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THE CITY AS A BIOLOGICAL TRAP.

WORKING TIME AND NUMBER OF HUMANITY.

Abstract. The amount of working time to which a person is adapted by nature was determined and it was revealed that in the city a person works several times more, so employees are lazy at work, and townspeople try to have few children. The properties of a convenient settlement for people are formulated. The principles of the arrangement of living and working space, as well as the formation of residential and industrial areas are given. A forecast was made for changes in the human population until 2300.

Keywords: *territorial planning, city, urban environment, apartment building, apartment, working hours, fertility, humanity*

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Part I. History of the city

§1. Reasons for the emergence and growth of cities

The main function of any city is to solve problems by concentrating labor and material resources.

Hundreds and thousands of years ago, cities performed the function of territory management, a place for trade, protection from attack, and so on.

The larger the enterprise or organization, the lower its costs due to the economies of scale, and for enlargement, you need a sufficient density of people, as well as the availability of office, production and storage facilities, so modern cities serve the economy, concentrating large labor, financial and material resources.

The city is a product of an economy based on industry and trade.

Note 1.

The world in 2000 BC

Population: 27 million people.

Regions: Southeast Asia — 5 million people.

China - 5 million people. Indus Valley - 4 million people. Nile Valley - 1 million people.

The main cities are Lagash (80,000), Memphis (50,000), Uruk (50,000), Garappa (50,000), and Mohenjo-daro (50,000) [4, p.117].

The world in 150 A.D.

World population: 180 million.

Population by region: China: 60 million, Roman Empire: 45 million, India: 40 million, Africa: 16 million, America: 15 million.

The main cities are Luoyang (500,000), Rome (500,000), Alexandria (400,000), Seleucia (300,000), Chang'an (250,000), Antioch (150,000), Teotihuacan (50,000) [4, p.277].

The world circa 1000 AD

Population: 265 million people

Regional population: India-80 million people, China-65 million people, rest of Asia-40 million people, Africa-35 million people; Europe: 35 million people (France-6 million, Germany-3 million, Italy-5 million).

Major cities: Kaifeng (450,000), Hangzhou (450,000), Constantinople (300,000), Xi'an (300,000), Cairo (200,000), Kyoto (200,000), Baghdad (150,000), Canton (150,000), Seville (125,000), Isfahan (110,000), Samarkand (70,000), Venice (35,000), Milan (45,000), London (30,000) [4, p. 365].

Considering that the population of the average city in the country is about 20-50 times smaller than the largest city, together with remark 1, it can be seen that from the beginning of agricultural production to about the middle of the second millennium AD, 5-10 thousand people lived in an ordinary city on Earth.

2. The city in the XIX-XXI centuries

Currently, the usual number of people in the state is several million people, respectively, in an ordinary modern city there are 100 thousand people or more. Such a mass of people in a one-story settlement requires huge territories for its placement, so high-rise buildings are common in today's cities; moreover, the larger the city, the higher the building height is also greater – in today's cities with millions of people, houses with 30-50 or more floors look quite normal.

Cities with a population of more than 100 thousand inhabitants are a mess: high-rise buildings, one-story houses, large businesses, office centers, shops, pharmacies and offices on the first floors of buildings, schools, hospitals, parks, monuments, streets of different widths, an excess of cars, dogs and cats, homeless people, street gangs, and so on.

Part II. Working hours and city

Different groups of hunter-gatherers work from 4-5 hours a day [5, p. 32] to 5 hours a day [5, p. 33]. On average, they work approximately 2.5 days during a seven-day week [5, p. 37], that is, they have 9 days off for 5 working days.

Farmers engaged in slash-and-burn farming work approximately 4-6 hours a day during the work season [5, p. 66], and if they work from morning to evening, then the next day they must rest [5, p.66-67]. It is estimated that such farmers rest approximately 161 days a year (men) and 164 days a year (women); in addition, due to diseases, men do not work 9 days a year, and women-3 days a year [5, p.73].

By work, researchers understand the search for edible plants, hunting, making tools, clothing and jewelry, and cooking.

Under the absence of work, researchers understand sleep, chatter and gossip (that is, not business conversations), receiving guests, entertainment, eating, raising children, and the like.

With this data, you can subtract the average amount of working time per year for hunter-gatherers and primitive farmers:

5 working hours per day * 2.5 days * 52 weeks per year = 650 working hours per year for hunter-gatherers.

5 hours a day * (365 days a year – 162 days of rest – 5 days of treatment) =
= 5 hours per day * 198 working days = 990 working hours per year for primitive farmers.

Thus, it can be seen that the transition from hunting and gathering to slash-and-burn agriculture increased labor costs for humans by $990/650 = 1.5$ times.

Conclusions 1 and 2:

1. 650 working hours per year is the usual standard of working time, to which a reasonable person is adapted by all his nature.

2. 1000 working hours per year is the maximum amount of working time that a person can stand.

Now you can move on to the labor costs of modern people in cities.

Table 1. Daily labor costs in modern cities

№	Indicator, in hours	A city with a population of 50-300 thousand people.	A city with a population of 0.3-5 million people or more
1	Work in the workplace	8	8
2	Travel to and from work	For 0.5 hours there and back – only 1 hour	1.5 hours there and back – only 3 hours
3	Processing and working in your lunch break	0.5	0.5
4	Shopping in stores	0.5	0.5
5	Household chores (cooking, cleaning, etc.)	1	1
6	Caring for children on a working day	1	1
7	Entertaining children on a day off	3	3
	Total, on a working day	11	14
	Total, for 250 working days per year (five-day working week)	$11 * 250 = 2750$	$14 * 250 = 3500$
	Total, for $365-250=115$ days off per year	$3 * 115 = 345$	$3 * 115 = 345$
	Total adult labor costs per year	$2750 + 345 \approx 3100$	$3500 + 345 \approx 3850$

Conclusions 3 and 4:

3. With a five-day working week and an 8-hour working day in an ordinary city, a person works more than 3,000 hours a year.

4. With a five-day working week and an 8-hour working day in a large city, a person works about 4,000 hours a year.

Table 2. The amount of overworking of a person's working time in the city

№	Indicator	How many times more people work in an ordinary city	How many times more people work in a large city
1	The usual amount of working time to which a person is adapted – 650 hours per year	$3100/650 =$ $= 4.8$ times	$3850/650 =$ $= 5.9$ times
2	The maximum possible amount of working time to which a person is adapted – 1000 hours per year	$3100/1000 =$ $= 3.1$ times	$3850/1000 =$ $= 3.9$ times

Conclusions 5 and 6:

5. With a five-day working week and an 8-hour working day in the city, a person works about 5-6 times more than they are adapted to.

6. With a five-day working week and an 8-hour working day in the city, a person works about 3-4 times more than they can work at maximum.

Therefore, people at work in the city are constantly lazy: employers complain about negligent employees, which they do slowly and poorly, and employees complain about heavy output standards and a large amount of work.

This also leads to the indifference of parents to their children – they simply do not have time to study and play with their children.

Conclusions 7 and 8:

7. Laziness at work is a way for employees to take a break from the colossal processing.

8. Inattention to their own children is a way for parents to save their own time and effort.

Table 3. Comparison of the time spent moving to work in the city and the full-time work of hunter-gatherers and primitive farmers

№	Indicator №	Time spent commuting to and from work in a typical city – 1 hour a day or 250 hours a year	Time spent commuting to and from work in a large city – 3 hours a day or 750 hours a year
1	Normal amount of working time that a person is adapted to – 650	the average person spends $250/650 * 100\% = 38\%$ of the normal working time	On the road to and from work in an ordinary city The average person spends $750/650*100\% = 115\%$ of the normal working time
2	The maximum possible amount of working time that a person is adapted to – 1000 hours per year	On the road to and from work in an ordinary city a modern person spends $250/1000*100\% = 25\%$ of the maximum possible amount of working time	On the road to and from work in a large city a modern person spends $750/1000*100\% = 75\%$ of the maximum possible amount of working time

Output 9:

9. In a large city, a person spends almost all of their maximum possible working time on the road to and from work.

Part III. Person and city

§3. How is a reasonable person adapted to live

Homo sapiens or homo sapiens is a hardy, active, diurnal, omnivorous hunter-gatherer.

Homo sapiens is adapted to long hours of chasing prey in the daytime.

A reasonable person is adapted to a long, many-hour daily search for edible plants.

Homo sapiens is neither nocturnal nor nocturnal.

In fact, intelligent man needs a day, fresh air, and open space to function.

Rest in a reasonable person occurs at night, preferably in a place protected from bad weather and nocturnal predators, that is, in a confined space.

In the summer, a reasonable person seeks to make supplies that he will eat in the winter.

A reasonable person is adapted to life in small related groups, with a total number of adults and children from 25-35 people. for hunter-gatherers [5, p. 37], up to 150-350 people. for farmers engaged in primitive agriculture [5, p. 57].

Thus, any settlement with one-story or two-story buildings, in which up to 2-3 thousand people live, is represented in the minds of people as a combination of several village communities, which is acceptable for life.

But a city where 5-10 thousand or more people live and where residential buildings with a number of floors of more than 3 or more floors are common is an uncomfortable settlement in the perception of people.

4. Anti-human properties of the city

1. There is no connection with nature.

A distant park and a couple of trees with bushes outside the window – this is not nature. Lack of sunlight in the city due to high-rise buildings.

2. The inhuman rhythm of life.

2.1. A person should work in the city at any time of the year, although they are naturally adapted to reduce their activity in the winter season.

2.2. In the city, a person must work at any time of the day – a person is not adapted to work in the evening or at night, and at enterprises there are works in two or three shifts.

3. Discomfort from destructive factors.

City noise, barking dogs, knocking neighbors, loud music, the hum of air conditioners, screams under the windows, the light of lanterns, and so on—all these destructive factors prevent people from living.

4. Crowds of people.

Constantly being among groups of strangers is a stressful factor, because you don't know what to expect from a stranger.

5. Work in conditions of lack of oxygen.

During work, a person should receive maximum oxygen, that is, be in the fresh air, and not in a dusty room with a low concentration of oxygen in the air.

6. Low level of personal security.

The city is a breeding ground for organized and professional crime, so no one knows who is in front of him – an honest citizen or a criminal who has planned an evil deed against him.

7. Devaluation of personal relationships.

The city creates loneliness, the so-called loneliness in a crowd, when people do not appreciate either each other or communication with each other, because there are a lot of people everywhere and people seem to be interchangeable, but this, in fact, is not the case.

8. The small size of what it considers home.

In the city, a house is just a small apartment.

In a village, a house is a private house, a plot of land near it, a barn, a field with a future crop; also in a village, with the consent of the community, you can actually own certain areas of forest or river.

9. Lack of physical activity

In the city, you do not need to apply physical force often, and the person is adapted to a high level of physical activity.

10. Availability of industrial enterprises.

Industrial enterprises located within the city limits significantly worsen the environmental situation in it.

11. 4-5-fold processing of working hours.

§5. The virtues of the city

The city has many advantages:

1. Low need for physical labor.

2. Higher salaries and more job openings.

3. More options for making money with your own business.

4. A wide selection of people for business and personal dating.

5. The presence of a large number of various grocery and non-grocery stores with a wide range of products.

6. The presence of a large number of various entertainment and entertainment establishments.

7. Availability of a large number of public catering establishments with all kinds of dishes.

8. Availability of a wide variety of educational institutions.

9. Availability of a well-developed network of polyclinics and hospitals.

10. Availability of powerful emergency services.

11. Developed transport infrastructure.

12. The presence of air transport, thanks to which you can visit the whole world.

13. Availability of a convenient and developed communication network.

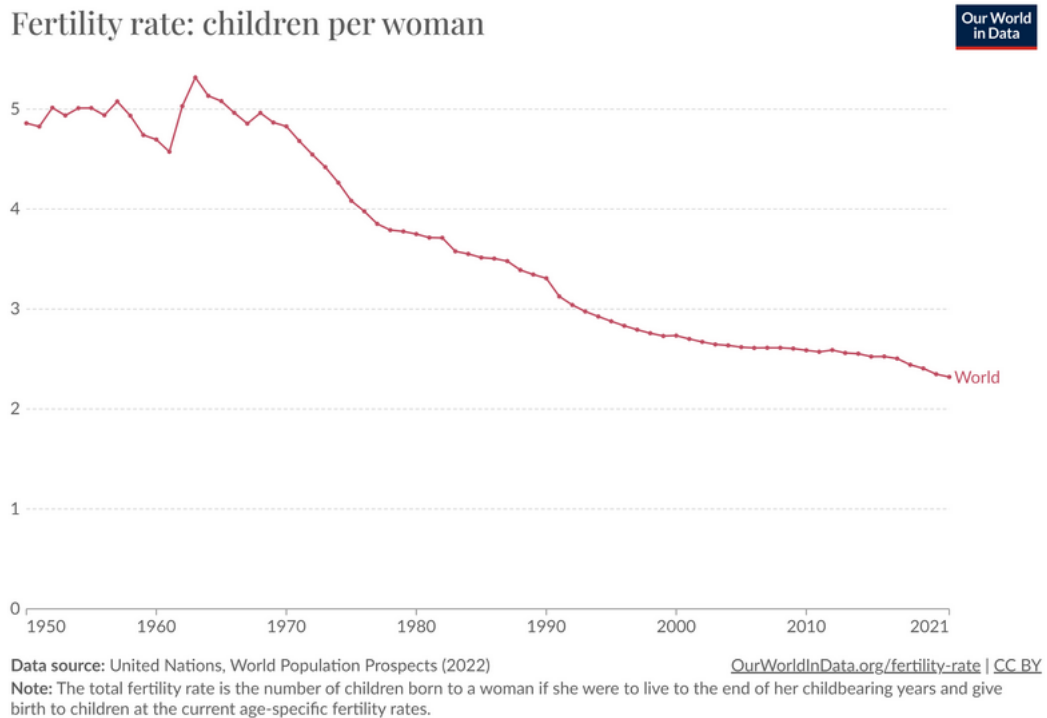
14. Availability of parks, squares and other places for public recreation.

15. The city is built of apartments that require less money and effort to maintain than a private house.

§6. Urban birth rate and human population

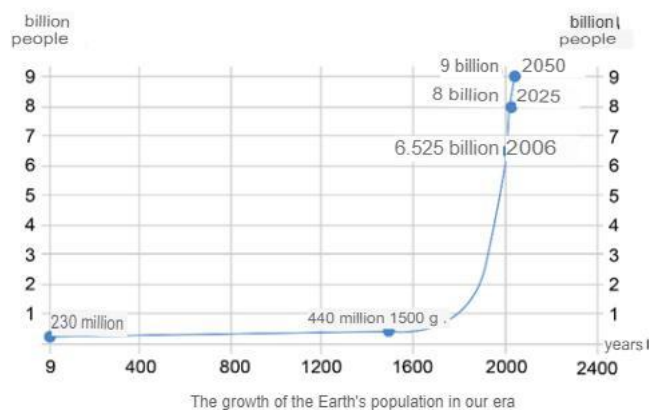
The birth rate in the city should be understood as the birth rate of the second and subsequent generations of citizens. Such statistics are not currently maintained, but it is known that "urbanization is a powerful factor in reducing the birthrate" [2]. In fact, the city is a pump that pumps people out of the countryside and "destroys" them inside itself. This kind of biological trap was described by Edmond Hamilton in *The Star of Life*: this star gave everyone a life span of several millennia, but after two generations, all the descendants of humans became barren. So is the city-it attracts people with many virtues (for more details, see section 5 – - but at the expense of this, it "selects" children. **In principle, in the future, there should be a certain balance on Earth between the village with a high birth rate, which supplies people to cities, and the cities themselves, in which the population will be constant due to the birth rate below the level of natural reproduction.**

But there are fewer and fewer villages on the planet – people are constantly moving to cities, which is why, at present, there has been a strong trend on Earth since 1970 towards a multi-year drop in the total birth rate for the entire population of the Earth [7]:



If you look at the graph of global population growth, you can actually see vertical growth in the twentieth century [1].

THE GROWTH OF THE WORLD'S POPULATION



But "trees don't grow to the sky" (German: Gerhard Uhlenbruck) [8], so we can assume:

1. The world's total fertility rate will fall below the level of simple reproduction (below 2.1 children per woman) in the coming decades.
2. The growth of humanity in absolute terms will continue for several more decades (perhaps the growth of the human population from today's 8 billion people. [3] up to 9 or 10 billion people).
3. The falling global total birth rate in the second half of the twenty-first century will break the trend of global population growth and start a recession.

4. The duration of the decline in the human population will not be less than 100-150 years, but hardly more than 250-300 years.

5. As a result, the number of humanity should be established at approximately the same level, and it will be maintained for several millennia.

6. This level can be estimated as a 2-3-fold drop from the maximum human population estimated at 9-10 billion, i.e. from the 2200s, the human population will stabilize and become 3-4 billion. people.

7. In order for the human population to exceed 5 billion people after 2200, a new powerful trend should be formed and manifest itself, which would increase the number of humanity, but at present such a trend is not observed. This trend can be quite easily found in the life balance equations for a person and for a family (reduce the amount of mortgages, reduce the time to get a specialty, and so on) [6].

§7. Economy and the city

The economy, which began to develop in the 18th century, developed in the 19th century, and expanded in the 20th-and 21st centuries, is based on **the principle of free and infinite labor resources: there are always people and there are always a lot of people, but there is not enough work, and there is not always work.** This principle allows you to force people to significantly recycle.

But three or four centuries is nothing compared to two hundred thousand years of the history of Homo sapiens, and if you add to this period of time a few million years of the history of ancestral species for humans, it becomes clear: the current state of the economy is a temporary insignificant deviation from the norm.

Part IV. System of principles for housing, territorial zoning, and labor

Principle №1. : There is no city.

There is no separate unit, such as a city. Instead, there is territorial zoning, where each district has its own purpose. There are villages, there are villages, but cities, like megacities, are not.

Principle №2. In a residential area, people live, but do not work and do not rest.

In a residential area, people live, but do not work and do not rest. Parks, business centers, large stores, and industrial enterprises should be located outside the city. In a residential area, small grocery stores, pharmacies, clothing stores, kindergartens and schools should be within walking distance. Large public spaces, such as squares, should also be located outside of residential development.

Principle № 3. Residential buildings are no higher than 3-5 floors.

A person is not a burrowing creature, so it is uncomfortable for him to be in "burrows", and a multi-storey building is, in fact, a vertical burrow. Therefore, a person does not want to live in " burrows " under the ground and under water.

Principle № 4. Large living area of the apartment.

The apartment sizes are as follows:

3.1. Apartment for one person – two rooms plus a balcony.

3.2. An ordinary single-family apartment (five rooms) – three rooms for children, one room for parents, one shared room and two balconies.

3.3. Large single-family apartment (ten rooms) – five rooms for children, three rooms for parents, two common rooms and two balconies.

Thus, it should be like this: instead of a modern one-room apartment – a two-room apartment, instead of a two – room apartment – a five-room apartment, instead of a three-room apartment-a ten-room apartment.

Rooms should have an area of 12-20 square meters each.

The kitchen-dining room should have 15-25 square meters.

There should be a separate bathroom, separate shower room and one or two toilets.

Principle №5. There is little transport in the residential area.

5.1. There should be no parking under the windows of the house.

5.2. Trees, bushes and flowers should grow near the house.

5.3. Homes must be protected from the impact of highways.

Principle №6. Plenty of air and light in the apartment.

Apartments should have enough sunlight and fresh air, and apartment buildings should not be located close to each other.

Principle number 7. Silence in the apartment.

Sound insulation, especially of one apartment from another, should be removed with considerable attention. Ideally, at night in an apartment with the windows open, there should be a so-called ringing silence.

A loud barking dog is a problem that should be solved, including by radial methods.

A ban on music and construction work in the house in the evening and at night should be introduced and observed.

Principle №8. No more than 5 thousand people of the population in a residential area. If significant labor resources are to be concentrated to support the operation of industry or management, then people must travel to work from many different residential areas.

Principle № 9. The length of travel to and from work is included in working hours.

When a person goes to work or returns from work, he spends first, his life time, and secondly, his physical and mental strength – these costs must be compensated by the employer.

Principle №10. Plenty of light and air in the workplace.

The work should be organized in such a way that in a closed room the oxygen level would be the same as on the street, and the light would be the same as on the street.

Principle № 11: Work depends on the weather and time of year.

Work should be canceled in bad weather.

In winter, the length of the working day should be significantly less than the length of the working day in summer.

Principle № 12: Concentration and division of labor in a working-class area.

In working-class areas, you should strive for the maximum level of division of labor and concentration of resources, that is, you can and should build huge business centers in buildings with 100 or more floors, organize huge multi-storey shops and hospitals, build multi-kilometer factories and so on. The working space does not need trees, squares, squares and other amenities for people's lives.

Principle № 13: Functional connection between residential and working areas.

Moving people between home and work (between the city and the workplace) should be carried out as follows: a person leaves the quarda, walks 10-20 minutes to his car or to a public transport stop, and then moves to the work area. In the work area, transport must be organized in accordance with the requirements of the workflow.

Principle № 14. Wide application of the shift method of work.

To save time and if you need to concentrate large labor resources in one place, you can use the shift method.

Principles of the shift work method:

14.1. The total duration of working hours, including commuting time, should not exceed 1,000 hours per year.

14.2. The lunch break should have a duration of 3-4 hours.

This point is based on the consideration of the life of hunter-gatherers, who regularly sleep from 50 minutes to 3 hours and 15 minutes a day during the day [5, p. 36].

14.3. Multiple pay differences for women of childbearing age compared to men and women who are past childbearing age.

In order to maintain the human population, a woman should have the time and energy to give birth and raise children, so if a fertile woman works, she should receive much more (2-3 times or more) than a man in the same position or a woman who has left the fertile age.

Conclusions:

1. Man is naturally adapted to work 650 hours a year, with a maximum of 1000 hours a year.

2. With a five-day working week and an 8-hour working day in the city, a person works from 3,000 to 4,000 hours a year.

3. With a five-day working week and an 8-hour working day in the city, a person works about 5-6 times more than he is adapted to and 3-4 times more than he can work as much as possible.

4. Laziness at work is a way for employees to take a break from the colossal processing.

5. Inattention to their own children is a way for parents to save their own time and effort.

6. A settlement with one-story or two-story buildings, where up to 2-3 thousand people live, is considered acceptable for people to live in.

7. A city where 5-10 thousand or more people live and where residential buildings with more than 3 or more floors are common is considered an uncomfortable settlement by people.

8. The city provides many advantages to human life, while at the same time forcing people to have as few children as possible; thus, the city acts as a biological trap, both attracting and destroying.

9. Forecast until 2300.

9.1. The world's total fertility rate will fall below the level of simple reproduction (below 2.1 children per woman) in the coming decades.

9.2. The growth of humanity in absolute terms will continue for several more decades (perhaps the growth of the human population from today's 8 billion people to 9 or 10 billion people).

9.3. The falling global total birth rate in the second half of the twenty-first century will break the trend of global population growth and start a recession.

9.4. The duration of the decline in the human population will not be less than 100-150 years, but hardly more than 250-300 years.

9.5. As a result, the number of mankind should be established at approximately the same level, and it will be maintained for several millennia.

9.6. This level can be estimated as a 2-3-fold drop from the maximum human population estimated at 9-10 billion, i.e. from the 2200s, the human population will stabilize and become 3-4 billion. people.

9.7. In order for the human population to exceed 5 billion people after 2200, a new powerful trend should be formed and manifest, which would increase the human population, but at present such a trend is not observed. This trend can easily be found in the life balance equations for a person and for a family (reduce the amount of mortgages, reduce the time to get a specialty, and so on).

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