dynamics will be at such process, where for decades downswing with rather force wave perturbation happens. Therefore

Table 2

Japan wood square dynamics, thous. ga

Account-able year	Time *t*, years	The fact *S*	Settlement significances (1)			Components	
			S	ε	Δ, %	S_1	S_2
1971	0	24241	24228,7	-12,34	-0,05	24228,7	0,0
1972	1	24241	24237,5	-3,51	-0,01	24228,7	8,8
1973	2	24241	24269,0	27,99	0,12	24228,8	40,2
1974	3	24241	24319,1	78,15	0,32	24229,1	90,1
1975	4	24500	24380,5	-119,55	-0,49	24229,5	150,9
1976	5	24500	24445,8	-54,18	-0,22	24230,2	215,6
1977	6	24500	24509,6	9,63	0,04	24231,2	278,5
1978	7	24500	24567,9	67,89	0,28	24232,4	335,4
1979	8	24500	24618,1	118,08	0,48	24234,1	384,0
1980	9	24728	24658,9	-69,10	-0,28	24236,1	422,8
1981	10	24728	24690,0	-38,02	-0,15	24238,5	451,5
1982	11	24728	24711,6	-16,38	-0,07	24241,3	470,3
1983	12	24728	24724,6	-3,44	-0,01	24244,6	479,9
1984	13	24728	24729,8	1,83	0,01	24248,4	481,4
1985	14	24717	24728,6	11,60	0,05	24252,7	475,9
1986	15	24717	24722,1	5,08	0,02	24257,6	464,5
1987	16	24717	24711,4	-5,57	-0,02	24263,0	448,4
1988	17	24717	24697,8	-19,22	-0,08	24269,1	428,7
1989	18	24717	24682,1	-34,88	-0,14	24275,7	406,4
1990	19	24621	24665,3	44,34	0,18	24283,0	382,3
1991	20	24621	24648,2	27,21	0,11	24291,0	357,2
1992	21	24621	24631,4	10,36	0,04	24299,7	331,6
1993	22	24621	24615,3	-5,66	-0,02	24309,1	306,2
1994	23	24621	24600,6	-20,43	-0,08	24319,3	281,3

list from four wood production groups is composed on aggravation or wood control quality decrease because of balancing loss increase on felling volumes of raw wood as sticks.

In table 3 two countries from the fourth group [2] are indicated.

Most surprising here that only very much few countries monitor behind the woods, not exceed-ing wood cabin volumes on sticks. Japan at which all wood arrays have turned to parks because of country congestion is sharply selected.

Comparison of wood square dynamics and sticks production. Further in table 4 modification comparison of wood square and sticks felling volume is shown. For want of it in data of OON [2] there was no information about woods for period from 1995 till 2005.

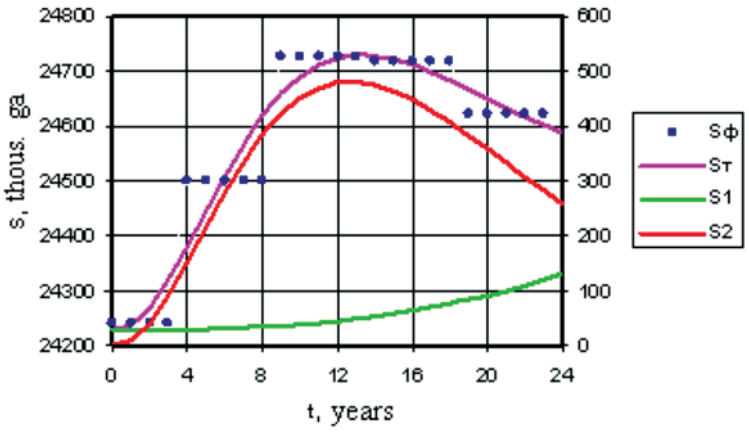
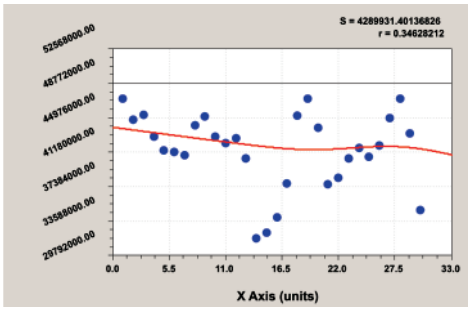
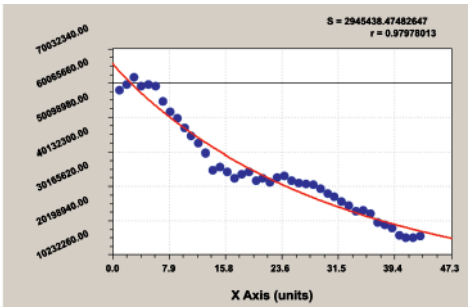


Fig. 2. Dynamics of Japan wood square

Table 3

Countries of fourth subgroup is downturn or downturn with Oscillatory perturbation

Finland		$V = 43935500,0\exp(-0,0033980t) + +1,5248\cdot 10^{-17}t^{22,3233}\exp(-0,75851t)$
Japan		$V = 65604897,0\exp\left(-0,037484t^{0,95143}\right)$

The pairs of the graphs of wood square growth and sticks production volume dynamics modifi-cation are rather various. Russia seems in particular informational poorly. Even in USSR, which guidance always considered itself stable in a behaviour and most successful managing system in the world, force oscillatory perturbation of sticks felling volume has existed.

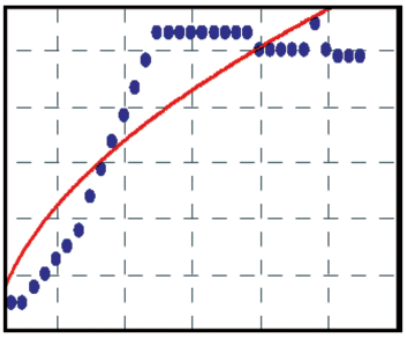
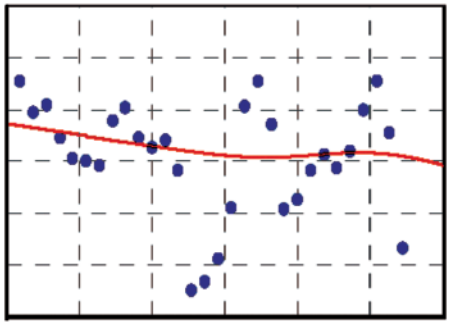
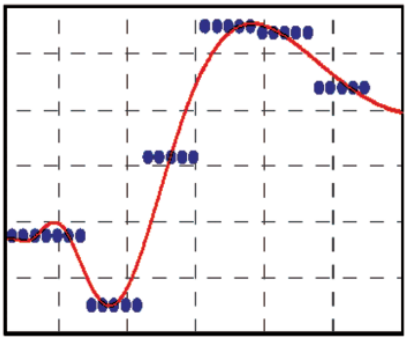
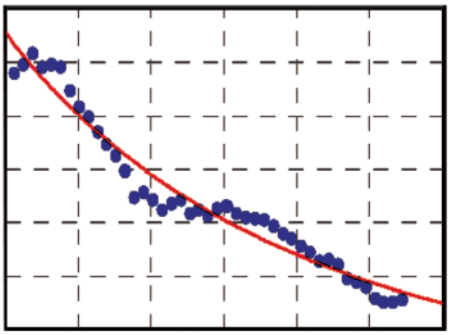
The Soviet economists did not at all recognize cyclical laws and regularities, therefore statistical data either were not resulted or consciously were distorted by introduction of various economic indexes and relative economic parameters (growth

rates on five-year plans are prime example). In the total the forestry experience in our country is a present information pageantry, therefore we everyway shall be careful to those economists, which operate by expenditures connected with management of forestry, wood and woodusing industry.

Therefore the further analysis of the world tendencies on other groups of wood production – sawn wood, boards, paper and carton is necessary.

Table 4

Comparison of countries on dynamics of national wood square and sticks production

Country	Dynamics of wood square from 1961 till 1994, thous. ga	Dynamics of sticks production from 1961 till 1994, m^3
Finland		
Japan		

In forestry the transformation as «a wood – sticks» is master link.

In people consciousness (in main it concerns the wood workers), the strongest reduction (sim-plification) complicated up to a transcendence (infinite indeterminacy because of small knowledge of the people about wood capability) of concept «wood» up to primitive narrow certain by practice ma-terial concept «crop» happens.

The rest is paperwork (of methods and tree cut means) – mostly all trees of crop are cut down, per the last decades even seed bearers aren't leaved (procurement officers of raw wood point to on woodgrowers, that they will plant foundation stocks and will restore crop by artificial reafforestation). Thus, all wood users seeing and realizing a wood only as protruding from ground tree stems of correct on the form and quality of wood act as bonkers wolf from victim mass (remaining hinders them in work on sticks dimension).

Such behaviour of the people, in particular among the public persons and businessmen, should be changed in the

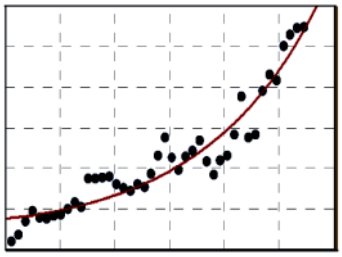
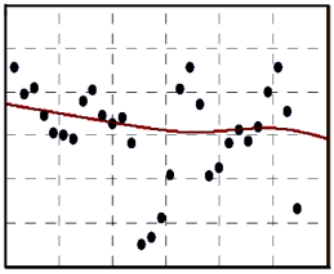
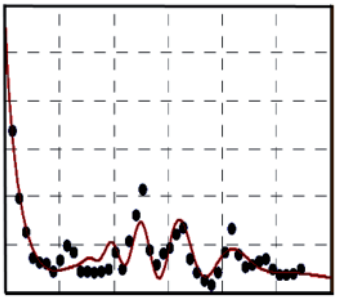
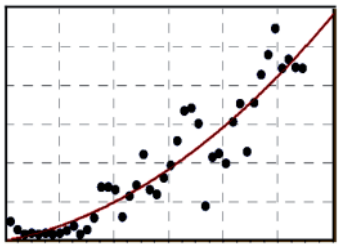
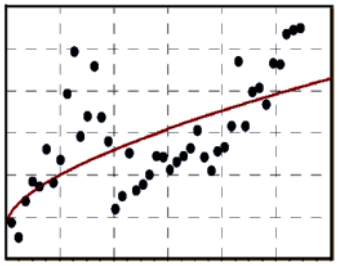
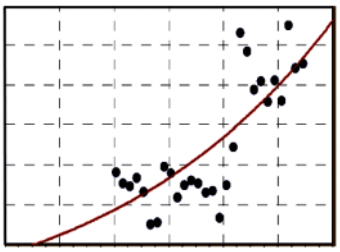
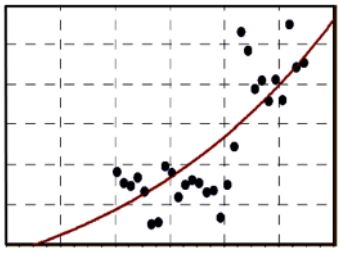
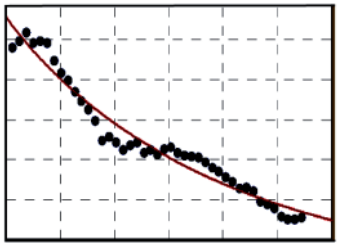
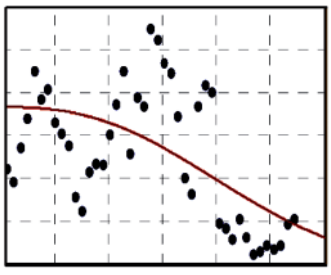
radical in Russia. For this purpose it is necessary to understand, how do other countries behave for many a long day (several decades) of sticks circulation (import, production and export). Besides return process forming a cycle of the full sticks circulation, as for example, it is executed to paper by salvaging waste paper, does not happen. Therefore for wood sticks (cut tree stick parts) is irrevocable loss.

Sticks – country behaviour style. Dynamics in a period of 1961-2004 years, that is for past 44 years, will show behaviour style of country relating to realized turn country group (up to 1961 and till a 1994) on wood square dynamics. In table 5 the basic data of FAO OON [38] (44 points) and lines (trend equation) on import, production and export of sticks, that is round forest products (only 31 coun-tries) are indicated.

At once we shall remark, that the decrease of production of sticks and management of this process even up to wood square growth rate level is the main purpose of a joint management by wood (table 5).

Table 5

World round wood material volume dynamics, m^3

Wood import	Sticks production	Sticks export
Finland		
		
Sweden		
		
Japan		
		

The style of a behaviour of country in forestry in the field of the circulation of sticks is deter-mined by ratio of three processes of person behaviour with finish products, in this case with sticks, is an import, production in country, export of production surpluses (in our country excessive «surpluses» are resulted) or re-export of finish products cheaply bought from other countries (more often here too Russia acts).

The best and far-seeing strategy of a behaviour with sticks has appeared at Japan: it has reduced volumes on all three processes of handling production. Therefore many subjects of Russian Federation, in particular deficient on wood regions, can be studied at the wood users and woodgrowers of Japan.

Country behaviour trend models. The statistical equations are of the form (sequentially statis-tical models of import, production and export of sticks):

– Finland

$$V = 1869661,5\exp\left(0,016975t^{1,25996}\right); \tag{3}$$

$$V = 43935500,0\exp\left(-0,0033980t\right) + 1,5248\cdot 10^{-17}t^{22,3233}\exp\left(-0,75851t\right); \tag{4}$$

$$V = 3255180,8\exp\left(-0,050788t^{1,00246}\right) + A_1\cos\left(\frac{\pi t}{p_1} - 3,38458\right) + A_2\cos\left(\frac{\pi t}{p_2} + 1,14480\right); \tag{5}$$

$$A_1 = 3,4013\cdot 10^{-8}t^{14,20041}\exp\left(-0,60236t\right);$$

$$p_1 = 0,53657 + 0,028697t^{1,02687};$$

$$A_2 = 6709685,5\exp\left(-0,34342t^{0,67246}\right);$$

$$p_2 = 7,67786 + 1,76121t^{0,61590};$$

– Japan

$$V = 8953988,3 + 1043391,1t^{2,10284}\exp\left(-0,14974t\right); \tag{6}$$

$$V = 65604897,0\exp\left(-0,037484t^{0,95143}\right); \tag{7}$$

$$V = 30039,9\exp\left(-9,1474\cdot 10^{-5}t^{2,55334}\right). \tag{8}$$

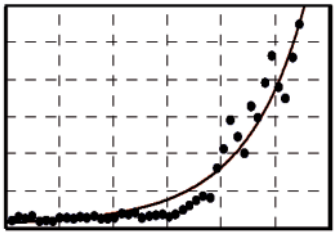
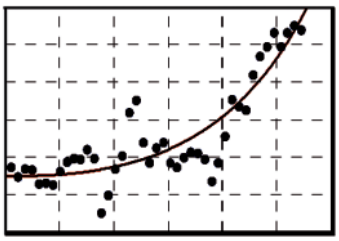
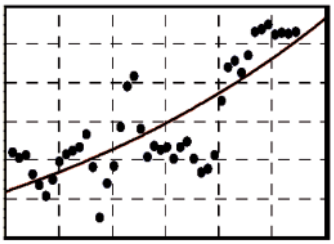
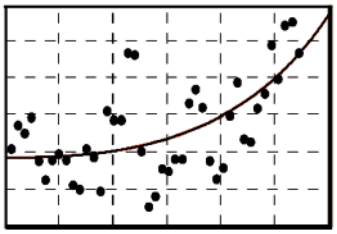
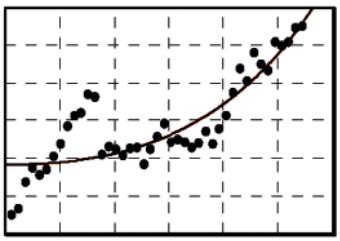
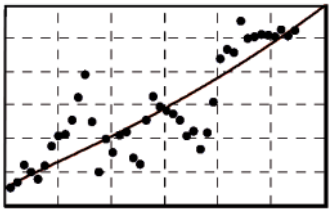
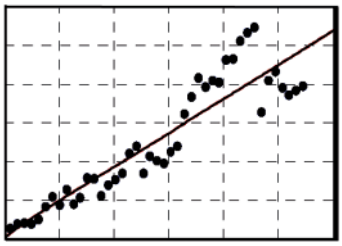
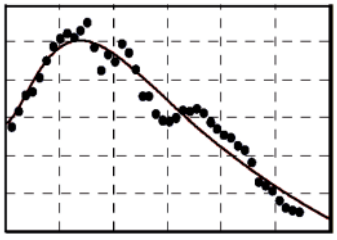
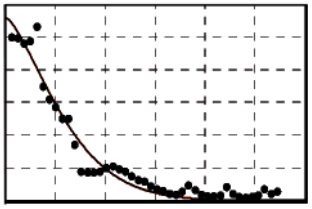
The full statistical model is indicated for USSR – Russia transformed after socio-economic and political crises that is wave components are also shown. Such statistical model will allow giving the forecasts for 30 years forwards, that is till a 2040 year, so as anything for this time essential in Russia wood policy will not be changed.

The proposed national long-term project «Russia: Forestry and Agribusiness» should not only totally change the shown above tendencies and regularities for Russia, and also for the Russian Federa-tion separate subjects, but also to allow to install design dynamics of normative wood square growth parameters on each federation subject, and also on each group of wood production – on sticks, saun wood, boards, paper and carton.

Saun wood – technological country level parameter. For a comparison on three processes of handling production (import, production and export) in table 6 data on world dynamics of sticks buck on saun wood are indicated.

Table 6

World dynamics of lumber-tally volume, m^3

Import	Saun wood production	Saun wood export
Finland		
		
Sweden		
		
Japan		
		

The processes of handling saun wood show not only technological level of country (rough or at once fair sticks buck), but also reflect the humane or barbarous stance on wood, so and on growing wood, where from this mass of wood was extracted.

Some countries (Japan etc.) became to consider saun wood for **enriched raw wood.** Therefore noticeable saun wood production volume decrease in the world happens.

These semis as longitudinally sawn parts of sticks are used in main in construction and for want of furniture manufacturing. But also here replacement of sawn production by other kinds of not wood materials happens.

The main ecological tendency in the world is not only wood square decrease, but also essential growing tree quality decrease. In turn it conducts to a smaller output of saun wood from sticks volume unit. Some sawn production issue downturn rate constraining, for example in Japan, has supplied mass band mill introduction (Russia will have temporary profit on 15–25 of years) permitting to exclude a stage **of mechanical wood conversion** and by that considerably to reduce **refuse wood** – coom and par-ticle.

The world woods also will further be worsened, therefore chip and shredding (repeatedly crushed chip) will be converted all in large volumes and even more significant rates in the world junk wood will be atomized on fibrils. If all countries will begin to realize the programs of forestry, the wood arrays with qualitative trees will grow only to the beginning XXII century that is not less in 100 years.

The relentless logic of forestry in field of sticks back on sawn production as wood enrichment is those.

Trend model of handling saun wood. The statistical equations are of the form (import, pro-ductions and export of saun wood):

– Finland

$$V = 12300{,}00\exp\left(0{,}019685t^{1{,}37751}\right); \quad (9)$$

$$V = 6713122{,}6\exp\left(6{,}9084\cdot 10^{-5}t^{2{,}46921}\right); \quad (10)$$

$$V = 3620997{,}1\exp\left(0{,}018283t\right); \quad (11)$$

– Japan

$$V = 16{,}903\exp\left(10{,}16373t^{0{,}073745}\right); \quad (12)$$

$$V = 28263505{,}0\exp\left(-7{,}7708\cdot 10^{-5}t^{2{,}41745}\right) + 1064675{,}9t^{1{,}78953}\exp\left(-0{,}15473t\right); \quad (13)$$

$$V = 355897{,}7\exp\left(-0{,}032114t^{1{,}44739}\right). \quad (14)$$

Each country has the features of import, production and export of saun wood. We will remark, that we offer to consider each subject of Russian Federation in a comparison with various countries, and consequently the behaviour strategy on sets and groups of Russian Federation subjects will be ra-ther varied. Here we shall show only those distinctive features, which are characteristic for all 88 subjects of Russian Federation.

Best and have a superdistant perspective for all world the strategy is observed at Japan. It is ne-cessary, on an extremely measure, three – four ten years of heavily reform of forestry to reach a modern level of Japanese management by woods. Japan sharply has reduced for past 44 years own production of saun wood, therefore naturally has reduced also their export, but not less sharply has increased im-port. It is the next technical and technological trap for Far East regions of Russia.

The point is it seems rather tempting to sell raw wood several more expensive by rough back on stock gangs of Siberian sticks. Cost will be much lower than cost of boards obtained on band mills of Japanese production. The wood policy will be played on it.

Japan has long ago converted own woods into national parks, and such situation all over the world will come rather soon, under our forecasts, already after a 2050 year (Kyoto Protocol was ac-cepted in Japan it is not for nothing). However Russia can win on this protocol, if will liquidate public person conservatism (already four years Russia can not create the mechanism of use by advantages of Kyoto Protocol).

The saun wood are produced from sticks. It is quite natural and it is clear by all. Therefore it is necessary to determine the relation of lumber production volume to volumes of sticks dimension. Pa-ram-eter of lumber volume relation to total volume of import and production, with a deduction from this sum of sticks export volume will be even more exact.

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REALIZED TRANSITIONS TO ISSUE OF SCIENTIFIC PRODUCTION IN FORESTRY OF JAPAN AND FINLAND

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On the fractional composition of raw wood and semi-timber products can be divided into groups: 1) **round timber** – large parts of a tree trunk, 2) **timber** – longitudinal parts timber, 3) **plates**, which use wood fraction of wood substance in the form of **wood particles**, flake (re- crushed chips), and (or) chips (including chips and as elements in the stratified part of the fibers of the chip) 4) **paper,** including cardboard, pulp, etc., then there is a group that uses **wood fibers**. In the fourth group of raw materials is extended beyond the forest, including the lignified part of agricultural and wild plants. The possibilities of the fifth group of products at the cellular level, the wood fibers.

Keywords: wood products, ranking, prospects for Russia

Wood production group ranking. On a modification of fractional structure of raw wood and semis wood production group can be divided under the following preferability order:

1) **sticks** – is large tree stem parts;

2) **saun wood** – is longitudinal sticks parts;

3) **cauls**, in which factions of xyloid substance as **wood particles** of chip, shredding (repeatedly crushed chip) and (or) particle (including cooms as elements of stratified on a part on fibrils particle wood) are used;

4) **paper**, including a carton, paper pulp and so on, that is group of wood production, in which the wood fibrils and their pieces are used (therefore area of raw maintenance extends for limits of a growing wood, including sclerotic parts of agricultural and wild plants).

This ranked number of wood production groups is classified on a physical indication of a dimi-nution of elements from tree stem (entire tree length), its parts (timber or merchandise as functionally certain timber) up to fibrils from sclerotic any plant kind cells. For want of it first two groups of wood production relate to integral wood massif, and third and fourth groups – to the crushed wood.

The less fractional structure of raw wood, the more industrial possibilities of use by the cut down trees as by activest component of wood exploitation. Therefore paper production magnification and production decrease of cauls, saun wood, furthermore sticks, is the main tendency of forestry in all over the world on nearest 50 and more than years (we heuristically suppose, that this tendency of de-velopment will be expanded technically and technologically in all countries up to an extremity XXI centuries, and then there century of a heavily wood replacement by other kinds of artificially created materials will come, however use of raw wood as renewed source will not be stopped never).

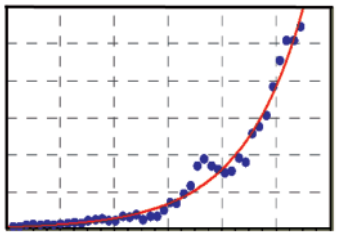
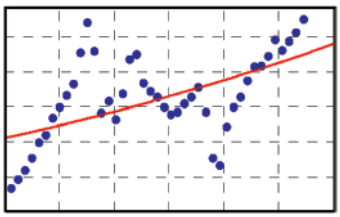
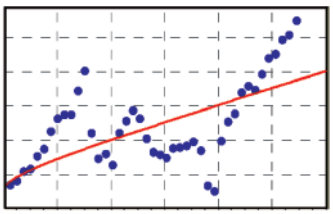
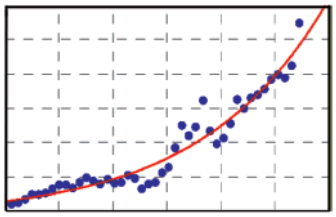
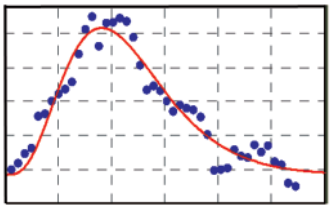
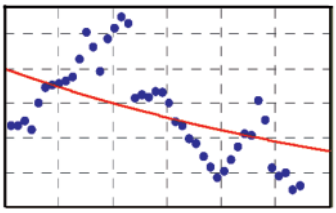
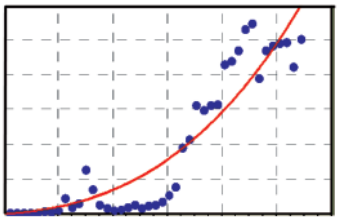
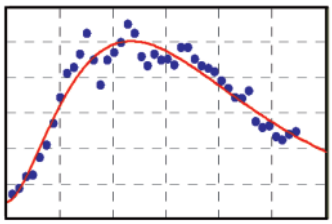
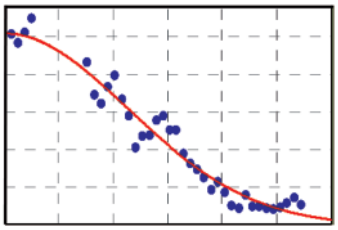
Each group since magnification of number (or decrease of fractional wood structure in finish products) has the higher status.

Features of wood cauls. The wood cauls have appeared by the extremely successful person in-vention. They have appeared then, when in many countries oldgrowth with straight timbers having high-quality wood have become extinct.

Besides caul volume dynamics is less connected to sticks dy-namics. This circumstance for wood exploitation normal substantiation, will allow correlating wood caul production volumes to national wood square, instead to sticks volume (table 1).

Table 1

World dynamics of wood plates, m^3

Caul import	Caul production	Caul export
Finland		
		
Sweden		
		
Japan		
		

In USSR, and then in Russia all wood products were compared to sticks production volume. However the sticks import was not taken into account, as it is not characteristic for our country (there are nearby no countries with large wood arrays), and the more so fact that the significant prepared sticks share is removed abroad without additional processing, was not taken into account.

Therefore correlating of production of wood cauls, and furthermore papers and carton, to one cubic prepared or exported wood meter does not receive an inclusive sense. Besides in production of wood cauls are used not only refuse wood from sticks production and buck of it on sawn wood, but in addition resources from other plants are as well involved. In this connection the correlating of pro-duced wood caul volume to one cubic prepared wood meter (exported from woods, delivered to the consumer etc.) is methodologicalally correct.

It is best to correlate wood production to one wood hectare (of ground plots relating to wood fund category). But we shall be still far on production management from raw wood from a present condition of Sweden and Japan.

From a middle of the 70-th years of the last century Sweden behaved under the new wood ex-ploitation doctrine reducing actively production of cauls. Therefore wood caul export volumes from Sweden are also decreased. For want of it the wood caul import was sharply enlarged from other countries, that is wood cauls, as in the beginning sticks and saun wood, became only by one from va-rieties of initial raw.

The cauls concern to more high level of raw and semis – they consist not only of enriched wood (after barking and decay removal, flour assorting and other technological innovations). They contain also the organized in new fashion ready forms of the future items (plastics, tiles, dimensions for sup-ports, draft details of cabinet-work furniture and so on). The price of such product in the world market sharply will increase on a comparison with fire chore and balances.

Japan was also conducted the similar strategy since middle of the 70-th years of the last XX century. That said it behaved more precise in decrease of board export. Therefore Japanese strategies rather approach for our subjects of Russian Federation with resort and recreational woods, and also having a set of national parks and reserves.

Wood caul circulation trends. The statistical equations are of the form (import, production and export of wood cauls):

– Finland

$$Q = 3160,04\exp\left(0,085742t^{1,05522}\right); \quad (1)$$

$$Q = 1142591,0\exp\left(0,010135t\right); \quad (2)$$

$$Q = 521600,0\exp\left(0,10222t^{0,56714}\right); \quad (3)$$

– Sweden

$$Q = 50835,0\exp\left(0,10530t^{0,87294}\right); \quad (4)$$

$$Q = 776500,0 + 2371,60t^{3,75095}\exp\left(-0,26237t\right); \quad (5)$$

$$Q = 726779,7\exp\left(-0,015847t\right); \quad (6)$$

– Japan

$$Q = 207,0\exp\left(4,43392t^{0,23000}\right); \quad (7)$$

$$Q = 4757700,0 + 229344,8t^{1,86238}\exp\left(-0,10093t\right); \quad (8)$$

$$Q = 363121,7\exp\left(-0,0016575t^{1,97755}\right). \quad (9)$$

Thus, three groups of wood production (sticks, saun wood and the wood cauls) already deter-mine appearance of forestry for each subject of Russian Federation, and it concerns also to well fo-rested territories. All subjects of federation, without dependence from a woodiness level, receive those or other long-term behaviour variations. And everyone will receive the powerful incomes of fo-restry, in particular from the leasers as the wood plot proprietors.

Paper and carton dynamics. In the beginning of XXI century production of high technology products from wood fibrils becomes a priority direction, and it can be partially displaced by a 2050 year only by production from a wood powder.

Practically anyone saun wood and even wood cauls can be replaced by production group as a paper and cardboard.

Advanced wood production group. By the beginning of XXI century this group of wood pro-duction is most broad on the consumer possibilities. Basically, paper and cardboard can replace all previous groups, converting them in semis that is in more enriched raw wood.

We should be taken into account this fact for want of construction wood and agricultural na-tional program for 2010-2040 years, conscious annually increasing the forestry transformation plans on territories of Russian Federation subjects in the fourth wood production group party. For want of it wastes agricultural and plant-growing production recycling will have all a growing share in raw ma-terial for manufacturing a paper. In deficient on wood regions of country it is necessary to enter ca-pacities almost completely using sclerotic parts of agricultural and other plants (a cane, bush, heath plants, garden waste and so on).

Handling materials from wood fibrils. World dynamics of those countries, which carry out the realized national wood square growth strategy (only 31 countries), on three processes of handling pa-per and accompanying its wood production from wood fibrils, is indicated in table 2.

In all over the world paper and carton are fairly considered as wood high level production. Therefore world generally on this group of wood production develops rhythmically and equally for very small wave perturbations.

Application of fibrils, including the field of production cauls (hardboards), allows essentially expanding area of handling, by connecting in fibril production not only wood, but also any plants in-cluding vegetative fibrils.

Such countries, as: Germany, Egypt, Spain, Italy, Canada, Netherlands, New Zealand, Norway, Portugal, Finland, France, Switzerland, and partially Japan (export have significant wave perturbation) execute most precisely process triad of handling production as «import – production – export».

Russia actively adjusts exponential growth of all three processes of handling paper and carton. However the tendency of production recession of a paper and carton by a 2010 year is already appre-ciable.

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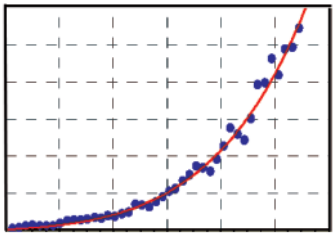
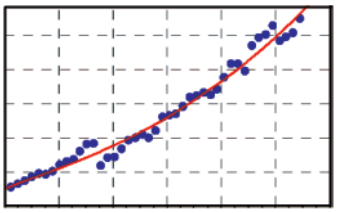
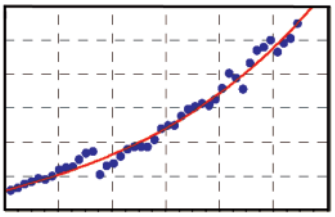
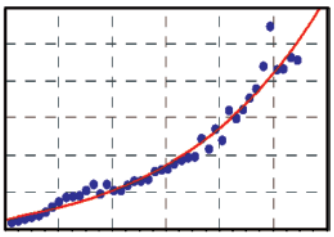
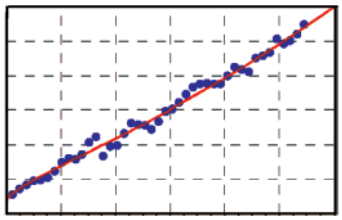
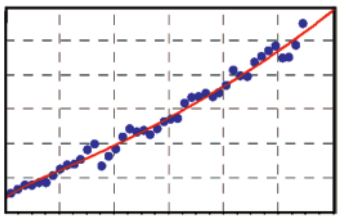
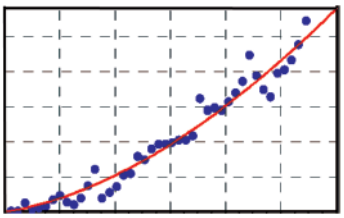
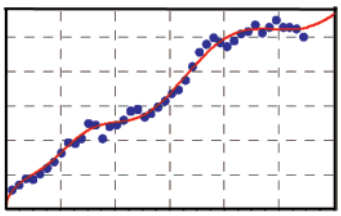
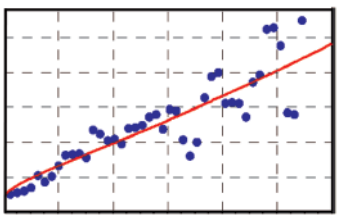
of handling production as «import – production – export».

Russia actively adjusts exponential growth of all three processes of handling paper and carton. However the tendency of production recession of a paper and carton by a 2010 year is already appreciable.

Despite the interdiction by a management of country and not recognizing by the Soviet econ-omists of cyclical regularities (such as crises and downturns of capitalism for USSR economy are not possible), import and export of a paper in USSR are developed with wave perturbation, increasing on amplitude. And production naturally was indignant up to downturn in an USSR disorder extremity. In the total experience of USSR is only knowledge, how it is not necessary to operate by wood exploita-tion in a part of handling paper and carton.

Table 2

World dynamics of paper and carton, *t*

Paper import	Paper production	Paper export
Finland		
		
Sweden		
		
Japan		
		

In Russia it is quite possible to align and to accumulate production by volumes of competitive in the world market kinds of paper production. For this purpose the experts on high technology wood technologies should explicitly study experience of such countries, as Germany, Italy, Canada, Portugal, Finland, France, Sweden and simultaneously to adjust issue of domestic papermachines.

Trends of handling paper production. The statistical equations are of the form (import, pro-ductions and export of a paper and carton):

– Finland

$$Q = 773,415\exp\left(0,87293t^{0,52637}\right);$$

$$Q = 2374985,8\exp\left(0,091979t^{0,79090}\right);$$

$$Q = 2077899,8\exp\left(0,066549t^{0,87899}\right);$$

– Sweden

$$Q = 36102,83\exp\left(0,17745t^{0,74859}\right);$$

$$Q = 1992441,3\exp\left(0,21859t^{0,55275}\right);$$

$$Q = 1095699,8\exp\left(0,29387t^{0,53315}\right);$$

– Japan

$$Q = 0,0098484\exp\left(13,9258t^{0,084890}\right);$$

$$Q = 2776057,7\exp\left(0,69864t^{0,33867}\right) - A\cos\left(\frac{\pi t}{p} - 2,99101\right);$$

$$A = 89088,01t^{0,98528}; \qquad p = 3,76030 + 0,33181t^{0,73360};$$

$$Q = 144486,0\exp\left(0,46622t^{0,41681}\right).$$

Simultaneously ever since adjustment of forestry on all said four groups of wood production it will be necessary to pay the special attention on production fifth group. The fact is that a little who pays attention to shops of wood powder, scattered on territory of Russia and producing raw material lot for production of explosive substances, for example, trotyl. These shops should be saved, and it is possible to produce from a wood powder at the same enterprises very much plenty of production kinds useful to growth of economy to Russia.

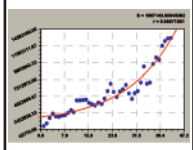
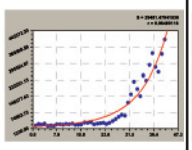
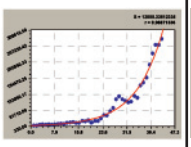
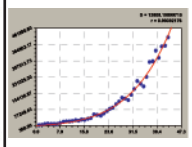
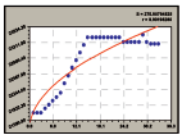
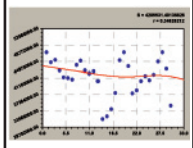
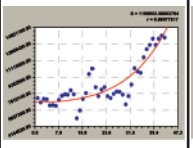
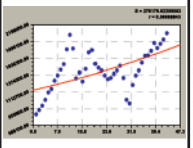
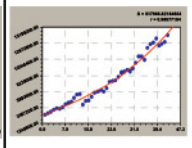
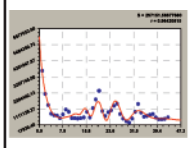
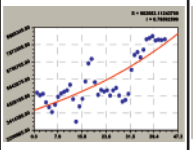
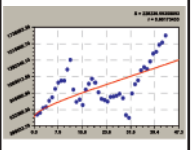
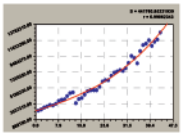
The process	Wood square and production group				
	Wood square, ths. ga	Sticks, m^3	Sawn wood, m^3	Wood cauls, m^3	Paper and carton, *t*
Import	It digests on conc-es-sions Russian woods, in particu-lar in Kare-liya				
Pro-duction					
Export	No, It protects the woods, and coun-try completely has turned in artificial wood plantings				

Fig. 1. Finland (dynamics of a wood from 1961 till 1994, wood production from 1961 till 2004)

Only the import of Finland forestry is stable. Also the oscillatory perturbation because of reaching a limit of growth on wood square is observed. Besides the gradual comprehension to transi-tion as in Sweden happens. But, in difference from it, the growth rates of sticks dimension are much lower than growth rate of wood square. Therefore probability of cardinal changes in forestry is high (import from Russia has perverted wood policy of this country). Country concerns to the second group in a world structure [1].

The stability of woods and processes of wood exploitation in Japan is observed on production rates of all production groups, except for wood square growth. By a 1965 there was a realized turn to sticks production volume decrease, by a 1970 – saun wood, and after a 1975 – wood cauls. Because of high recreational values of wood arrays the growth rates of sticks production annually are reduced on a comparison with wood square growth. Country concerns to the fourth group.

Finland. Main advantages of forestry in Finland are following (fig. 3):

1) retardation of sticks production growth rates from wood square increase rates. Sticks pro-duction is noticeably lower than a level of a 1961 (reason is clear, it is happens from woods of Karelia and other Russian Federation subjects);

2) Country long since paid attention to sharp production magnification of a paper and carton, and also best quality in all over the world (the reason are lost opportunities of Russia, where base for processing bad quality and deciduous wood is absent; the Finns buy up our birch wood and balances at a low price).

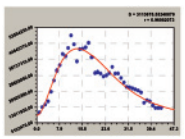
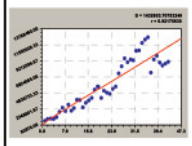
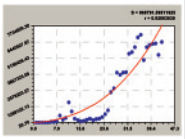
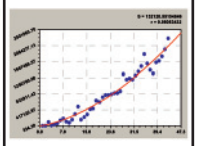
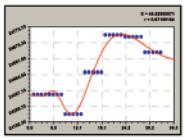
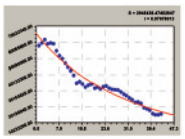
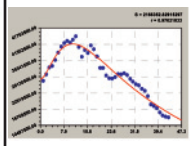
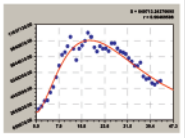
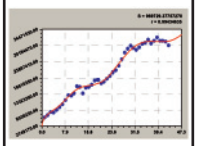
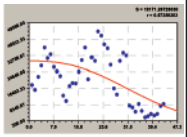
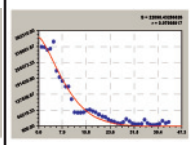
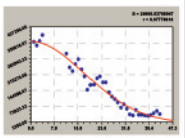
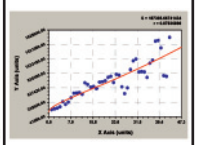
The process	Wood square and production group				
	Wood square, ths. ga	Sticks, m^3	Sawn wood, m^3	Wood cauls, m^3	Paper and carton, *t*
Import	It digests on conces-sions woods in Asia Southeast countries				
Produc-tion					
Export	No, all national woods as natu-ral parks				

Fig. 2. Japan (dynamics of wood from 1961 till 1994, wood production from 1961 till 2004)

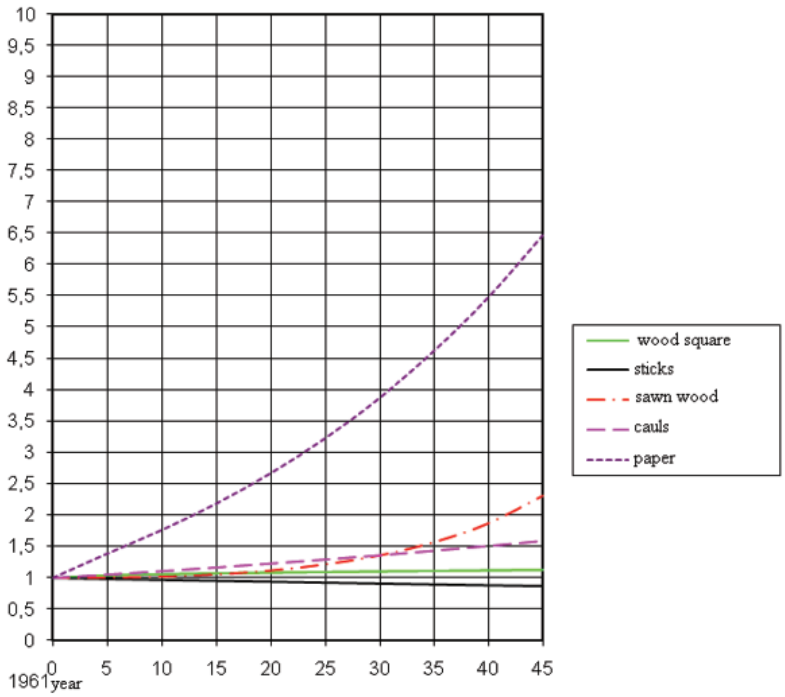


Fig. 3. The graphs of relative wood production dynamics and wood production in Finland

The sharp gain of production of saun wood also is connected with cheap Russian sawlog, and the decrease of sticks production volume gives less refuse wood. Therefore wood caul production growth rates are rather insignificant.

Therefore next question is quite natural: what will Finland do for want of technological in-crease in Russia? The answer is clear: the Finns will by all forces brake our movement in production of a paper and carton. It will be exhibited in dictatorship for sale of papermachines and appropriate equipment by Russia.

Unique path is shaping of an own wood mechanical engineering in all groups of wood produc-tion, even in the beginning on basis of Finnish furnishing and bodily on purchases of their machine plants. At the expense of raw wood policy it is necessary for consequent 10-20 years to acquire con-trolling interests of all near-border self-contained paper mills and other major concerns.

As well as on the boundary with China, all near-border with Finland self-contained paper mills should become Russia property.

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REALIZED TURNS IN WOOD BUSINESS OF JAPAN

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To really go to ecosystem thinking in forest professionals, you must first understand the Japanese, rather than Finns or Canadians. Then, perhaps, 15-20 years of change in forest science, may become the primary definition of forest as an ecosystem, now only declared in the Forest Code of 01.01.2007, and claimed no decent for forest relations between Russia and technological landscape and ecological software.

Keywords: forest attitude, the mentality of the Japanese, ecosystem consciousness

Forestry in Russia always was between Scilla and Haribda, that is between the civil servants and industrialists. The formers until now export the huge wood ground areas of country, and seconds behave as distraught wolf in fold by the Krylov fable.

Five venerable scientist academicians have addressed to V.V. Putin «with the request to pay at-tention to wood condition» [1]. In their request serious contradictions in wood science at once strike the eye. Therefore (what sighted person, is those also businessman) even a word «a wood» pundit use just so slovenly, that is not on nous, as it is noted in the text of enaction № 5 of Wood code.

In fifth article of Russia Wood code definition of wood as ecosystem is affirmed for the first time by the main priority, and understanding of wood as natural resource is delivered on the second place. Here between these concepts through union «or» fast a return to understanding a wood only as vertically standing timbers has taken place. Even in mentioned article [1] collocation «cut wood» is used, though the use by these academicians in the articles more than 30 explanations of this word out-going still from the V.I. Dal dictionary should be not absolutely convenient. We interpret by students of wood specialities, that the wood is ecosystem, nucleus of which is stocking with growing trees. However as soon as we communicate with the industrialists, then we pass to the simplified slang of the consumers, that we fell, haul timber, log etc.

At the same time, in natural resources of country a place to wood which else almost 40 years before UNESCO and FAO UN considered only on the seventh place in succession of world wood availability, is not until now certain [2]. The use by trees as stemwood source hereafter will be and in Russia on the seventh place: oxygen, water, foods, soil, climate, fauna, wood. However, after accep-tance of Wood code since 01.01.2007, Soviet technical rules of timber harvesting as sticks fast were copied, and, thereby, the management of forestry again has appeared at a level of the 20-th years XX centuries when the doctrine of a mass statistical material of stemwood taxation predominated.

In order to pass really on ecosystem thinking by the wood experts, in the beginning it is neces-sary to understand the japaneses, instead of finns or canadians, on what the authors of the circulation to government insist. Then, in 15–20 years of changes and in wood science, definition of a wood as eco-system, nowadays only declared in the Wood code, and without wor-

thy sci-tech and landscape and ecological support can become primary. Main principles of the developmental approach to a research of main wood production group management dynamics (import, production and export) in 31 countries selected on the tendency of wood square growth from a total number of states (182 countries of the world) were showed in the book [2].

The special place in the world takes Japan wood business as a forerunner of the future in all world wood policy, technology of management by woods and realized modernizing of wood exploita-tion. Further inconsistencies in a comparison of the ground areas with wood arrays at the Japanese nev-er arose. All this is one whole, Japan concerns to their territory as to one wood-meadow.

Wood production group ranking. Wood production groups on a modification of fractional wood raw material and semis structure is be distributed under the following order of preferability:

1) **sticks** – large tree trunk parts;

2) **sawn wood** – along-the-grain stick parts;

3) **cauls,** in which factions of xyloid substance as wood particles of chip, shredding (repeatedly crushed chip) and (or) spill (including cooms as elements of laminated asunder on wood spill fibrils) are used;

4) **paper,** including a carton, cellulose and misc., that is wood production group, in which the wood fibrils and their pieces are used (therefore area of primary support expands for limits of a growing wood and includes ligneous parts of agricultural and wild plants).

This ranked number of wood production groups is classified on a physical indication of element diminution from a tree trunk (stem), its parts (sections or merchandise as functionally certain sections) up to fibrils from sclerotic cell of any plant kinds. At that first two wood production groups concern to wood monolith, and third and fourth groups – to disintegrating wood.

The less fractional raw wood structure, the more industrial possibilities of use by the cut trees as activest wood exploitation component. Therefore increase in output of paper production and rundown of cauls, sawn wood and furthermore sticks is the main tendency of timber trade in all over the world on nearest 50 and more years (we heuristically suppose, that this tendency of development will be satu-rated technically and technologically in all countries up to an extremity of XXI centuries, and then cen-tury of a heavily wood replacement by other artificially created material kinds will come, however use of wood raw as renewable source will not be stopped never).

Each group having higher number (or lower fractional structure of wood in finish products) has the higher status.

The doctrine of transition on application of wood fibrils. In the world only two countries have approved in second half XX century as best workers of XXI century. During realization of national long-term project (on 2010–2040 years) «Russia: Forestry and Agribusiness» the experience of Swe-den and Japan should be applied in scales of Russia since 2015–2020 years.

However some subjects of Russian Federation, in particular having a high level of health resort business and having recrations as large woodlands or the territories, on which there is a set of reserves and national parks, quite can begin realization of this doctrine passing on application of wood fibrils.

Sweden. This country in 1961–1960 years, as well as all european countries, sharply has risen production of wood cauls, trying to overcome production of a paper and carton on build-up. In 1971–1975 years perception of their national way in wood

exploitation unlike from German happened.

The comparison of the graphs on fig. 1 shows, that since 1975 year Sweden has passed on ap-plication mainly of wood fibrils.

Totally Sweden has gone on Finland way (once again we shall remark, that the Finland forestry has injured cheap Russia raw wood) and, eventually, has overtaken it. Overall production for 44 years was changed under the biotechnical law justified prof. P.M. Mazurkin, so, that the level of 2004 year has become equal to a level of 1961 year. It also is a realized turn to the new doctrine of technologies based mainly on wood fibrils.

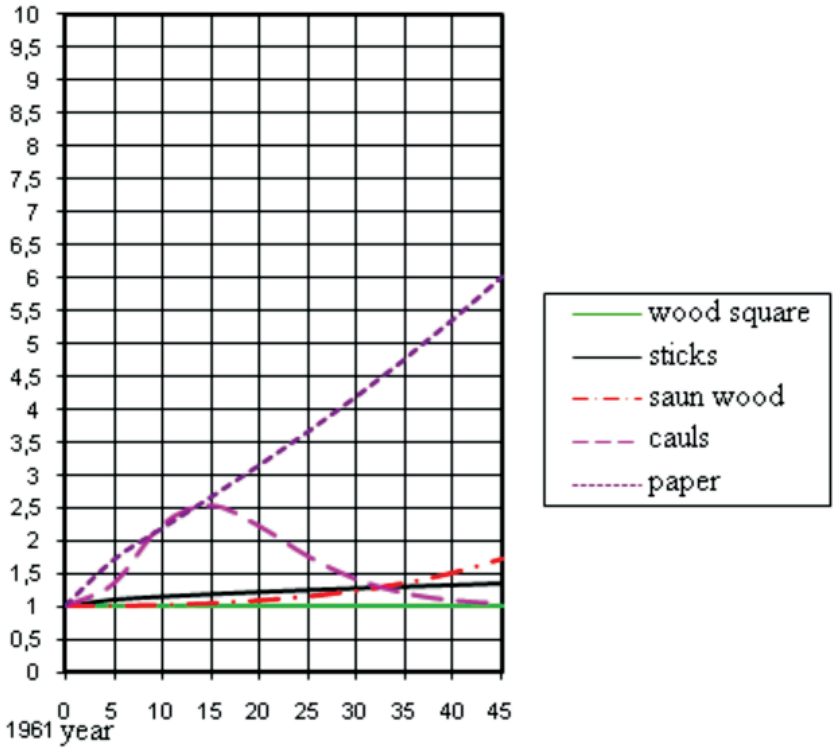

Fig. 1. The graphs of relative wood production dynamics in Sweden

Sawn wood production tempos has become to overshoot sticks production tempos, that is the technology of sticks buck has changed cardinally (it is necessary still to take into account, that, as well as all over the world, from year to year quality of woodlands is as a natural result worsened in matter of high-quality wood; it is senseless to compete here with natural forces).

The swedes have created fundamentally new system of machines and equipment for sticks buck on boards. This experience needs immediately to be open up, by purchasing not only machine tools and equipment, but also machine-building plants.

Sweden «has wiped eyes» USSR. Upon completion of the Great Patriotic War many industrial plants making woodworking equipment, in particular plants on production of rasp machines of a type «Kambio» were exported from Sweden. The plant in Petrozavodsk more than 50 years was made this type of rasp machines, but and could not create fundamentally new equipment. And the swedes,

by accepting the memorandum of full neutrality in «cold war», fast have adjusted issue of various sets of rasp machines, which are nowadays distributed all over the world. The destiny of many technical innovations, taken by us, in forestry from other countries is those. Nevertheless it would be very desirable to hope, that Russia can create not only system of forestry, successful distributed on the subjects of Russian Federation, but also centralized wood and together agricultural mechanical engineering. The experience of Sweden is rather useful to many rural and richly wooded regions of Russia, but does not approach to sparsely wooded regions.

However in Sweden, in difference from Russia, the wood squares because of territory defect (as well as Japan) are limited. It explains higher production tempos of sticks on comparison with growth rate of wood square.

The long-term forecasts for Sweden on forestry are not absolutely consolatory. Russia should take advantage of it to the full sharply by reducing export of sticks and saun wood and by adjusting at itself production of cauls, paper and carton.

Japan. This country has appeared most highly-developed not only in forestry, but also in a wood control and exploitation. Certainly, only the few of the above countries widely declare and advertise their strategic purposes. Japan is here again unique by the patent system and people attitude to innovations. Almost not having of their natural resources, first of all of petroleum, gas, gur coal and ore mineral, nevertheless, Japan is one from most highly-developed countries.

The Japanese phenomenon also was brightly exhibited for past 44 years in forestry (fig. 2). At once we shall remark, that the Japanese experience of forestry management to many Russian Federation subjects will be «too tough». From the schedules in a fig. 2 it is visible, that wood square in Japan for past 44 years almost was not changed. It is necessary to mark, that the population in Japan has become compared with tree number in their woodlands. However it has no an effect for a competitive wood extermination in agriculture favour (that cannot be told about agricultural Russian Federation subjects).

Japan experience is invaluable for a world civilization, as in 150–200 years hodiernal difficulties of Japanese residing will be characteristic for almost all countries (Russia can not indefinitely constrain demographic rush on the territory of peoples from congested near-border countries; this tendency is already nowadays visible on sharp amplification of Chineses in Russia).

Japaneses were constrained sharply to reduce sticks production to save up at adequate level tree number and to not reduce wood square. It, certainly, almost automatically has reduced in saun wood production volume decrease. Thus, the solid wood product volumes have decreased also as the years go by. Unfortunately, the statistical data on non-woody wood exploitation are unknown. It would allow to compare use tendencies of seed grains and fruitery, needles and foliage, rind from own Japan woods.

Comparison of the graphs of production of cauls and paper is the following remarkable instruc-tion on good management by wood exploitation in Japan. Within 12 years, that is during 1961–1973 years, wood boards production growth rate have reached growth rate of paper and carton production. Or else, the Japaneses went in a channel of the world tendency of primary issue and circulation of wood boards (as it has taken place in Germany and then almost in all Europe).

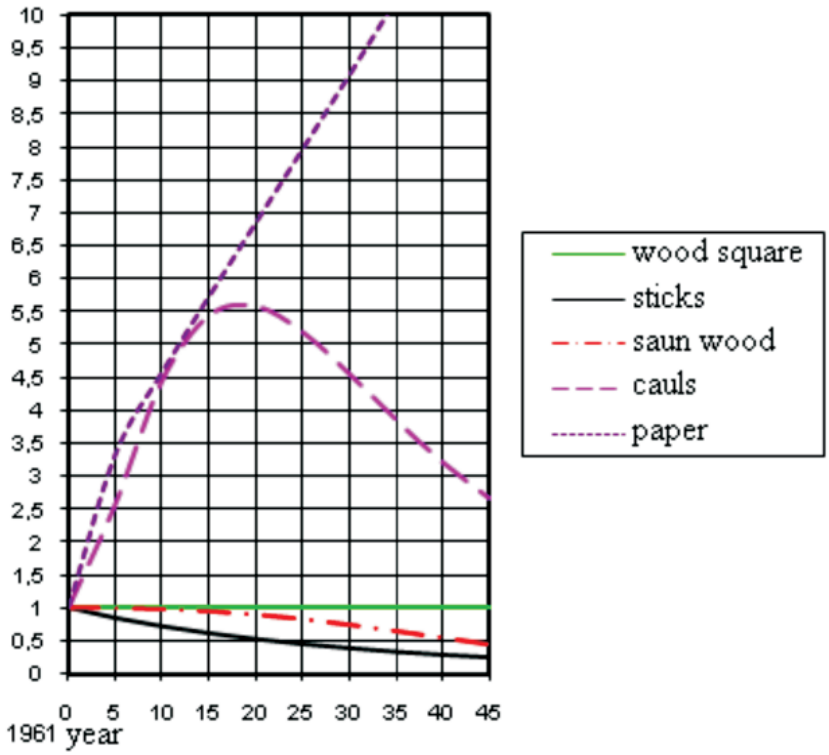

Fig. 2. The graphs of relative wood production dynamics in Japan

In USSR this style has come only in an extremity of the 60-th years, and that, as the further practice has shown, in main only as the theoretical researches (researches in the beginning of the 70-th years about accessible distances of chip production were fashionable; researches about optimum dis-tances of skidding and straight removal of cut epigeal tree portion with limbs for detailed primary processing in the lower forest yards were conducted).

In Japan since 1973 year process of a realized turn from production of wood boards was begun. Even this fact specifies that in Japan strategic forestry researches be ordered. And Soviet scientists un-derstood in the contradictory declarations of fateful party congresses. For want of it the statistical re-searches didn't develop (it was impossible to show for people cyclical slack periods and runups, the people should see only steady growth), that has reduced in the issue inevitably in loss of management by economy. Even the winged aphorisms of a type «economy should be economical» didn't rescue in strategic wood management and wood exploitation.

Since a 1980 year in Japan the sharp recession of production of wood boards is observed. And the growth rate of paper and carton production was increased. To save this tendency in Japan it is ne-cessary to reduce production rates of wood fourth group production. Russia can fast adjust in east country regions paper and carton production and within 5-8 years partially will replace Japan in the Asian and Australian wood production market. Therefore purchasing of Japanese technologies will allow bringing up Russian wood exploitation on Far East up to a world level. Strategic Russia advantage is that the Russian woods grow on its territory.

On fig. 3 it is visible, that the Japan trend promptly has decreased almost in 3,5 times. For want of it wave component (the difference between points and line) calms down.

The amplitude decrease of oscillatory perturbation always shows control quality. In the given example it concerns to management by dimension of sticks since 1961 for 1994 years. The significances of statistical parameters such as the variance equal to 0,13 m^3/ga and the correlation coefficient equal to 0,96996 for the formula indicated as the law of exponential loss are indicated in a right upper angle of fig. 3.

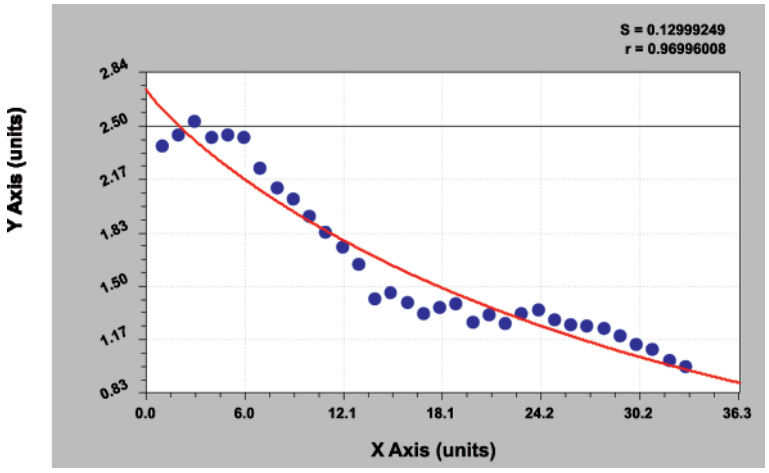

Fig. 3. Dynamics of specific extraction of sticks from Japan woods

On data of OON (the fig. 4) is received, that Japan sawed per some years more boards from one cubic meter of sticks.

This example clearly shows of forecast untrueness of former USSR Gosplan on a specific output of wood production from one cubic prepared wood meter. Certainly, it is possible to refer that in USSR the import of sticks was insignificant, however it does not change the essence of too «rectilinear» methodology.

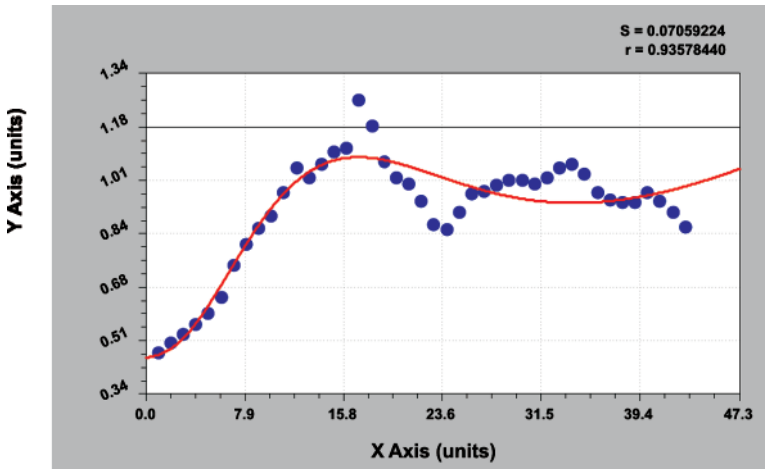

Fig. 4. Dynamic of specific buck of prepared sticks in Japan

Dynamics of ready sticks in Japan. In the beginning we shall define ready sticks volume in country. In the first case it can be equal to import for want of own sticks production (for sparsely wooded and unwood countries and subjects of Russian Federation). In the second case ready volume will be equal to a difference between import and reexport of sticks, and in third the most general case it will be equal be expression «import + production – export».

Let's remark, that similarly it is possible to consider wood square. The import of a wood speci-fies exploitation of another's woods. For example, many developed countries take plots in Africa, Southern America in long-term concession. Imperial Russia actively attended by wood export, for ex-ample, selling of England large wood squares in the Pechora pool.

To an extremity of the 60-th years of the last century Japan has understood a limit of the growth on volume of sticks production, which, certainly grew because of rate magnification of wood import from Russia and other countries of Southeast Asia. Then there was a realized turn (fig. 5) to decrease of volume ready sticks.

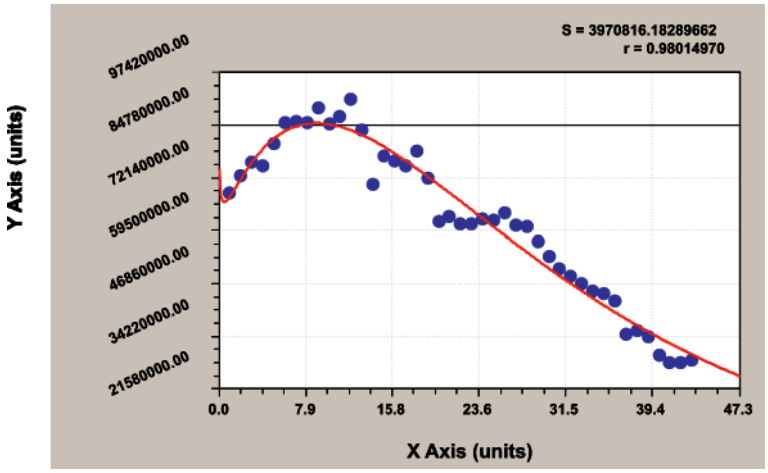

Fig. 5. Dynamics of ready sticks in Japan

Japan has passed on a new forestry development stage, has become to increase wood square and to reduce production of whole timber as sticks and saun wood. For past 35 years, by a 2004 year, volume of ready sticks in country has decreased in four times.

Buck of ready sticks. This process is more authentic on a comparison with buck of prepared sticks, as takes into account its import (was not characteristic for USSR and will not be main for Rus-sia). However for Japan and other consuming sticks countries production and export are important (USSR, and after it Russia have a huge share of all world) export of raw wood). The low sticks buck share shows that in country sticks extensively is applied in the coarse state in undertaking and other branches of national enterprise. (In our country always fences of building platforms were built and are built from high-quality wood as well treated eaves boards, and the furniture is produced from harmful raw materials).

Ready sticks in this country is bucked actively. By a 2004 more than half of volume ready sticks (fig. 6) is bucked on saun wood. At the same time from distribution of points it is visible, that as the years go by the wave perturbation of an investigated parameter has amplified.

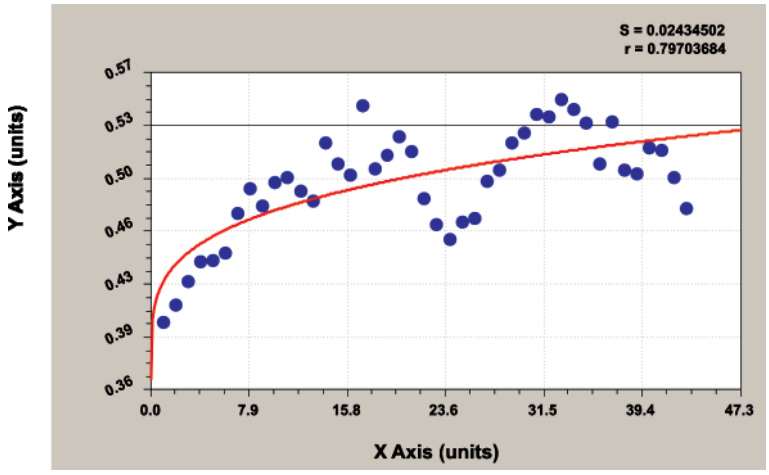

Fig. 6. Dynamics of specific buck of ready sticks in Japan

Per the first years XXI centuries noticeable ready sticks buck recession are observed.

Specific production of boards. There is a constant a previous history at the majority of countries, which is determined by the first member as constant number of a statistical model. This fact specifies that the branch of production of boards as a whole is rather pioneer. It has arisen 500 years back. Production of sticks is most ancient branch (not less than 10 thousand years), then there was a production of boards and furniture squares in ancient Egypt (5-6 thousand years back).

The small oscillatory perturbation observed on actual points in a fig. 7, show about successful strategic management by the Japaneses not only their woods, but also another's import deliveries of raw wood for production of cauls. Therefore here it is possible to be learned to much in particular to logis-tics of wood exploitation.

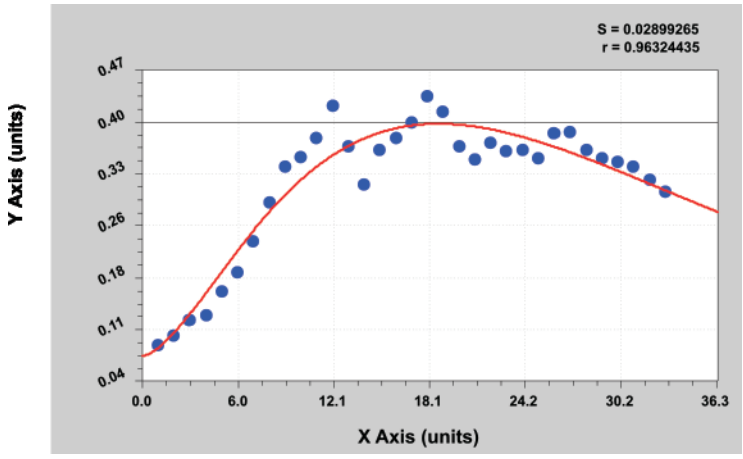

Fig. 7. Dynamics of specific production of wood boards on wood hectare in Japan

From items of the theory of statistical modelling most surprising in the graphs in a fig. 7 is that the oscillatory Japan forestry perturbation amplification happens only during realized turn to decrease of production, in particular of wood boards. This fact also proves excellence of wood production con-trol in Japan. For USSR, and the more so for Russia, the oscillations with vast unguided amplitude are characteristic, and in a fig. 7 the precise work on forecasting for the far future of forestry parameters is visible.

Since a 1980 year the Japaneses almost twice have reduced production of wood boards, ever more being guided on the world market on production from wood fibrils.

The own wood board production volume decrease tendency will proceed, apparently, 20–25 years, that is up to 2030–2035 years. Russia can make such realized turn only by a 2040 year. Therefore it is necessary to export to Japan wood boards of excellence, for want of it sharply reducing deliveries of sticks and sawn wood. Such strategy completely coincides Japan plans.

Specific paper and carton production. Paper production has arisen in ancient China more than three thousands of years back. However for country majority this group of furnish is simply technically very heavy. Russia has missed own machine-building industry creation chances for the issue of papermaking machines and equipment. On data of fig. 8, the graph of a trend is almost linear, that is steady paper and carton production growth is observed (however direct line equation cannot be applied, as it contains two components). For want of it the wave perturbation is minor and also has long periodicity.

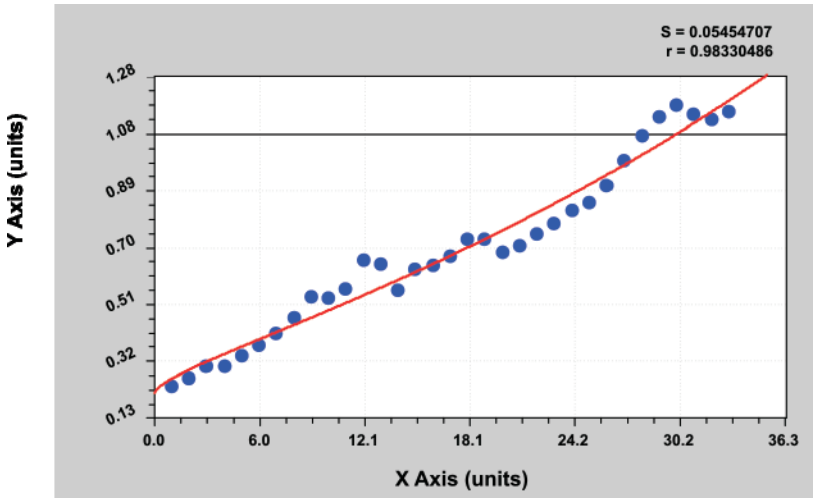

Fig. 8. Dynamics of paper and carton production on wood hectare in Japan

If at the moment of USSR breakup specific paper and carton production is equal to 0,01 t/ga (in 1961 year this share was many times over less), on a comparison with Japan on the normative of wood exploitation Russia falls behind not less than in 110 times. From the graph in a fig. 8 also it is visible, that since a 1988 year Japan has exceeded paper and carton production norm in 1,00 t/ga.

Thus, perspectives of Russia are huge. By 2040 year it is quite possible to increase paper and carton production in our country at 60–80 times. It will require

also origin of a mechanical engineering. For Russia with it's the unpredictable past even for past 15 years of transitional development stage to market economy the own experience has appeared antiscientific. It has become too simplified because of forestry rule discussion to management «on concepts» (for example, the wood is understood only as sticks in words «to cut a wood», «to log», «to convert a wood», «to sell a wood», «to purchase a wood», etc).

In the total even the state forestry management in Russia does not correspond to prof. G.N. Mo-rozov doctrine founder school about a wood. Prof. M.M. Orlov ideas about economic wood manage-ment completely are reduced to ultimately to stump sale, which, as a matter of fact, provides not sale of raw wood, and reimbursement of the future costs on stump extraction, processing of wood soil and plantlet filling-up (dropping) for resumption of felled crop.

The absence of authentic statistical information for continuous period does not allow comparing Russia to USSR, therefore it was necessary to address to FAO OON data for period since 1961 year for a 2004 year. Unluckily on unknown by us information about wood square since a 1995 year till the present time did not have.

Only comparative dynamics for past 44 years has allowed understanding behavior illogic of USSR and hereinafter of Russia in wood policy and technology of forestry. In 1994-1996 years it was possible to develop cultivation concept of new crops and wood exploitation in Russia. The time of the 22-nd solar activity cycle irrevocablely was lost. All the 23-rd cycle (and also high-power on Sun in-fluence to mankind) already have lost.

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CHARACTERISTICS OF VIRTUAL CULTURE ON EXAMPLE OF COMPUTER SIMULATION «SECOND LIFE»

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The article covers the characteristics of the virtual culture on example of computer simulation «Second Life», pointing at the changing human role in the global cultural space.

Key words: virtual world, computer simulation, culture

Basing on the various facts about virtual reality (VR), it can be interpreted as a way of existence, which combines, in a unique way, real and ideal elements. In the surrounding objective world, the VR appears in form of high-technological devices and things, which are, to some extent, abstract for people; their properties cannot be really and completely understood and are only potentially definable. So, this idealization is virtual, being at the same time an integral part of the objective world, which in its turn reflects in the virtual one. What is especially important, is that only based on objective things is the virtual reality viable. In other words, only a virtual world that includes the elements of a real life, is stable and sustainable. The VR is a fascinating phenomenon – a unique structure that embodies signs of real objective world and the world of information, idealizations, aspirations and fantasies.

The best example for a virtual world is the space of computer simulation. In our case, it is Second Life – the simulation with the following specific characteristics, which are adequately **the characteristics of the culture** of this virtual world:

• Possibility to create an original image and its virtual environment. Moreover, free choice of form provide the culture of Second Life with a pronounced **personalized** character. The user is involved in the human-computer interaction, getting a unique chance of a direct body representation in the virtual world, which determines the **sensitive** character of the culture here. Using his organs of senses and kind of extending them into the space of the computer simulation, the person acquires a new form of the sensory perception of the world. There appear new body practices and a new interpretation of the cultural and philosophic perception of a human body. Projection of human organs of senses leads to formation of a new instrument and object of study, the so called **body-interface,** existing in Second Life in the form of an Avatar.

• **The status of man**, as well as the status of the technical component, **is being changed** in the whole providing system of the computer simulation. Within the framework of the computer simulation, people get a possibility not only to take part in creation of a special world, but also to participate in this world as a character, i.e. **an individual becomes a system at-**

tribute. Thus, we refer here again to the *functional changing* of the role of an individual in the culture.

• The so called **hypostasis effect**, when multiple transfer и replication of images of real life erases the border between the objective world and the simulation, enables the **virtual existence of a person.** This possibility stresses the *existential change* of location and role of a subject in the culture.

The above mentioned characteristics are the distinctive *features of the virtual culture of the computer simulation*.

Second Life is one of the most famous and fast developing projects in this field. About 15,5 million of people have visited the world or resident there. Currently, computer simulations are booming. Not only private users, but a great number of companies, including some of the world giants such as IBM, Sony BMG, Dell, Adidas, Toyota, Reuters, Nissan and MTV, represent themselves in the virtual space and take part in creation of virtual worlds. Current expansion of virtual activities, which triggered the changes in all spheres of the social life of people, and first of all, in the culture, has been caused by the following reasons:

• *Firstly*: the quality of the information transmission technologies has rapidly changed recently. Increasingly often are used the methods of speed digital broadband transmission of information (DSL), which enable fast and qualitative real-time communication.

• *Secondly:* computer graphics development, in particular 3-dimensional technologies have reached a high level, which brings the computer simulation nearer to reality, almost with a photographic precision.

• *Thirdly*: existence of the virtual worlds, including the synthetic world Second Life, meets the needs of a relatively large social group of people, who along with the game adventure, are looking for some moral values, creation of some image and reputation. A trivial goal to purchase and sell land with the purpose of building capital under conditions of market risk, becomes for many people some kind of attraction. A wish to reach material well-being and thus receive moral recognition and a famous social status, are the driving forces and the source of interest for many users of Second Life.

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Materials of Conferences

FORMATION OF THE SYSTEM OF THE REMOTE EDUCATION IN ACADEMIC INNOVATION UNIVERSITY

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This article is devoted to questions of forming e-Learning system in Humanity University based on information competence3 principle as a new approach of forming competences of future specialist.

According to the strategic plan of the Republic of Kazakhstan it was decided by the President Nazarbaev to implement e-Learning system in professional and technical establishments by 2010. Within the government program of development and education of RK it was planned to implement the e-learning system during 2011–2020 years, to reach 85% by the end 2015 and 100% by the end 2020.

Thus one of the most urgent strategic assignments in the developing the system and the method of education is the constant utilization and the usage of the contemporary models along with contemporary information and communicative technologies and the realization of the technologies of innovative education.

Therefore the informational process of education has to function in the following directions:

- Formation of system of constant education as a multifunctional form of development of an individual.
- Creation of various opportunities of the informational education.
- Active implementation of the new methods and materials of the educational program which is to utilize the current informational technologies.
- Formation of the methods and the educational material of the IT and cultural education.
- Formation of a better system of the education with regards of the directions and methods.

According to the definition of UNESCO of the IT education is a collection of various subjects such as the ones of science, technology and engineering which explores the social, cultural and economic problems of nowadays.

Since implementation of IT, the patterns of usage of IT has been shaped in classroom setting:

- The utilization and 'mechanizations' the collection of patterns of the educational system.
- Practice of support to a decision making system along with the expert system.
- Ownership and the further usage of the knowledge of IT.

The students are learning to work in a group developing critical thinking and learning to perform scientific research. One of the systematic techniques of contemporary education which correlate to the modern model has proven its effectiveness in e-learning. In the developed countries the e-learning covers all areas of education, being widely used not only in Universities but in schools and establishments of corporative education. The developers of e-learning consider it as a new philosophy of education which envelops all levels of education based purely of IT.

Current IT education gives opportunity to plan and hold the lessons according to the following ways:

- Formation of holistic groups and creation of the supporting materials (schedule, plan , the content of the lessons and tasks)
- Funneling of the online tests and its development
- Organization of the collective work of the students
- Creating of the work environment both for the students and the teaching staff, i.e. all those who are involved in the educational process using IT.

Availability of the information through IT is possible way of the globalization of education system, making it a current trend of the world. One of the ways to realize that step is creating the 'open' knowledge to everyone. E-learning will only benefit from the Informational Technology as the method to be used.

Academic Innovation University (AIU) is the biggest regional, multi-divisional, educational centre and is an exemplary high education establishment that has in its disposal both audio and video technology. Such Universities create a new sphere of education that utilizes the contemporary informational, communicative technology. In order to develop e-learning in Universities to strengthen the both the education methods and the knowledge of students in every part of the world, be it in Kazakhstan, Russia and other countries. For that it is crucial to form the resource centre.

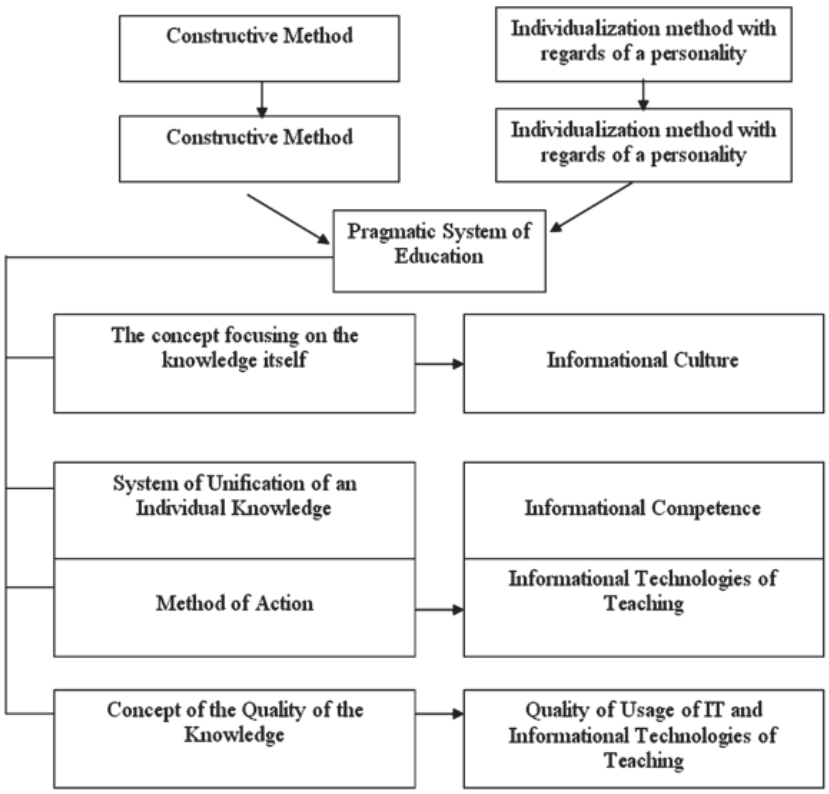
Informational resource centre AIU that has been in both formed and established in Kazakhstan in the light of joining the informational society that will provide an international availability of its resources to all the users.

- Visibility of the resources (rare books, photos as the visual aid, manuscripts, dissertation papers, online libraries, archives, etc).
- Using the IT for modeling the deductive materials on various themes and projects.

• Strengthening both creative education and the research ability.

The research of the IT usage regarding the system of education is based on different models and concepts. Below on the chart there is a pragmatic model of education, being the international and convenient for users. The conceptual significance of this model is in its quality of given knowledge.

Chart 1: Methodological principal of the usage of IT for the Education system of Universities



This model of education gives an opportunity to effectively utilize the IT in Universities. Its main parts are IT of education, Informational competence, informational culture and the quality of usage of informational technologies of teaching. All the demands of the population within the education scope would be covered within this model. The teachers/teaching staff performs the role of the supervisor which heightens the mere role of teaching as only providing the information to the students. Provide the opportunity for the users to have the high quality of the digital devices. The main task of AIU is to provide all the residents of the remote regions of the Republic of Kazakhstan.

The education is given not only through the teaching material but also though the monographs and the additional resources. The reference material is completely provided with the encyclopedic establishments. Priorities recipients of AIU are social and humanitarian disciplines, IT and the specialists in the sphere of economy. The education is provided collegially with the high quality specialists and teaching staff. The main components of the project are considered the informational yet innovational resources. The content and the components themselves of the given resources are defined by the teachers.

In consists of all the necessary material needed for the students for the qualified level of knowledge that will go in line with the confirmed and fixed criteria of the educational program.

The material mentioned above is the informational base which are comprise by the teacher/lecturers staff to be used for the remote education. Another vital component of this project is the usage of the internet in order to promote the scientific works of the teachers and professors of AIU to reach the level of the world.

«For the realization of the strategic development of AIU for the marking point of 2015, the centers are created both are of the classical type (libraries/laboratories) and the e-libraries, establishing houses, scientific and educational centers the resources centers. All of them comprise FBBR based on IT which functions as knowledge bases and are conveniently easy to operate.»

In addition to that this system provides the control of knowledge and does not depend on time and conditions of education. Its flow is constant and in absolutely individual.

The remote education opens the following opportunities:

- Allow the visibility the needed information of the seminars, video materials;
- Conduct the trainings;
- Better control of the feedback;
- Widen the audience;
- Accurate statistic data;
- Better assessment of the work of the students;
- Better monitoring of the teaching staff.

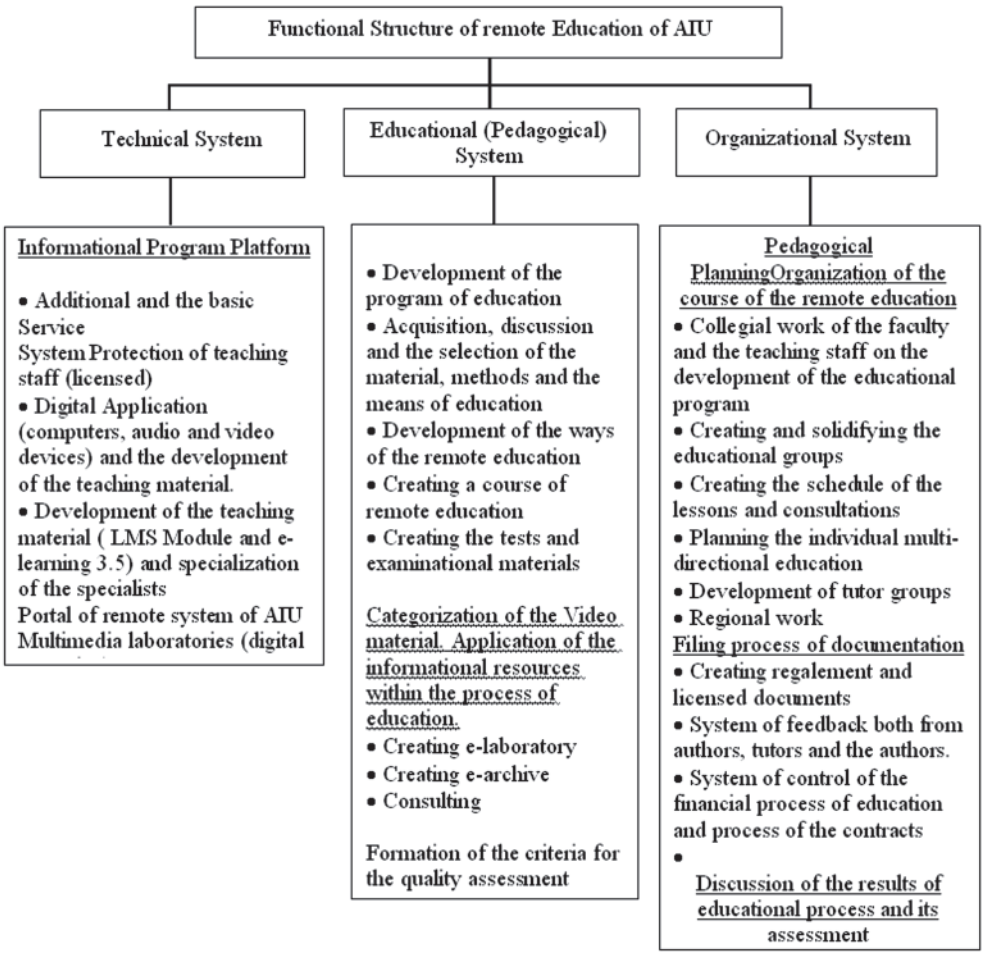
This system is actively applied during the process of education. The general work is done by the teaching stuff from the IT center whose main task is to create the teaching material for AIU along with the professors of the University.

The success of the department can be named as servers which give the opportunity for the conducting the lectures and the development of complete courses of remote education. E-education gives a chance to deal with the problems of many educational establishments and minimize the discrepancy of the given material and fixates the knowledge accordingly. With the help of internet it is now possible utilize the help of a remote specialist, additional methods online which will turn out be a cheaper option in general as oppose to the traditional method.

In time of the world wide education, the main factor is the opportunity to supervise the process, students being able to connect with the students world wide.

The system of remote education (SRE) is possible with on-line, letting visibility to both student and the teaching stuff. SRE gives an ample educational privileges working with the individuals despite the limitations. The theory of SRE is vitally important to Kazakhstan, having a vast territory and scattered population whereas the educational centers are only located in the big cities.

Unctional chart of the centralized system for the remote education of AIU is given below.



In other words, the remote education is the combinations of methods and the types of education based on the IT and telecommunicate technology which can give way to new ways of innovation and the traditional ones.

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THE ELECTRONIC TEXTBOOK «TECHNOLOGY OF PRODUCTS OF TREATMENT-AND-PROPHYLACTIC APPOINTMENT»

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The electronic textbook «Technology of products of treatment-and-prophylactic appointment» is intended for the students trained on a speciality 260202 «Technology of bread, confectioner's shops and pasta» and is developed on the basis of an author's electronic learning-methodical complex on the given discipline, introduced in educational process of chair of Technology of baking, macaroni and confectionery manufacture (THMiKP) GOU BPO KubGTU for realisation of the remote form of training.

The given electronic resource is invariant for the specified discipline of specialisation, has no printing equivalent and on technology of distribution concerns network resources.

The structure of an electronic resource contains all necessary sections and heads for effective studying of a teaching material by the trained: the maintenance, the list of the used standard documents, terms and discipline definitions, the basic text part consisting of heads and sections, including questions for self-examination and test tasks, the list of the literature, the appendix with illustrations and drawings of hardware-technological schemes of manufacture bakery, confectionery and the pasta executed in the environment of Autodesk Autocad, and also right answers to test tasks.

At textbook creation program system SunRav BookOffice (SunRav Software, Russia), including module SunRav BookEditor intended for creation and editing of books and textbooks, and module SunRav BookReader applied to viewing of books and textbooks has been used. Use of the given interactive program system allows to state difficult elements of a teaching material with attraction of a wide set of different forms of display of the information by means of multimedia and the hypertext, that considerably raises effect of training.

The electronic textbook «Technology of products of treatment-and-prophylactic appointment» is recommended to use for independent studying of the discipline with the same name by students of all forms of training of a speciality 260202 «Technology of bread, confectioner's shops and pasta» for preparation of abstracts, examinations, delivery of tests, offset and examination. Working out of the given electronic resource was carried out at direct participation of students taking into account their remarks and wishes with use of the equipment and the software of a computer class of chair.

The work was submitted to international scientific conference «Prospects for the development of university science», (Sochi), 22–25 September 2010, came to the editorial office on 04.07.2010.

Materials of Conferences

THE CONTENT OF CRUDE PROTEIN IN PIG BLOOD

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The advance of biochemistry and molecular biology showed the complexity of the structure of protein molecules and their numerous properties both inside and outside living organism. Most biological functions of the organism are performed by proteins or with their direct involvement. The functions of the proteins are extremely varied. Some proteins have functions of hormones that control metabolic processes, some of them function as catalysts to biochemical reactions and others serve as building material. A series of blood proteins form antibodies that determine resistance of an organism to different diseases. Such composite proteins as nucleoproteids are a part of genes carrying genetic information.

Penetration of substances inside a cell occurs with the presence of special transport proteins built in membrane. Receptors, various proteins, are of importance. They are designed to perceive and transform different signals. Different processes of energy transformation are of great importance in an organism. The proteins transforming chemical energy into electric or mechanic one are directly involved in the processes. Protein hunger is the most common pathology of protein exchange in livestock breeding. The disease can arise with protein deficiency and incomplete proteins in daily rations of animals, poor digestion and absorption of the proteins in gastric intestinal tract. At the protein deficiency one can observe the failure of: animal growth and development, resistance to diseases, work efficiency, productivity and reproductive functions.

An experiment was carried out at Closed Joint Stock "Landrace" in Novosibirsk region. The content of crude protein was examined in blood serum of the pigs of Landrace breed during their postnatal development. The animals were selected and grouped by the principle of analogues with regard to their origin, breed, productivity, age and live weight. The pigs were kept following the technology for complexes and farms. The blood to examine was taken from aural vein. Statistical processing of the data was done with the package of applied software Statistica 6 and Excel.

The age dynamics of crude protein level in the pigs blood serum testifies to the increased concentration of the protein. At the age of two months the protein content was not high. The maximal increase of the examined index was revealed in 4-month pigs. With all these, the level of blood protein was found to grow by 27.34% ($p < 0{,}001$) in the 2-month gilts. At the age of 6 months the decreased concentration of the examined parameter was marked.

The carried out research may suggest that the increased blood serum protein level in the 4-month gilts correlates to the more intensive protein synthesis in this age period. Mean population blood parameters of different pig breeds can be applied as normative indexes when evaluating breaks in metabolism.

The work was submitted for the international scientific conference "Science and education in modern Russia", 15–18th of November 2010. Moscow, Russia. Received by the editorship on the 22.09.2010.

Materials of Conferences

TO THE QUESTION ON THE ECOLOGICAL SAFETY NANOMATERIALS , APPLIED IN BUILDING

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Development nanosciences and nanotechnologies has come nearer to a stage connected with necessity of their wide application in all branches of a national economy., the analysis of modern lines of introduction of new building technologies and materials in economically developed countries of the world allows to assert that materials and the technologies received on the basis of achievements and workings out in area nanotechnologies become a basis of dynamical introduction in practice the next 10–20 years. Under forecasts of scientists-economists, by 2017 the market volume нанотехнологий in universal industrial production can exceed 1 bln. euro.

The most perspective nanotechnologies, suitable for manufacture of building materials are: activation (structurization) of water; crushing of initial ma-terials and raw materials; manufacturing the nanodisperse armatures; using various nanomodifiers.

Nanomodifiers – these are additives, for strengthening of those or other physical and chemical properties building nanomaterials, allowing not only to lower quantity of used building materials, but also to raise thus their technological and operational characteristics, for example durability, reliability, peremiality.

The most widespread nanomodifiers are fullerenes, astralens, fulleroids, single-layered and multilayered carbon nanotubes, nanoparticles etc.

However, except brilliant technological, economic and operational characteristics nanomaterials possess the complex of physical, chemical

In table 1

Material	The Ecological characteristic
Concrete	Is harmless at observance of safety rules
Nanoconcrete	It is harmless at observance of safety rules
Fibre	It is safely at observance of service regulations
Nanofibre	It is safely at observance of service regulations
First coat	It is unsafe
Nanofirst coat	It is less ecologically dangerous
Wood	It is safe
Nanowood	It is safe
Glue (gel)	It is unsafe
Nanoglue	It is less ecologically dangerous
Paint	It is unsafe
Nanopaint	It is less ecologically dangerous
Varnish	It is unsafe
Nanovarnish	It is unsafe
Plastic	It is ecologically dangerous
Nanoplastic	It is safe

properties and biological action, which are caused by increases the chemical potential substances on interphase border of high curvature, the big specific surface, high adsorbzion and heat-sink ability. It all conducts to accumulation nanomaterials in vegetative, animal organisms, and also microorganisms, transfer on a food chain that, thereby, increases their receipt in a human body. The review of the literary data, has shown (only 2% of the published researches problems of risks for health and environment from outside products of daily demand) concern that for today practically are absent or the authentic data concerning influence nanomaterials and nanoparticles on genotoksichnost, the hormonal and immune status, teratogennost, embriotoksichnoct, mutagennost and carcinogenicity is inaccessible.

In table 1, the results of the analysis of ecological characteristics of building materials and nanomaterials. The basis of accessible information sources are pre-sented. The comparative analysis of ecological characteristics of building materials and nanomaterials.

Though for today the scope nanotechnologies in building is not wide enough, nevertheless, using nanoconcrete, nanopaint etc., does building materials more effective, according to the destination. However it is obviously, that some building nanomaterials can represent the dager for people's and for environment. In this connection it is necessary to establish a duty for manufacturers to inform on presence nanomodificats in the building materials and to forbid use defined nanomaterials which danger exceeds their advantage.

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Materials of Conferences

TOXIGENIC MYXOMYCETES OF LIGHT-CHESTNUT SOILS OF SOUTH VOLGA

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GNU VNIIOZ

At the light-chestnut soils of South Volga there are widely spread the types of genera Penicillium and Aspergillus, reaching 60% from the whole number of selected myxomycetes. The rest of soil mushrooms is distributed among 18 genera: g. Mortierilla, g. Verticillium, g. Gliocladium and others. The types of genera Penicillium and Aspergillus reveal antagonism with respect to azotobacter in 50 and 70% correspondingly. Among the other genera of soil there are considerably less number of mushrooms antagonists. Among the types of the genus Aspergillus the most wide spreading there have types Aspergillus niger v. Thegh, A. fumigatus Fres., A. sydowii (Bain. et Sart.) Thom et Church. Almost all types of this genus includes antagonists az. The biggest percent of antagonists was in types A. niger v. Thegh – 100%, A. fumigatus Fres – 50%, A. alliaceus Thom et Church – 60%, A. flavus Lk. – 65%, A. wentii Wehm. – 60%/. The least number of antagonists was revealed at the isolates of the types A. sydowii (Bain. et Sart.) Thom et Church, A. flavipes (Bain. et Sart.) Thom et Church, A. ustus (Bain.) Thom (12%). But it makes itself conspicuous, that the maximal diameter of the zone of suppression of the height of azotobacter 9,7 mm is character for the isolates of the type A. flavipes (Bain. et Sart.) Thom et Church, while the isolates of the type A. niger v. Thegh, A. fumigatus Fres. Have 7,4 mm.

The phenomen of phytotoxicity, which is revealed by separated isolates of micromycetes not always coincide with antagonism to the azotobacter. To the most strong antagonists there are involved A. fumigatus Fres, A. alliaceus Thom et Church, A. flavus Lk., as suppressing of the azotobacter's height and detaining of the winter wheat's germination. By our facts A. alliaceus Thom et Church, which is separated also from other ecological zones of light-chestnut soils preserves toxic behavior.

Mechanic erosion rise the general number of micromycetes in the soil espessially the types of genera Penicillium and Aspergillus. Micromycetes of the genus Mortierilla M. alpina Peyronel reveal sensitivity to the compaction of the soil and can be used as indicators of the ecological condition of the soil.

The use of heavy machines leads to the increase of the whole number of micromycetes in the soil, it especially reveals at the initial phases of the plants' development. At the compacted by the agricultural machines soil there increases the content of mushrooms – antagonists to the 20% in comparison with the control, there decreases the whole biological activity and harvest of barley. But introduction of organic fertilizers restores the ecological environment.

The work was submitted to the international scientific conference France (Paris) 15–22 of October 2010 "Nature management and protection of environment". Came to the editorial office 14.09.2010.

NATURE MANAGEMENT AND STRATEGY OF ENERGETICS

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Modern world economic situation is connected with the developing of scales of industrial and agri-culture manufacture. The progress of modern civilization is conditioned by the use of electricity; its producing at the majority of countries every 7–10 years doubles, meanwhile the big part of elec-tricity is outputted by thermal power station.

Existing technologies of producing the electricity at the thermal power stations cause damage to na-ture and human being as the result of pollution of environment. While the projecting and building of thermal power stations in Russian Federation the economic calculations traditionally take into con-sideration only the effectiveness of capital investment into a prospecting, exploitation of deposits and technological process of burning the fuel. But at every stage of producing the energy at the fos-sil fuel – while the prospecting, production, processing, transportation, deposit, burning of coal, wa-rehousing of slag – there are formed different polluting substances, which come in the environment and are involved into global biogeochemical processes.

The estimation of economical effectiveness of producing the energy at the coal and other fossil

types of fuel is defined by the permissible influence on the elements of nature anthropogenic complex, particularly, on the thermal regime and quality of water of the basin-coolers. Water factor plays decisive role while the placing and normal functioning of practically all types of manufacture, including the enterprises of heat power engineering. For the solving of problems of rational water use there is necessary the scientifically based analysis of factors of forming the quality of water in the basin-coolers.

The monitoring treatment of results of observations with the methods of mathematical statistic with the quantitative estimation of changing of parameters of water quality creates the scientific base for the prognosis of ecological condition of water object and guaranteeing of economically effective producing of energy. We developed and realized the program of monitoring of the quality of cool-ing water of the basin-coolers SDPS with the taking into consideration the specific peculiarities of nature anthropogenic ecosystems of these reservoirs for the output of practical recommendations, which guarantee the effectiveness of technological cycle.

The monitoring of the water quality of basin-cooler of Berezovsk SDPS-1 was carried out from the moment of filling in 1986 up to 2002. The eco analytic control was carried out with the use of modern methods of analysis of the quality of surface land water. The organization of nature ob-servations at the reservoir was carried out in compliance with the principles of complexity, systema-ticness of observations, coordination of terms of their carrying out with character hydrological phases. At the points of selection of tests at the reservoir there were controlled the coming in of substances with the river flow, the quality of water at the circulating stream of cooling water, the flow from the reservoir.

The procedure of selection the test guaranteed the carrying out of conditions of sufficiency and representativeness. The definition of indicators of the water quality, bottom detritus, vegetable materials was carried out by the methods, which carry the required exactness of definition, quality and reliability of information.

For the revealing of factors of forming the quality of water of the basin-cooler was carried out the treatment of results by the methods of mathematical statistic with the selection from the static number of facts with the periodicity of selection of tests six times a year. For studying the character of changes of observed behavior at the time there was carried out the mathematical apparatus of the analysis of time series. The massive of facts was treated by time series with the method of frequency of Fourier analysis from the packet of applied programs STATISTICA. Periodograms were used while the solving of tasks by the revealing of concealed periodicities at the time series.

Carried out researches showed that the incoming of biogenic compounds with the river flow and from the submerged peat into a basin-cooler, and also the geographical location, hydro meteorological conditions of location, the peculiarities of morphometric structure of stream caused the “launch” of mechanism of eutrophication of reservoir already at the initial period of its existing.

Basin-coolers have specific thermal regime, which is connected with the thermal escape of cooling water. The rising of temperature of water at the basin-cooler intensifies the processes of de-struction of organic substance, while the huge cost of dissolved oxygen in the water. The oxygen regime of reservoir influences the development of phytoplankton, which has the main role at the maintenance of homeostasis of water ecosystem. The level of permissible load to the ecosystem is defined by the degree of development of phytoplankton, which conditions the positive effect – the enrichment of water with oxygen, the balance of producing-destructive processes. The presence at the nature horizon of the zones with the restoration conditions of environment slows down the processes of mineralization of organic substances, leads to their accumulation, what promotes the euthrophication of water ecosystem. The accumulation of biogenic compound in the water promotes the development of macrovegetation; while this there is decreases the square of area of water of ac-tive zone, which is necessary for the effectiveness cooling of water, and thereby there lower the economic indicators of producing the energy.

The increase of thermal load to the reservoir leaded to the intensification of destructive processes, worsening of oxygen regime. At summer periods of further years at the whole area of water the dominating position is occupied by blue-green algae, the specific composition of which allowed supposing the presence of harmful effect (Aphanizomenon flos-aquae, Microcystis aeruginoza, Anabaena). For the estimation of toxicity of water there was carried out biotesting with the use of standard composition of biotest, including the cultures of Ceriodaphnia affinis; there was revealed sharp and chronic toxicity of the water tests of reservoir.

Thermal water escape and hydrometeorological conditions at the summer time from 1991 promoted the considerable exceeding of biological threshold, what leads in the sequel to the impo-verishment of fauna and flora of reservoir, there was caused the development of pathogenic micro-flora. At the water area there was settled the fact of exceeding of sanitary-chemical and microbio-logical norms.

Thereby the exceeding of temperature of water at the expense of thermal escape of thermal power station and peculiarity of hydrometeorological conditions while the morphometric parameters of reservoir promoted the creation of conditions for the origin and existing of biofond of "blos-soming", the realization of conditions for the thermal eutrophication of reservoir.

At basin-coolers of the channel type the meaningful part of water area is occupied by shoals, at which the cooling of escaped heating water is carried out efficiently. The shoals are overgrown with higher aquatic vegetation a lot, there exists more intensive siltation. The overgrowing with mi-crovegetation and "blossoming" of water cause economic damage to the technical water supply of thermal power stations; meanwhile there becomes worse the cooling ability of reservoir as the result of decrease of evaporation and lowering of heat irradiation into the atmosphere. The processes of silting of the basin-coolers have a great influence on the forming of circulating stream of the escaped heated water. There was revealed that silting of the basin-cooler BSDPS-1 is carried out at the result of detritus of solid river flow, collapse and processing of shoreline, flooded at the bed of the reservoir peat, sedimentation of weighted organic substance.

There was established that the incoming of compound of heavy metals into a basin-cooler is carried out from the territory of catchment area columbine with their further accumulation at the buttom detritus, from where they are pulled with macrovegetation. At the end of vegetation period while the decomposition of higher water vegetation the toxicants return into water, conditioning the "second" polluting of water area, what leads to the toxic eutrophication of reservoir.

For the analysis of the structure of the connections between the showings of the water quality and revealing general factors of eutrophication there was used the apparatus of multidimensional factor analysis of the matrix of cross-correlation. With its help there were revealed two latent factors, which are responsible for the 36,4% of total dispersion of thirteen observed parameters. Taking into consideration the character of studied object, which has big number of accidental and uncontrolled parameters, which influence the condition of object, this deposit of two factors can be called rather essential.

The nature of one of the factor is connected with the autochthonic and allochthonous incoming of biogenic compounds into the ecosystem of reservoir; the second factor is identified by us with the geographical showings, on which there are depend the temperature regime of the basin-cooler. The rising of the water temperature changes the physically-chemic parameters of the water quality, which in term cause the change of biological characteristics of water ecosystem; these suc-cessive processes elapse with different speeds and are "stretched" in time.

Using the results of monitoring of the reservoir, we carried out the mathematical modeling of the connections between the parameters of flow and incoming of autochthonic and allochthonous biogenic compounds. It allows producing the quantitative estimation of the deposit of tributary of feeding rivers, thermal escape of power station, incoming of organic and biogenic compound from the flooded soil for the long period of time, what creates the scientific base for the prognosis of ecological condition of the basin-coolers.

Consequently there were developed the scientifically-based recommendations by the optimal functioning of nature anthropogenic system of the basin-coolers, of the prevention of development of the processes of eutrophication; of guaranteeing the effective cooling of circulating channel of heated water, what increases the economic showings of the electricity producing (Morozova O.G., Pen R.Z., Repyah S.M. Peculiarities of forming of the hydrochemical regime of the basin-cooler of Berezovsk SDPS-1. – Novosibirsk: Publisher So RAN, 2001. – 214 p.).

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COMPLEX USAGE OF THE KIZILTASHSKIE ESTUARIES

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Nowadays the resources of many enterprise fish kinds in the Azov-Black sea pool are dramatically exhausted that makes the problem of rational usage of sea and coastal reservoirs resources specifically urgent. One of the most realistic ways of the fish-productin increase is the creation of commercial fishing complexes for valuable sea fish kinds breeding.

In 1955 the gray mullet commodity exchange enterprise was created on the basis of Kizil-tash coastal salt lakes (Bugaz, Kiziltash, and Tsokur) with overall area of 24,4 thousand of hectares. Both big mature mullet and its young growth were fished out there at fall. Since 1978 the enterprise specialization was changed. Kiziltash coastal salt lakes were used as feeding-reproduction in order to replenish the Caucasian gray mullet herd. For Azov-Black sea gray mul-lets such as common mullet *Mugil cephalus L.*, golden mullet *Mugil auratus Risso*, and leaping gray mullet *Mugil saliens Riss* the fattening within the coastal salt lakes is a biological necessity. The intensive growth of the gray mullets, the increase in condition factor, and fat accumulation is only provided by the feeding of gray mullets with accretion film and detritus which are common-ly presented in coastal salt lakes. Kiziltash feeding-reproduction gray mullet enterprise (Kiziltash FRGME) is the only enterprise in southern Russia that operates in feeding-reproduction of Azov-Black sea gray mullet. The younger growth and mature fish that entered through the throat are fatten in the coastal salt lakes. The producers of gray mullet go to the sea for spawning through the open throat at summer and the grown youth of Azov and Black sea gray mullets returns into the sea for wintering.

The uttering herd was created on basis of the Far Eastern gray mullet (*Mugil soiuy Basi-lewsky*) acclimatization in southern seas in 1987–1989. At the same time the biotechnology was developed and the measures for breeding and release of that kind into the open seas were carried out. As a result, a self-reproductive population of Mugil soiuy was formed in the Azov and Black sea pool. In 1989 a great increase in the number of this kind was registered, which lead to its in-tegration not only into Azov and Black sea but also into the Mediterranean (Volovic, Kotenev, Mikodina, 1998). About 300-400 thousand of Azov and Black sea gray mullet and Mugil soiuy producers enter the Kiziltash coastal salt lakes. The Mugil youth and the mature fish migrate to arterial channel that starts in river Kuban and flows into the Kiziltash coastal salt lakes for win-tering while some of the Mugil stays in the estuary.

A bug number of the Black sea silverside *Atherina mochon pontica Eichw.*, bullheads *Neogobius melanostomus Pall., N. kessleri Guth.*, and shrimps *Leander adspersus* also live in Kiziltash estuaries apart from gray mullet.

In previous years reclamation works – low-value fish kinds fishing out (silverside, most of all) that create competition for gray mullet feeding was carried out in Kiziltash estuaries.

Since 2005 no reclamation fissing out was carried out within Kiziltash coastal salt lakes. That lead to the suffocation in fall-winter period as well as to over-population of fish and feeding base of the estuaries undermining followed by the decrease in young gray mullet mass on differ-ent stages of its growth that goes for wintering.

Earlier, in 70-80ies of the XX century 100 to 200 tons of silverside were fished out in Kiziltash coastal sea lakes annually. Due to the economic transformation in our country the production of low-value kind of fish had an accidental nature and was carried out mostly for agricultural needs, for feeding pigs, in particular. Anyhow from 19998 to 2003 up to 60 tons of silverside was fished out in Kiziltash estuaries.

The implementation of reclamation fishing allows us to use the caught low-value fish and other water bio-resources as a forage while organizing the commodity production of sturgeon fish kinds. Moreover we already have a positive experience of the sturgeon fish kinds production on this enterprise (Abaev, Dorofeeva, 1979; Nikitina, 2003; 2004; 2007; Patent RU 2299561 C 1).

The production of sturgeon fish kinds with the following formation of uterine herd is possible on this enterprise along with selling males.

In other word the reclamation fishing implementation promotes for the development of two important areas on the Kiziltash FRGME: natural replenishment of the gray mullet fish and sturgeon fish kinds production.

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Materials of Conferences

DISINTEGRATION OF THE CPSU AND MULTI-PARTY SYSTEM FORMATION IN RUSSIA

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A new stage of Russian history from the end of august 1991 to the December of 1993 was conditioned by dramatic intensification of social and international conflicts, internal political conflicts between the reformers and conservatives, hard economic and social crisis, and by the decadence and crash of communist ideology.

In December 1991 within the «secret meeting» leaders of three republics: Russia (B. Eltsyn), Ukraine (L. Kravchuck), and Belarus (S. Shukshevich) claimed the end of the operation of the Union agreement of 1922, the termination of the operations of governmental structures of the former Union, and the creation of the UIS – the Unity of Independent States[1].

The prohibition of CPSU and the crash of UUSR were the force that defined all the further party-politic life of the country. Both events caused an ambiguous attitude from the party and the society. «The letter to the President of RSFSR B. Eltsyn on the signing of the new Union agreement» of the 11th of august 1991 by the party block «National concent» said: «We think that the demand not to sign the agreement is explained by not only the desire to improve its content but not to allow its signing at all. In that case we claim that the parties of the block «National concent» (Democratic Party of Russia, Russia Christian Democratic Movement, and Constitutional Democratic Party) supports Your position and Your intention to sign the Union agreement on the 20th of august of this year»[2]. The crash of USSR was also not accepted by the Liberal-Democratic Party of Russia. All the political formations of communist and sovereign-patriotic organizations were also against the Union's crash[3].

The activity of Communist Party of RSFSR that supported the actions of the State Committee of the State of Emergency, was put on hold by the Decree of the President of RSFSR on the 23rd of August 1991 until «the final resolution of the problem of the non-constitutionalism of the RSFSR Communist party actions, within the juridical order». Later in his recollections E. Gaidar writes: «Boris Nikolaevich, while he was selected as a Chairman of the Supreme Council and later the President of Russia, raised two flags: the flag of inaffiliation and the one of departysation. Both slogans were urgent and correct. The affiliation was the symbol of the CPSU. And the departysation meant the abbreviation of CPSU in its rights. Of course, it was obvious that such an inaffiliarity and departysation are temporal and that democracy implies multi-party system and it roll down to the authoritarianism»[4]. «Eltsyn dreamed to depose Gorbachev and everything into his hands. I am sure: if Boris Nikolaevich was the General Secretary, the CPSU would still exist. Eltsyn was only interested in power»[5], – drew his attention to this subjective factor, that influenced the crash of the CPSU, E. Primakov.

In mass mind the defeat of Communist Party was not that obvious in that period. More than the half of all population absolutely agreed with the decisions of the curd of the CPSU activity and thought that this party should not restart its activity. However, 28% of the interviewed, were convinced that the Communist Party should be reborn and almost the half of the interviewed communists (46%) were ready to recommence their party membership[6].

We should say, that the mentioned normative acts did not play any significant role in the development of the left movement in Russia. As a result of the juridical trial the Russian communists did not only manage to save some part of their property but also all their territorial party cells. The situation was that more than a half of lower active of Russian political associations was oriented on the left political structures and, most of all the structures of CPSU.

After the crash of CPSU the process of multi-party system establishment in Russia transformed into the new qualitative stage. Earlier the political activity of the parties and the movements of different orientation was mainly aimed against the CPSU and its Union centre,but now they had to look for a new basis for their self-expression and self-identification.

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THE MENTAL DISORDERS AND GENETIC POLYMORPHISM AT THE NARCOTIZING PERSONS

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The study and the research at the persons, having used the psychoactive substances (PAS), the mental disorders and the psychical disturbances, and the candidates – genes' polymorphism associations' analysis with the narcotization, and the mental (e.g. personality) disorders and the psychical disturbances versions has been our work's main target. So, the 240 male persons, the Russian nationality, at the age from the 10 years up to the 33 years, having addressed to the Novosibirsk city's in – patients departments and the hospitals, have been thoroughly examined. The psychiatric research and the study have been carried out with the DSM- IV-TR and DSM-III-R American classification application. So, the genetic research and the study have been included the genotypes frequencies' and the alleles' definition of the neurotransmitter and the opioid systems studied candidates – genes: the 4 – subtype dopamine receptor (e.g. DRD4, VNTR), the dopamine – transport protein (e.g. DAT, VNTR), the 5-HTT serotonin transporter (e.g. ID and VNTR), and the mu – opioid receptor (e.g. OPRM1, 118A-G) at the 93 patients.

At the young people's examination, having used the PAS, practically, in all the cases, the symptoms have already been revealed, which are being related to the personality disorders and the psychical disturbances by the DSM-IV-TR and the DSM-III-R American classification, and they are being diagnosed, even at the teenagers and the juveniles at the age of up the 15–18 years at the application initial stages, just before the systemic narcotization further development and its progress. Then, it has been determined, that the narcotizing teenagers and the juveniles are, initially, inclined to the criminal behavior. The personality criminality clear – cut connection and the heredity with the narcological substances abuses at the narcotizing ones is quite possible to be testified on the attraction further development general mechanisms to the PAS and to the criminal behavior. So, the candidates – genes' research and the study have been revealed the defined and the specified tendencies just in the genotypes distribution at the narcotizing ones and also in their population. Thus, the 10/10 5HTT genotype is being presented much frequently just among the narcotizing persons and the patients, than in the controlled group (e.g. the C group). Thus, the D/D 5HTT and 3/4 DRD4 have been usually met only at the narcotizing persons. Then, the 4/4 DRD4 genotype, the 10/12 5HTT genotype, the 9/10 and the 10/10 DAT genotypes have been equally and frequently met just in the both groups. Then, the 4/4 DRD4 genotype at the narcotizing people and the persons is quite able to be associated with the identity disorder, with the further inclination to the suicidality, to the hystereoid reactions, with the inadequately inflated self – esteem and the self – appraisal, with the helplessness in the solitude and the loneliness, with the circumstantiality, and with the passive – aggressive personality mental disorders and the psychical disturbances; the 10/10 DAT genotype is being associated with the inclination to the antisocial behavior, with the egocentricity, with the emotional affectivity and the affective disposition, the I/D 5HTT genotype is being associated with the inclination to commit the unlawful and the wrongful (e.g. criminal) actions and the activity, with the non – subjugation, and also with the loneliness fear and the being alone fear.

At the same time, we assume on the basis of the studied research final results, that the genetic peculiarities and the special features at our patients are quite able to be the background, having predisposed to the psychopathology further development, also having provoked the drugs application. We consider, that the inclination to the PAS with the drugs dependence and the drugs abuse have already been conditioned on the drugs specific psychedelic effect against the background of the indirect genetically head brain neurotransmitter system defined and the specified functioning.

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PROGNOSTIC VALUE OF INTIMA-MEDIA BRACHIOCEPHALIC VESSELS AS CARDIAC MARKER OF CORONARY ATHEROSCLEROSIS

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The purpose of this scientific research is to establish the correlation between the threshold values of the intima within the patients with ischemic heart disease(IHD) that have coronarography indexes. The research allows us to evaluate the intensity degree of atherosclerotic process of brachiocephalic vessels and its utility as an early indicator of the atherosclerosis treatment with IHD.

Methods of the research. 239 patients with IHD took part in the research, 117 of them had myocardium infarction of different difficulty. The check group was formed by 35 patients, healthy and similar in sex and age.

Coronary angiography was carried out for all patients in order to evaluate the intensity degree of the coronary arteries atherosclerosis. The thickness evaluation of the intima of brachiocephalic vessels was carried out via American ultrasonic scanner of expert class produced by «Zonar» with usage of the linear sensor in the frequency range of 7mhz. The evaluation of brachiocephalic vessels was carried out on double-ended basis for the front and rear carotid wall. The statistic processing of the material was carried out on the IBM computer in semi-automatic mode with usage of standard program pack «MS Excel 2003».

The results of the research. All patients, regardless of the final diagnosis were divided into 4 groups according to the values of intima thickness.

The first group (n = 122) was formed by the patients of younger age (46,1 ± 0,8 years) who had intima thickness showings within 0,8 to 1,1 mm which is typical for healthy patients without any atherosclerosis and IHD signs. The occlusion of coronary vessels was not found by coronagraphy of any patient. The threshold index level of 1,2 mm is usually characterized by the initial thickening of brachiocephalic vessels intima level.

The second group (n = 50) was formed by the patients of older age group (52,2 ± 1 year) with the confirmed diagnosis of IHD and stenocardia assaults who had intima thickness indexes within 1,3 to 1,5 mm.

The third group consisted of patients with acute myocardium infarction of various difficulty whose intima thickness levels were within 1,5–1,7 mm. The average age of the patients was practically the same with that of the second group (51,3 ± 0,8 years).

The forth group (n = 25) was formed by the patients with the maximum index of intima thickness (1,8 mm and more). All of this group's patients had experienced difficult focal myocard infarctions with expressed affection of one or more coronary arteries.

The check group was formed by the patients within the age of 51,3 ± 0,8 years who had the intima thickness index within 0,8 to 1,2 mm.

While the threshold level of intima thickness was 1,3 mm the occlusions of 65% of right interventricular branch of the right coronary artery (RIVB of RCA) were revealed. At the same time right coronary artery (RCA) was affected of 40%. The increase in the percent affection of the coronary arteries occlusion degree took place along with the increase in the intima thickness level.

The maximum index of intima thickness that equaled 2,3 showed the maximum degree of the RIVB occlusion (80%) and the level of RCA that equaled 90%. However, most commonly, the affection of RIVB of RCA and the RCA itself takes place

Table 1

The frequency of the coronary arteries occlusion exposure

Localization of coronary arteries	Number of patients	Frequency of the coronary arteries occlusion(%)
Right interventricular branch of the right coronary artery (RIVB of RCA)	66	85,7±4,0%
Envelope branch of right coronary artery (EA)	33	42,9±5,7%
Right coronary artery (RCA)	34	44,2±5,7%
Left coronary artery (LCA)	7	9,1±3,3%

at the same time. The affection of the envelope branch of LCA by atherosclerosis takes place more rarely.

According to the revealed dependence of the intima thickness index and the presence of the coronary vessels occlusion the definition of the threshold index of intima brachiocephalic vessels and the calculation of the diagnosis test specificity and sensitivity with different intima thickness levels were carried out.

High specificity (0,9) with high test sensitivity (0,96) was observed with the intima thickness threshold level that equaled 1,3. False diagnosis was recorded only in one case (1,3%).

Thus, while the intima thickness level equals 1,3 the probability of the coronary arteries occlusion presence is 98,7%.

The research showed high correlation relation between atheroscopic plaques in carotids and coronary atherosclerosis. Moreover, the coronary arteries occlusion degree increases along with the increase in the intima thickness levels.

Thus, the method of the brachiocephalic vessels research via controlling of the intima thickness index allows us to define the degree of the coronary vessels affection by atherosclerosis within the patients with IHD and to carry out the atherosclerosis treatment by the medicines of various pharmacological groups effectiveness control. This method allows us to choose tactics for the patients with IHD treatment between conservative method and surgical interference.

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SOME INDEXES OF VEGETATIVE NERVOUS SYSTEM AND ADAPTIVE ABILITIES OF HIGH-QUALIFICATION TAE-KWON-DO FIGHTERS

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The research was carried out for the grant № 10-06-38656a/Ю, that has been supported by Russian Human Science Fund. Nowadays the increase in volume and intensity of physical strain that often require the maximum mobilization of the athlete's organism systems is typical for the sport of highest achievements. Quite scanty comprehension model of sports physiology and the impact of tae-kwon-do (has an Olympic status since 2000) upon the organism's functional condition and the regulatory system's activity provides for the reason of the inadaptive changes development.

The point of this research is to study some of the vegetative nervous system indexes and the evaluation of adaptive abilities of the professional tae-kwon-do fighter's organisms.

34 male sportsmen within the age of 17-21 years were under observation, their sports qualifications were sports master and international class sports master.

The study of functional condition of regulatory organisms systems, the departments of vegetative nervous system in particular, was carried out by the method of variation pulsometer. The ECG registration was accomplished with the electrocardiograph «Polispectre – 8E», by the company «Neurosoft», in lying position and in the condition of active orthostatic probe (G. Makarova, 2002). The following indications were analysed: mode

Table

The indications of vegetative status of the tae-kwon-do-fighters of high qualification (according to R. Baevskyi)

Studied indications	Vegetative status of sportsmen	
	With the vagotony predomination $n = 30$	With the normotony predomination $n = 4$
	$M \pm m$	$M \pm m$
Mo, s	1,2 ± 0,15	0,71 ± 18,9
AMo, %	21,8 ± 4,77	41,4 ± 9,22
VS, s	0,59 ± 0,11	0,39 ± 0,07
SI, units	16,7 ± 7,7	84,6 ± 5,88

(Mo); mode amplitude (AMo); variation swing (VS); strain index (SI). The conception of two-contour heart rhythm regulation R.Baevskyi was used as basis. Thus Mo and AMo indications reflect the condition of sympathetic and parasympathetic departments of vegetative nervous system, Mo characterize humoral channel of heart rhythm regulation, and SI characterize the condition of central regulation contour and reflects the entrance of resolving information that is the result of other organism's physiological systems activity result, into the sinus node system.

While recording the vegetative status in calm according to the indication of the sympathetic and parasympathetic departments on the heart contraction rhythm, the sportsmen were divided into three groups. As the obtained data (see table) shows, the parasympathetic department of vegetative nervous system activity is predominance is typical for the 88,2% of studied sportsmen. The number of those with normotonia is 11,8%.

Vegetative reactivity was defined by the implementation of active orthostatic probe (5 minutes), that revealed the following types: with normotonic vegetative activity – 63,3% of the sportsmen, with sympathetic-tonic – 15,2%, and with the predominance of asympathetic-tonic type of vegetative reactivity – 21,2%.

Thus, the increase in sympathetic influence within the vegetative balance strengthening was registered, while the increase of the adrenergetic mechanisms activity in response of the body position change with asympathetic-tonic vegetative reactivity does not respond with the increase in nervous centres activation. In this case, as a rule, the changeover from short-term adaptive effect to long-term adaptation is absent. So we can suppose that this type of vegetative reactivity points at the overstrain condition, for which the lack of adaptative mechanisms and their inability to provide optimum adequate reaction of sportsman to the physical strain impact, is typical.

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Materials of Conferences

ADAPTIVE LEARNING SYSTEM USE IN FOREIGN LANGUAGE MASTERING

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The article reveals the description of adaptive learning system and its use for foreign language mastering. Nowadays individualized learning is question number one at educational institutions. Adaptive distance learning system EduPro was created to solve the problem of adaptation of leaning material (course) to each student.

1. Introduction

Computer learning system developers have recently been paying a lot of attention to the learning process itself that has gone through qualitative changes – individualization and adaptation to the needs of a learner. This is happening on the background of intensive information technologies development. It is especially actual for foreign language learning as specific feature of this branch of science to a great degree depends on new methods use and interactive technologies for providing qualitative and effective learning process. Today it is possible to provide students not only with learning schedules different from standard curriculum time-table, or take into account their needs if they are geographically remote from the learning centre (distance learning through application of modern telecommunication technologies), but also account for different levels of knowledge perception and understanding. *Intellectual learning systems and adaptive network learning systems* [1] are becoming increasingly popular now as an alternative and supplement to the traditional approach in a learning course development. These systems develop each student's knowledge model and use it throughout interaction time in order to adapt to each learner's peculiarities. The first adaptive network learning systems appeared in 1995–1996 [2]. Since then a lot of systems have been created all over the world. The majority of adaptive network learning systems are based on technologies, developed in the realm of adaptive hypermedia and intellectual learning systems. When identifying content material and arranging it into the course framework the developer has to think about the audience in general. However, in real life students have different interests, knowledge, learning styles, and background knowledge. Carefully selected content material can be of no use for some students and will only confuse them. On the other hand, it is likely that the material important for other students will not be presented in the course at all. In other words, content arrangement suitable for one category of students can be an obstacle for others. This problem becomes really pressing at network learning, when the difference among the students taking the same course is more essential [1]. Consequently, the development of a system that would take into account students' individual characteristics and adapt the content material presentation is a topical and important problem. On the basis of the center of information technologies of Precarpathian national V. Stefanyk university adaptive learning system EduPro was created.

2. Peculiarities of individualized learning modeling in EduPro system

At learning courses creation theoretical material in the system EduPro is divided into lectures. A lecture is completed by contents and volume a logical part (block). In the system EduPro learning course is presented in the form of sequence of steps. Obligatory components in each step are lecture material and test. But the number of lecturers in each step may differ depending on the volume and complicacy of material which should be learned. Lectures in their turn are divided into the smallest completed logical parts –quanta[3]. Each quantum of lecture material has certain characteristic features as weight of complicacy, novelty level, quantum type, etc. Quantum type is a descriptive feature that determines the form of learning material presentation (descriptive material, data table, schemes or pictures, etc.), as one and the same material may be presented in different forms. Important feature is that to each quantum of theoretical material correspond test questions with different contents, weight of complicacy, type that in its turn helps to evaluate the level and degree of theoretical material mastering and to identify individual peculiarities of each student. Depending on the skills of learners (speed of mastering, type of information perception, specialization, success, etc.), learning lecture material is presented and given in the most individualized form, that to a great degree raise level of its mastering [3]. First students learn theoretical material and take tests within one step. Then the system identifies individual characteristic parameters of each student, on the basis of which

the decision on learning trajectory creation of the next step is taken. When student's results are rather poor the system will not let him/her take next step but will offer revise the material of the previous step. At satisfactory level of theoretical material mastering (a teacher identifies the transfer barrier between steps) the system let a student pass to the next step of the learning program. Next step of leaning material consists of three parts: theoretical material necessary for reviewing and two obligatory- theoretical material of the given lesson and test on it. Theoretical material for reviewing is chosen from the questions of the previous step which were answered incorrect or partially incorrect.

3. Conclusion

The given methodology let us provide the process of individualized learning for foreign language mastering. Suggested technological decisions let us form individual structure of learning material and adapt to each student's needs and capabilities. That will help to create effective learning environment to reach maximum results in learning process.

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THE RUSSIAN BORROWINGS SEMANTIC FUNCTIONING PECULIARITIES IN THE ABAZIN LANGUAGE

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The Russian language has already been made the great influence upon the Abazin language vocabulary and the word stock. So, the Russian language influence upon the Abazin language, as well upon the Northern Caucasus other languages has been beginning, as far back as, in the beginning of the XIX-th century, just after the Northern Caucasus annexation to Russia.

The toponymy, the social and the political vocabulary the word stock, and the terminology, having named the cities and the towns, the countries and the nations, the old Russian Army military ranks, the estate ranks, the Administrative Management members occupations, the law or legal terms, and the clerical and the office terms have been beginning to be entered through the highland aristocracy into the Abazin language, for example: Russia, Kharkov, England, the Siberia, an officer, an ataman, a soldier, a general, a colonel, a dragoon, a prince, a merchant, a count or an earl, a police, a landowner, a Cossack, an envelope, a hard labor, a mail, and etc.

The commonly used vocabulary, the material and the household vocabulary, and the word stock, having connected with the living quarters and with the habitation, with the buildings, with the building materials, with the household stuff and with the housewares, with the dishes, and with the tableware, with the furniture, with the clothes and with the belongings, with the footwear, with the food, with the drinks and with the beverages, with the agricultural and the farming cultures, with the commercial and the trade vocabulary, the trade word stock, and with the terminology, with the instruments of labor or with the working tools, with the cloth and with the fabrics, with the measurement units has already been entered into the Abazin language from the Russian language or through its direct mediation in the pre – October revolutionary period, for example: a cornice, the rafters, a stove, a table, a glass, a sweet or a candy, a plant or a factory, the oats, a dozen, a weight, the reins or the ribbons, a pillow, a coach or a car, a machinegun cart, a pound, a sazhen or a sajene or a fathom, a copeck, a jam or the preserves, a spice

cake or a treacle cake, a teapot or a kettle, a box or a case, and etc.

A great number of the social and the political words and the terms, having called the socialst rebuilding and the reconstruction lives phenomena, such as: a revolution, a Party, the Institute, the Council, the system, a club, a newspaper, the elections, the kolkhoz or the collective farm, the sovkhoz, or the state farm, a tax, a member of a shock brigade team, or a shock – worker, or a record – setter in the work productivity, a lecture or a report, a revision or an inspection, or an audit, a link or a section, a milker or a dairymaid, or a milkmaid and the others.

At the same time, more, than 11% of the Abazin language vocabulary and the word stock are being made up the borrowings from the Russian language.

Thus, the borrowed vocabulary and the word stock are quite possible to be divided into the two large groups:

1) the inkhorn words and the terms (e.g. more, than 55% of the borrowed words);

2) the commonly used words, having apprehensible to all the native speakers of the given language (e.g. 45% of the borrowings).

On the whole, the inkhorn words and the international vocabulary, and the word stock have already been borrowed after the 20-es years of the XX- th century, and they, moreover, are being portrayed and the most popular in the specialists and the experts intellectuals speech one or another branch or the young people, having good mastered of the Russian language. Therefore, very little the words have been successfully subjected to the next phonetic, the lexico-semantic, and the following grammatical changes, on the whole, they are being written, and they are also being pronounced, equally and identically, as in the Abazin language, well as in the Russian language. So, the borrowed words another group has firmly been entered into the Abazin language, as well in all the Northern Caucasian languages, and, that is why, it is being made up the commonly used vocabulary, the word stock, and also the current vocabulary, and the word stock in the general use. So, the Abazin people are practically using by all these words in their everyday speech.

Thus, they have been subjecting by the phonetic, the lexico-semantic and also the grammatical changes, which are being conditioned by the Abazin language specific peculiarities and the special features during their step-by-step and the gradual adaptation.

In the end, it has been succeeded to be cleared out, that the borrowed words phonetic adaptation and their following assimilation are being taken their place just in the both directions, on the basis of the bilingualism different and the various types' analysis:

1. The borrowed words in the Abazin language from the Russian language are being lost its, as the sounds, well as the sound combinations, which are quite not character and the typical ones for the borrowing language, that is, the Russian words are being adapted just to the Abazin language phonetic and the syntactical laws, which are the following: a decoration [e.g. decoratza], gills [e.g. zhabra], a meeting [e.g. zasedana], an art [e.g. iskustva], a kalatch (a kind of the fancy loaf) [e.g. kIalach], a cabbage [e.g. kIambysta], a trap [e.g. kyapgIan], a brick [e.g. kyrbydzh].

2. The Russian words, having penetrated into the Abazin language in their distorted and the corrupt forms, are being begun, more and more, to be approached to the pronunciation, which is quite character and the typical one, especially, for the source and the well language. The earlier borrowings pronunciation, having penetrated through the oral speech in their distorted and the corrupt forms, is being begun to be changed, having approached to the Russian language orthoepic standards. So, such words new pronunciation, practically, is more character and more typically for the young people. For example: an officer [affisar] – [affitzer].

Thus, the borrowed words phonetic mastering is completely being depended on the contact languages systems specific character and the sound systems originality and the peculiarity, and also on the bilingualism development level just in the defined and the specified region.

It is necessary to be differentiated the double pronunciation together with such kinds of the changes: 1) the borrowed words are being sounded, in accordance with Russian orthoepy standards, in the young generation speech, having well mastered by the Russian language; 2) the sounds, having, absolutely, absented in the Abazin language, the elderly generation and the senior people, automatically, are being changed by the near to them by the native language sounds acoustic – articulatorily indications.

The Russian language is being had its defined and the specified influence also on the Abazin

language grammatical structure and its system. That is why, the grammatical mastering their own rules are quite character and the typical ones for every part of the speech. So, the Abazin language is, constantly, being enriched not only by the separate words borrowings, but and by their words and the phrase combinations: a big industry – promyshlennost du; a new bycicle – velosiped shIytz and the others.

So, the quite new words are, constantly, being formed, by means of the Abazin language affixes from the considerable number of the borrowed words, for example: from a word sport – sportivna, a sportsman, a sport hall; a box – a boxer, aboxerkIa – the boxers, boxerska – boxing, boxerzlara – to be a boxer.

So, the considerable semantic changes are, constantly, being taken their part just in the separate borrowings, in comparison with their meanings in the source – language. On the whole, they are being come to the meanings circle narrowing that is the borrowed word is, constantly, being lost one or the several meanings. Thus, only one meaning is, constantly, being borrowed in the overwhelming majority cases, for example: a sister or a baby – sitter in the meaning of «the medical nurse», a blade in the meaning of «the safety razor blade», the Council in the meaning of «the State power body» and the others.

So, the separate borrowings meanings are quite able to be broadened and also to be become wider, that is, one or another several new meanings are, constantly, being appeared, for example: a degree:

1) the corner measuring unit;

2) the alcoholic beverages, the wine measuring unit;

3) the temperature;

4) the thermometer, the temperature indicator. The fourth meaning is the quite additional one.

So, the Russian language influence upon the Abazin language is so much efficiently and productively, that many earlier borrowings from the Oriental languages, having firmly entered into the local languages, and, having existed in them during several centuries, are, constantly, being supplanted by the Russian borrowings. This should be considered the natural phenomenon, as the Russian words are more come to for the corresponding notions expression. The Arabisms and the Turkisms part, which are quite a lot of in the Abazin language, have already been supplanted by the Russian borrowings after the literary languages formation.

Thus, it is quite possible to make a conclusion from the above – mentioned material, that the Abazin language has already been borrowed a great deal of the words from the Russian language, ipso facto, it has already been enlarged its own vocabulary and the word stock by the words, which have not the necessary translation and the interpretation in this language.

Recently, all these borrowings have already been emerged from the narrow confines of the domestic sphere and the household sector, and, that is why, the Russian words have already begun to be enriched and to be enlarged the national language in all the spheres of the vocabulary and the word stock, and also the phraseology.

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Materials of Conferences

THE SOCIAL STUDIES ON THE INFORMATION

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The society informatization and the communication processes rapid growth under the conditions of the industrial neo-culture have already been become the informational approach objective penetration into the social sciences. So, the information and the information processes have become the social sciences analysis subject. That is why, it is quite possible to be singled out the three social studies on the information. These are, firstly, the studies on the social information and the social information sciences, the underlying information is the direct research and the study subject in them; secondly, these are the studies on the social communication, having considered the necessary information under the conditions of the communicative relationship; thirdly, these are the social studies on the information – oriented society formation.

Having addressed to the «information» term, the social studies authors, as a rule, are being perceived and apprehended one or another conceptual attitude and the set, having functioned in the contemporary special sciences, and, at the same time, having relied and depended on their authority, and also on the representations readiness and their development. For all this, some authors consider, that the information initial comprehension, having taken just from the scientific – especially academic discipline context, is not quite needed any special analysis, as far as, it does not matter, it would be filled with the social sense-of-mission and the social meaning. However, such kind of the position is being exerted its influence upon one or another approach formation to the social information research and the study. For example, G.V. Skorick and V.V. Cheshev have brilliantly expressed this kind of their attitude and the set, having considered the «information society» conception, and, having touched upon the «information» term. They have mentioned, that the speech would be talked not so much on the term the scientific – especially definition, having formed in the information science, as on its social filling, that is on the sense, and the «information» term application contexts in the sciences on the society. The information – this is «the knowledge uncertainty elimination measure on the subject state or on the some event» for the information theory (e.g. semiotics) [1, p. 5]. So, the discussed term is quite able to be interpreted much wider, from the philosophical point of view. For example, every interaction, as in the natural, well as in the anthropogenic and the technogenic world is quite be possible to be connected with the information processes by such scheme. All the things are being possessed by one or other qualities and the characteristics, which they are being discovered during their interaction. So, such interaction traces (e.g. from the literal mechanical traces up to the changes, as in the things qualities and the characteristics, well as in the things structure) are quite able to be presented, as the necessary information on the objects themselves, well as on their interaction processes. The nature cognition is being presented itself, in the last case, as the information receiving on it, but the interaction traces – as the information carriers [2, p. 44].

Further, G.V. Skorick and V.V. Cheshev note, that the social philosophy, to an even greater degree, is being interested in the substantial and the purposeful aspect, that is the information processes sense and the semantic filling. These factual aspects of the case, in some measure, are being discovered themselves, even in the course of the technologies management, having carried out directly through the processing and the technological equipment control. However, in the full measure, the information sense – substantially filling actuality is being affected upon the social processes organization and the management. For example, the information – «these are the data, having sifted for the specific people, for the challenges, for the targets and also for the situations – for the economists. So, the information value, and also the actual cost, having connected with the market analysis, with the computer and the machine time payment, with the external consultants application» [3, p. 164]. Thus, every control and the management are being included the information processes in themselves, but the human activity and the human behavior management is being assumed the influence upon the consciousness, in particular upon the behavior motivation and also the activity corporative objectives. «Therefore, – G.V. Skorick and V.V. Cheshev emphasize, – it is quite possible to be found the consent at all the existing differences in the information nature comprehension in the aspect, that the necessary information for the man – this is the necessary data receiving for his needs satisfaction, and at that, all these needs can be the quite different arrangements and the various plans of the actions: the psychical – emotionally, the personality, the cognitive, the occupational ones…» [2, p. 45].

So, we shall single out the focal points in the given considerations by G.V. Skorick and V.V. Cheshev. It does not matter to, how the necessary information in the sphere of the contemporary science is being comprehended, so, the «information» term is quite able to be interpreted much wider, from the philosophical point of view. For a man the information – this is, first of all, the necessary data for him, in spite of all the existing differences in the information origin essence comprehension.

It turns out, that the information and the information processes – this is information approach result to the communication. The communication is being presented itself the cognition object, having existed quite independently from the cognizing subject. But it looks the information, if the cognizing subject puts on «the information spectacles». In this case, as A.V. Sokolov mentions, the information is the information approach instrumental notion, the content and the volume of which are the quite variable ones, and they are being depended on the studied communication and the organizational phenomena. Having said quite simply, the information – this is the information approach just to the communication and to the organization. So, the information and the information approach are being formed the unity, having consisted in the aspect, that the information approach is obligatorily being connected with the information notion application, but the information is not being existed beyond the information approach [4]. Thus, the information approach is being carried out the defined and the specified methodological functions, and it is being demanded the proper and the corrected attitude to it and the corresponding application.

So, the attempt to be considered the information processes just in the society without the information essence clear – eyed comprehension is being resulted in a great deal of the confusion, in the information and the organization, the information and the communication notions identification and the authentication. «The social communication» and «the social information», «the communication system», and «the information system» have practically been become the terminological equivalents. However, yet nothing can be kept in the human mind by the information in the social studies. G.V. Skorick and V.V. Cheshev are being convinced that it is quite possible to be found the consent in the aspect, that the information for a man – this is the necessary data receiving for his needs satisfaction. So, they have not set their challenge – to give the «information» notion analysis, but they accepted it in the designated sense, as the simple variant, which is the quite suitable one for the subsequent theoretical reasoning and the academic arguments.

But even already this quite simple option is being needed the following comprehension: the information – this is the data or the data receiving process. In the first case, we come to the initial information sense meaning, which has been preserving right up to the middle of the XX-th century. In the second case, the information is being presented in the process meaning, and this, moreover, is needed the necessary analysis, and the subsequent explanations. Is it meant in the human mind the recipient informing process, that is the data passing just from the source to the recipient by the corresponding communication channels and the service ducts, and this is inevitably being resulted in the social processes consideration through «the information spectacles»? Or does it concern the data origin genesis, how are they getting by their method? So, the last aspect is being connected with the cognition process, with the new knowledge production, having given the data on the phenomena, their states, qualities and the characteristics, and also their changes.

Thus, the social studies general drawback and the shortcoming on the information are being concluded in the following. The «information» notion is being used uncritically, having borrowed from ones or other special sciences. Then, the nature deep philosophical – socially analysis and the information essence has not been carried out, that is why the social information comprehension has been found much difficulty. The categorial apparatus of the social information general theory philosophically has not been developed in the thorough way. All this together is being caused the necessity in the comprehensive and the all – round philosophical – socially analysis of the information challenges.

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Materials of Conferences

FORECASTING OF SALES VOLUME OF MARGARINE

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Every enterprise competently requires in use of resources they have in the modern conditions of the economic crisis. With a purpose of a rational distribution of these resources, it's necessary to detail the production activity.

The enterprise competitiveness and its adaptation to an unfavorable crisis's influence depends from a prognosis's quality.

One of the most important task for Opened Joint-Stock Company «Samarskiy fatindustrial complex» is a forecasting of sales volume and to form plans of the margarine production.

The researches presented in this work were conducted by an order of an enterprise within the limits of making production political strategy.

The researches conducted beforehand exposed that the consumption of margarine has expressed seasonal character.

It leads to that, the sales volume forecasting task can be solved by means of a full model (if not to count a seasonal factor), so as a partly seasonal.

There is a lack in the first method in which is impossible to consider the production's features, which connected, for example, with a seasonal scheduled repair of equipments and its setting.

This model has fictitious connections between the seasons which are practically unimportant. However, an advantage of this method has a possibility of using a big statistical material in a short time.

Considering all these features, the second method allows to build a general model seasonally more realistically.

However, to get a representative sample it is necessary to use statistical material, beginning from 2003 year.

It is a certain lack, as the situation in Samarskiy region was changing for so long period.

Here are following results:

1. The full model of sales volume of margarine is built disregarding a seasonal factor.
2. It is built the partly seasonal model.
3. It is estimated a model quality by means of a determination factor and a consent criterion of hi-squire of Pirson and it is lead comparative analysis of its correctness.
4. It is concluded, that a partly seasonal model corresponds actual sales volumes.

All researches in this work are made by the author personally, and the results used by the enterprise in its activity.

The work was submitted to electronic scientific conference «Mathematical modeling», came to the editorial office on 27.09.2010.

Short Reports

THE INFLUENCE OF THE EARTH'S MOVEMENT TO THE RESULTS OF THE TRACKING OF THE COSMIC FLYING APPARATUSES

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In the work there is substantiated the necessity of taking of into account the influence of Earth's movement on the facts, which are received while the surface observations of the trajectory of cosmic apparatuses (spacecraft, satellite). At the process of the tracking of the geostationary satellite there was revealed that even movement of the Earth influences the aberration of electromagnetic waves from the established at the satellite generator. The measuring of apparent abnormalities from the factual position of satellite, which were caused by this effect, allowed directly defining the parameters of movements of Earth and Solar system (speed, declination and direct ascent of the apex of the Sun). The trustworthiness of received extent is confirmed by their coincidence with known meanings from the observational astronomy.

As it's known, the trajectory of cosmic flying apparatuses is calculated by the methods of celestial mechanics with a very high degree of exactness. While the control of their behavior from the Earth there are practically always observed divergences with the calculation. The divergences between the measured position of satellite and calculated, which were caused by technical reasons, as, for example, drift while the calibration, are usually easily removed by technical corrections. Other divergences, which are connected with the conditions of spreading of the electromagnetic wave in the heterogeneous sphere, are also rather good studied and are taken into consideration. But there are observed anomalies, the essence of which is often can be unknown, and we should do rather artificial correction with the aim of removal of these divergences. One of the serious reasons of these anomalies can be the influence of the Earth's movement on the results of tracking of its satellite. Though at the observational astronomy there is long ago known such influence on the apparent position of stars (the phenomenon star aberration, opened Bradley [1]), it is still not taken into consideration while the observation of the artificial satellites. The enquiry id that the satellites belong to the system of coordinates of Earth, that means they evenly fly with it in a space. And in this situation, as it's considered, there is no such influence. This view point was formed over many years of unsuccessful experimental attempts to revel the movement of the Earth not by the astronomic observations, but with the help of carried out experiments on it (1818 Aragou, 1838 Babinet, 1859 Fizeau, 1865 Angstrom, 1881 Michelson, 1887 Michelson and Morley, 1887 Michelson,Morley, 1921–1925 Miller, 1926 Picar,Stael, 1955 Essen, 1959 Townes and Cedarholm, 1979 Brillet and Hall and many others). All in all in the 1904 year, H.Poincare in the work [2] made a suggestion that the impossibility to reveal the bsolute movement of the Earth presents the general law of nature. But while this he didn't except the possibility of disproof of it by future experiments. And at the conference in the Pasadena [3] H.A.Lorenzt categorically declared: «*So far there was question of first order effect only, i.e. of effects that would be proportional to the first power of the ratio between the velocity of the Earth and the speed of light. In almost all cases in which astronomers and physicist have tried to detect an influence of the Earth motion on optical and electromagnetic phenomena , only effects of this order of magnitude could have been observed. The fact that all these attempts have been fruitless led by and by to the conviction that the motion of the Earth can never produce the first order effect.*»

But not so long ago in the works [4–7] while the tracking of the behavior of the satellite at the geostationary orbit the even movement of Earth was experimentally revealed without attraction of astronomic observations of the stars. Here was scientifically proved, that even movement of Earth is revealed in the aberration of electromagnetic waves (effect of first order), which are spread from the source of radiation, which was fixed relatively the receiver and the Earth itself, and it allowed directly measuring the parameters of its movement.

The source was established at the geostationary satellite Intelsat704 (USSPACECOM Catalog №23461), and the receiver in the antenna of surface radio telescope (surface station TAT-01B in Kazan, Russia). In the situation when satellite is motionlessly «hung» above the Earth, the relative speed of source and receiver is equal to zero and their coordinates (geocentric length and width of satellite, geodesic coordinates of telescope) are still practically constant during the long time.

Some real periodical shift of the satellite with an amplitude of deviation of the azimuth about 0,04° should been observed by the influence of light pressure during the twenty-four hours. But because of the influence of the aberration the antenna fixed not this factual position of the satellite (length and width), which is clearly calculated geometrically, but apparent one. As it was revealed at the experiment, these apparent coordinates change because of daily and yearly changes of the corners of aberration, which were caused by the movement of the Earth in an orbit, what caused supplementary change of measured by the surface station corners (azimuth and height). The dynamic of the behavior of apparent position of the satellite is defined by temporal behavior of aberrational additions (Δξ и Δφ) to its real geocentric ξ and width φ. The dependence of this additions of the parameters of the Earth's movement for the private situation, when satellite is at the meridian of station and has zero inclination, was mathematically described in the works [4, 6]. Here we cite such correlations for the general case of unconditioned position of satellite where the difference between lengths of sputnik and telescopes $\Xi = \xi - \xi_{\text{telescope}}$, ω – corner frequency of Earth's rotation, t – solar local time of surface station (telescope), $\beta_{orb} = (V_{orb} / c)$, $\beta_{\text{apx}} = (V_{\text{apx}} / c)$, V_{orb} – speed of the orbital movement of Earth, V_{apx} – speed of the movement of the Solar system, c – speed of light, $\varepsilon = 23{,}45°$ – corner of the inclination of Earth axis to the axis of ecliptic, $\gamma = \Omega\tau$ – slowly changing during the year phase of the orbital movement of the Earth, τ – number of days from the beginning of new tropical year (00:00:00 GMT 23 of September), $\Omega = 2\pi / T$, $T = 365{,}2422$ days – duration of the tropical year in our epoch, δ and α_{apx}, correspondingly, declination and direct ascent of the apex of the Sun.

$$\begin{aligned}
\Delta\xi_{\text{orb}}(t) &= \beta_{\text{orb}}\sqrt{1-(\sin\varepsilon\cos\gamma)^2}\,\cos(\omega t+\Xi);\\
\Delta\xi_{\text{apx}}(t) &= -\beta_{\text{apx}}\cos\delta\cdot\sin(\omega t+\Xi+\gamma-\alpha_{\text{apx}});\\
\Delta\varphi_{\text{orb}}(\tau) &= \beta_{\text{orb}}\sin\varepsilon\cdot\cos\gamma\cdot\cos\varphi;\\
\Delta\varphi_{\text{apx}} &= \beta_{\text{apx}}\sin\delta\cdot\cos,\varphi
\end{aligned} \qquad (1)$$

These expressions (1) can be used while the transition from the geocentric equatorial system of coordinates, which is connected with the meridian of telescope, into any other, in which there are measured their defined corners. In the works [4-7] there were measured azimuth and the corner of height of sputnik in the horizontal system of coordinates and was showed in detail as aberrational additions (1) change the behavior of azimuth and height of geostationary sputnik while the preservation of its factual coordinates. The main difference between the experiment and calculation without taking into consideration of aberration prediction in all these observations was the presence of the displacement of the experimental sinusoid of azimuth by the phase because of aberration to the corner ϑ into the sphere of more late times. The reason of this displacement, as it was established [4], consists in addition of two periodical processes of the similar frequency: real displacement of the sputnik under the influence of the light's pressure and apparent because of aberration. These two processes in such situation are always moved by the phase to the 90°, because vector of pressure of solar stream is directed by the radius of the Earth's orbit, and vector of orbital speed of Earth by the tangent to it. As it was shown in [4,6] the measured in the experiment amplitude α_{apx} and displacement of the phase ϑ for the sinusoid of azimuth are connected with the parameters of movement of Earth and Sun. In the general case this correlation has a view

$$\alpha_{obs}\sin\vartheta = q_1\left[\beta_{orb}\cos\Xi\left(\sqrt{1-(\sin\varepsilon\cos\gamma)^2}\right)+p\sin\left(\gamma+\Xi-\alpha_{\text{apx}}\right)\right], \qquad (2)$$

где $q_1 = \dfrac{\sin\Phi - \cos\Xi\cdot\text{tg}\varphi\cdot\cos\Phi}{(\cos\Xi\sin\Phi - \text{tg}\varphi\cos\Phi)^2+\sin^2\Xi}$; Φ – geodesic width of telescope), and $p = \beta_{\text{apx}}\cos\delta$.

While the use of experimental meanings α_{obs} and ϑ, which were measured three different times, from the decision (2) were defined β_{obs}, α_{apx} and p, and all in all the speed of movement of Earth and the parameters of the Solar system's movement. In the picture there is presented seasonal dynamic of carrying out the orbital speed of Earth, which was measured by this method.

As we in the graphs, the behavior of its values is similar to the behavior from the observational astronomy. Firstly, their averaged for the year values (29,71 kmps and 29,765 kmps, correspondingly) practically coincide. On the other hand their values in winter (the Earth is in perihelion) are a little above the average, and in the summer (the Earth is in aphelion), are correspondingly lower. Thereby, here takes a place the full aberration ($\beta_{obs} = 10^{-4}$ rad), that means such as for stars (20,5″). Received in the experiment direct ascent of the sun's apex α_{apx} was equal to 270°. This value with the high precision coincides with the hour angle of the sun's apex, which was accepted at the astronomy 18h59 min, that means 269,75°. Received in [4] values of the declination of the sun's apex (89,5°), and also the speeds of absolute movement of Solar system (600 км/с) are also rather well conformed to known. Practically clear coincidence of results with the facts from the observational astronomy confirms their trustworthiness. Thereby while the tracking of the trajectory of satellites it's perfectly necessary to take into consideration the influence of the movement of Earth to the results of observation. It becomes especially important while the moving of flying cosmic apparatuses to the big distances, when the apparent abnormalities from the factual position could be rather considerable. Possibly, for example, that the nature of still unexplained mysterious "anomaly of Pioneer", which declined the course of apparatus Pioneer10 to the hundreds of thousands kilometers from the calculation while its going out of the orbit of the last planet of Solar system, can be explained by this aberration. While the angle (20,5″) and such distances of just this order there should take place the apparent abnormality. While such explanation there is no place for the influence of inexplicable strength, and for the presence of the mistakes in the development of transmitter. The division of factual and apparent divergences is especially important in the GPS navigation, where high precision is reached by big number of corrections, for the receiving of the experimental facts of which there are working numerous stations of tracking all over the world.

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