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Cult Rural: Promotion of a Cultural Area Common to European Rural Communities

INSPIRATION, INNOVATION AND TECHNOLOGY IN A RURAL PERSPECTIVE

THEME 2

AFMA/MuCEM

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Cult rural

Scientific report - FRANCE

Chapter 1: the geographical background

Surface

France is extended on a surface of 551.500 km². It counts 59,6 million inhabitants (at January 1, 2003) without counting the territories and overseas departments, 61,4 million by including those, which classifies its population with the second rank of the States Europe, behind Germany.

Borders

The territory of France has the form of a hexagon. It was made up since the Middle Ages, over one duration of at least a millenium, by the obstinated and unifying will-power of the kings then the Republic. Balanced, the hexagon opens on three large maritime frontages and is limited by three land borders. It acquired its current dimensions at the conclusion of the Franco-German wars of XIXth and the XXth century.

In the south, the border with Spain is consisted on the Pyrenees chain of mountains which culminates with 3.404 meters with the peak of Aneto. In the east, the Alps and the Jura mountains close the borders with Italy and Switzerland, while the Rhine river separates France from Germany. These borders are "naturals", tight during a long time, and which now pose serious problems of crossing, by collars, bridges, road tunnels and railway, taking into account the increase in the European traffics. The Pyrenees, the Alps and the Jura confer to France a mountain dimension which it shares with the adjoining countries. The French Alps of north constitute more the skiable vast domain of Europe and are at the origin of the majority of the sports of mountain. The Mount Blanc, the highest summit of Europe, culminates with 4.807 meters.

In the North, the border with Germany, Luxembourg and Belgium is on the contrary much more open. It recuts the old massif of Ardennes, with modest altitudes, and the large plain of Northern Europe. It was a long time the border of the conflicts, battles and invasions. It is now, on several points, the place of an intense transborder activity between the area of Lille and Belgium, between Lorraine, Luxembourg and the Saar. But other transborder areas, stimulated by the European agreements, take shape in other places, on the Rhine between Alsace and Bade-Wurtemberg, around Basle-Mulhouse and Geneva, in the area of Nice, in Catalonia and in the Basque Country.

France has the exceptional privilege to open on three maritime frontages, if they are not four. In the south, it is Mediterranean, with a very sunny littoral, bluffed coasts and picturesque in Provence and on the Riviera, with long sand beaches in Languedoc. In the south-west, it is Atlantic, under a wetter climate, but soft and luminous, littorals generally made up of sandy beaches bordered of marsh or dunes. In the North-West, it opens on the English Channel and the North Sea, the maritime "Channel", the most frequented of the world, between the Atlantic and the large Belgian, Dutch, British ports and German of the North Sea. France has two ports with an European dimension, Le Havre and Rouen on the low valley of the Seine, and Marseilles on the Mediterranean with the outlet of the Rhone valley. However, France was never and is less than never a maritime great power, as it could be. The principal activity

of the French coasts is now tourism, developed everywhere, from the North Sea to the Mediterranean. The quality of its littorals contributes to make France, with its mountainous solid masses, its historical campaigns and its cities, the first tourist host country of Europe and of the world.

Theariety, the unit and the centralism

Between all these components, France seems a territory with an astonishing variety. The French cultivate the pleasures of them: the diversity of their cheeses, their wines, their cookery usages. They remain also very attached to their municipalities, bases of the Republic territorial administration, with departments and regions. With a little more than 36.000, the French municipalities constitute a singular fact in Europe and in the world by its extraordinary dispersion. With a more reasonable dimension, the 22 metropolitan regions and the 100 departments have generally a lower size than their foreign countries.

The variety of the French territory, crossing of history and geography, is at the measurement of the administrative squaring. Variety of the climates, between the Mediterranean one and the Oceanic one, the maritime one and the continental one. Variety of the reliefs, the large plains of the center of the basin of Paris to the summits of the Alps or the Pyrenees, from the Massif Central mountain or the Vosges to the large valleys of the Rhone or the Loire. Variety of links to the French territory, from the Ile-de-France, heart of the country since the first Capétiens kings, to Savoy, the county of Nice, Alsace and Lorraine, tied up until XIXth and the XXth centuries. Variety of the languages source, the dialects and the habits. Variety of the cities, most of them with a very old history. Variety of the areas and the countries. This territorial mosaic prolongs what was a long time France: rural, country, token root in very old traditions, rich (or poor) of a mixed-farming with varied components and whose three pillars remain a cereal system with very strong productivity which prevails in the basin of Paris, an always long-lived tradition of breeding in the west and the Massif Central, a Mediterranean version bases vine growing, fruit-bearing arboriculture and vegetables production. From where the diversity and the beauty of the landscapes, between plain and scrap-metal, forests, garrigues, slopes wine and irrigated perimeters. From where a place of first choice in European agriculture, in particular cereals, bovine production, dairy products, the wine, fruit and vegetables. To make good measure, it is advisable to add a tropical key with the islands of the Caribbean, the Indian Ocean and the Pacific.

The paradox, unless it is a complementarity, is that this mosaic gave rise to the State and to the most centralized territory of Europe, and among the most centralized in the world. The State, relayed by departments and municipalities, affirm the Republic unit, everywhere presents by the public services, and particularly by the school. The industrial expansion of XIXth at the XXth century and the deployment of the grid system, the university chart and the universities, at the origin very concentrated on Paris, the establishment of a capitalism generally pressed on the State and large national societies, contributed to model a very centralized territory where are opposed Paris and the province, and, within this one, of the very dynamic areas like the Rhone-Alps or others, much less supported, like Auvergne or the Limousin. The main expression of this plurality is the transport network which the railroads reproduced the star drawing of the old royal roads, and maintaining the air lines and the TGV from the XIXth century railroads. All converges towards Paris. All proceeds of Paris. Admittedly, a very voluntary political of territory arrangement, resolutely committed since the Second world war, very strongly corrected this tendency, just as the laws of decentralization

in 1982. The French territory remains nevertheless marked by centralization, in the past by the industrial production and the principal services, and now decisions, of the noblest services, the mode, the art and the culture.

Three faces of France

The contemporary France, after the crisis which has deeply affected the agricultural and industrial areas, can appreciate itself according to three great types of landscapes, under an apparent uniformity which has an average density of 111 inhabitants/km², appreciably lower than that of almost all the adjoining countries.

Paris and the Ile-de-France remains single in their kind. It is, more and more, a vast urban area which overflows the limits of the Ile-de-France and which has only large London like equivalent in Europe. More than 11 million inhabitants reside and work there. This region remains the first French area in almost fields. In spite of the efforts of the government in contrary direction, the strongest public investments must be agreed always there. Paris, prestigious capital, is a town of world radiation in all fields, rather more it is true in the order political, tourist, artistic or cultural than in the economic sphere. The population of Paris and the Ile-de-France has ceased growing, but the Parisian "franges" extend now to the close areas. Paris and its suburbs are the most important "melting pot" of France with an immigrant population of approximately 1.600.000 people.

The metropolitan surfaces of France, distributed in almost all the areas, is currently that whose population increases more, with the measurement of their economic dynamism.

Areas remain very marked by the industrial crisis of the Seventies and Eighties, such as Lorraine, the Nord-Pas-de-Calais, Haute-Normandie. The old industrial centers as Saint-Etienne, Le Havre or Montbéliard are in a declining demography. They are rather exceptions. Almost everywhere, the development of the services and some industrial successes involve the urban growth. New peripheries and new campaigns revived take shape by the direct influence of close cities. Most of the French areas are concerned with this phenomenon of "metropolisation" space, as well around agglomerations of 200.000 inhabitants like Caen, Mans or Angers in the west, as in more important metropolises of the east or south of the country, like Grenoble, Montpellier or Bordeaux. The most increases are observed in place which metropolises are carried by the greatest economic successes, for example Nantes-Saint-Nazaire Bi-pole on the Loire estuary (approximately 800.000 inhabitants), principal industrial and services metropolis in the West, or Toulouse, European city of aeronautics (urban surface of Toulouse: 965.000 inhabitants).

In the interstices of these metropolitan surfaces, is keeping a rural France, only animated by small towns, often charming places. Agriculture, in family exploitations with low productivity, leaves more and more place with the waste land or reforestation. The population decreases, as well by the fall of birth rate as by emigration, this one having arrived almost at the end of its possibilities. The densities fall below 20 inhabitants per km². After the disindustrialization and the peasant exodus, the public services are in question. Tourism, weekly or estival, become the main economic activity. All the French areas, on their margins, are affected by this phenomenon, but more particularly those of the Center, from the south of Lorraine to the Pyrenees, while passing by Auvergne and the Limousin. It is "France of the blank", but also a

exceptionnal reserve of history, nature and culture, an always alive inheritance and which still allure, a place of memory.

The extreme diversity of the territories in France is ins the accordance of the other parts of Europe, but with accents still more contrasted. "Old country", wrote the general de Gaulle, old by the thousand-year history, the stratification of the uses and the traditions.

Chapter 2: The relevance and importance of the theme to sustainable development

Sustainable development is a concept which applies to most of the fields of the individual life, our subject will relate to the fields of agriculture, town planning or more largely of the habitat modes and the improvement of the daily life but also public health.

Sustainable development is considered as the answer concerning the care for nature and its resources, care concerning pollution, industrialization, population increase, in fact the other side of the coin, marked by progress and science which characterizes our Western societies. Although the approach of sustainable development can be multiple, we will register it mainly in the ratio man /society.

Approaches the subject

Sustainable development, concept which seems to us obvious and impossible to circumvent today emerged starting from the end of the XVIIIth century and has been refined throughout the XIXth century. The role of the geographers and the ecologists movements, which are born at the end of the XIXth century are determining in the essential need to protect the natural resources and to consider management styles of these more respectful resources.

The treatment of our subject implies a thorough gaze of our rural past and invite us to consider the fact that we could learn lessons starting from the experiment and of the lifestyle from our ancestors. We propose to understand and to show this in the frame of this European program while always taking care to relativize the patrimonial testimonys bequeathed by the former generations and witnesses of their experiments. Indeed, we don't want to idealize the last generations which would be regarded as virtuous whereas we would be today only the and irresponsible wastefuls. The interest for the past as source of contemporary inspiration could be put in relation to the recent interest carried by the researchers for the primary populations which are today to be models to be followed whereas thirty more years ago, they were uncultivated and inefficient. We don't want to idealize and promote a romantic vision of the primary people and Western agricultures and peasants pre-contemporaries. We will obviously take care not to turn over deliberately towards a completed past, a kind of "rival" which would hardly have direction today.

If the nowadays man is not virtuous, the man of the past wasn't more virtuous. The ecological catastrophes, climatic have always marked out the human life. Until the XVIIIth century, they were an expression of a divine angry, God punishing human for their "bad conduct", God being the only explanation of the unexplainable facts: agricultural catastrophes, great epidemics...

The century of Lights, by the mean of Jean-Jacques Rousseau, laicizes the catastrophe and allots "the evil to the complete and whole responsibility for the human". (p. 12). Human are responsible for nature and its resources which they exploit in a bad-considered and destroying way.

The traditional rural culture can constitute a reserve of ideas and alternatives techniques able to bring some solutions to the environmental problems generated by our contemporary societies: insertion of the build in the landscape, farming method, manner of living, of insulating, energy saving, material saving etc

It will be a question of making the sum of the practices and objects intervening in a natural stock resource by various processes such recycling, recovery, the intelligence in the exploitation of the natural properties of the raw materials and of proposing nowadays unquestionable re-use of old techniques.

In the preindustrial societies, a certain conscience of the saving results in a hyper-use of each material by reducing the production of waste to the maximum. This conception of the resources involved a permanent adaptation of the gestures and attitudes going until transforming the daily life and giving rise to a production of objects adapted to a saving in subsistence. In the zones of cold climate, the need of calories to fight against the cold justifies a profitability of the fat contents. Thus animal greases (pig) will give place to a particular mode of cooking, boiled which allows a maximum use of the nutritive matter. This mode of consumption applies to other objects or matters used in the domestic sphere (textile, metal, wood, straw). Thus, the rural economy in the future has like type of operation an essential notion of the contemporary economy, recycling. Any resource is exhausted as its maximum and to pass little from a field of application to another. For example, worn sheet will be transformed into dish-cloth. Wood is used to make shoes, chips will be used to feed the fire of the chimney, and ashes resulting from the combustion of wood will be used like bleaching agent of the lye. In the same manner, the dish water is used as a basis for the pig food. The worn shoe will be transformed into whetstone sheath for the stone to sharpen it false. This society was not confronted with the problem of the management of waste, keeping more as possible for a long time the objects in the use circuit.

In the preindustrial rural society, the stages of the various operational chains are organized according to this principle of saving in material (closed circuit), so that the taking away or the use of the natural resource has a reasoned objective.

It is possible to consider that this mentality has also involved similar attitudes in the field of artistic creation. In a more general way, the mental posture related to the constraint could have generated a step close for the field to Popular Art in the countries of the European area.

To create, it is also to spare: to economize the time of manufacture, to spare the time for decoration, to spare materials, this combination giving place to an exacerbation of ingeniousness and effectiveness.

The relative permanence of this mentality can be analyzed by a certain opposition to progress. The opposition to progress will be analyzed by the means of the anchoring of the farming community in time and space.

A key of comprehension of the rural world resides in a particular conception of time. A conception of daily life with evenings but also one time, cyclic, based on a repetition of the agricultural works, seasonal and calendar festivals. In parallel the strong anchoring and the feeling of membership of a territory anchors doubly the farming community in an eminently stable system.

This environment tends to cause a reiteration of the same gestures on materials known for indexed uses. The transmission of the knowledge by oral way or imitation of the gesture ensures the perennality of a certain mode of production.

The collective practices of rural world imply an adaptation of work and lifestyles according to the soils and of the seasonal rhythm. This common and Communitary lifestyle requires common symbolic inscriptions systems but also individual means of distinction within the

group, illustrated in particular by the decorative motives in popular art. It would be interesting to study the aesthetic forms which are included in these functional objects within the frame of an solidarity economy.

The country society had acquired empirical knowledge, often rigid but not preventing adaptations from knowing erudite (Olivier de Serres, for example). Opposition to progress and mobility function together; the base of knowledge acquired by heritage makes it always possible to rebound on local innovations, which are true resources of sustainable development. It is the case, for example, for the cow charolaise breeding. The modes of consumption and contemporaries productions are not dependent any more on the immediate environment which however offered simple and effective solutions. Our contemporary society asks the question to better manage this heritage on the world level. The rural society can learn to us, without passeist or nostalgic glance, an ecology of our resources and their use on the territory. That is also pressed on the agricultural organizations, the Chambers of Agriculture for example.

All seems to oppose these two types of society. One, is a society which tends to solve the vital question of the subsistence. The other is a society of overabundance which tends to solve the problems resulting from overconsumption. Can't and shouldn't we wonder about what these country societies can have bequeathed to us?

The confrontation of the various solutions brought in the seven Member States of the operation "cult rural" as well from a point of view technological as from the material point of view which results from this would offer to the whole of the partners a comprehensive view, left repertory to the use not only of choice of politics, of industrialists, but also of the general public.

Chapter 3: The core concepts of the theme

Definition of sustainable development in Europe

Sustainable development contributes to an improvement of the quality of life of the populations by the reduction of air pollutions, of the ground and the water, the improvement of the way of life, in particular landscape, the protection of spaces containing a specific fauna and flora.

Parallel to this step, equity has to be searched, with the idea of the division and the durability of the richnesses.

Sustainable development is very present in the agricultural politics, and also in the research of mobility management in urban and peri-urban environment, the reduction of the fossil energies consumption to the profit of renewable energies.

The protection of the biodiversity goes back to the years 1960 with conservative measures like national nature reserves, regional natural parks (PNR) (decree of March 1, 1967), natural reserves, littoral spaces (Conservatoire du Littoral).

The interministerial circular of June 1, 1967 specifies the missions of the PNR “of preserving the original fauna and flora of our natural areas, to make it possible to the more townsmen each day to find periodically in true contact with the rural areas, to help certain agricultural areas to find a way new in their development”.

The sustainable development is integrated into the politic of territories planning.

At the present time, whereas sustainable development is founded on three pillars, equity, socio-economic aspects and environment, only the last shutter seems to find now an concrete application.

Agriculture and sustainable development

Agriculture is concerned with sustainable development:

- To provide to the men food products essential to their feeding and a quality food
- To ensure the durability of the rural territories while producing better in order to spare their environment with short, average and long term.

“Sustainable” agriculture is defined compared to productivist agriculture.

It calls into question the agricultural revolutions founded on technological advance (generalization of motor mechanization, chemical of agriculture, increasing recourse to biotechnologies).

One of the essential components of durable agriculture is the cultivated spaces.

Sustainable development and agriculture

Towards the end of the year 1980 has emerged in France the concept of plurifonctional and durable agriculture which insists on the new functions agriculture: protection of the environment and biodiversity, maintenance of rural areas, production of landscapes, territory planning. It makes a broader place with the new aspirations of the society and gives again legitimacy to the government aid. This concept allows to go on the way of the remuneration

of the various functions of agriculture and so the decoupling of the assistances and of the production.

Popularized by the Brundtland report (1987), the concept of sustainable development emerged in the United States in the beginning of the year 1980, with the favour of the political turning taken by the majority of the components of the movement ecologist. Recognizing the legitimacy of economic development and social, this one sought to reconcile the requirements of this development with those of the protection of the resources and the natural environments. To the initial ecological and economic objectives were added to Rio Meeting, the social, political and geopolitical objectives, even cultural. This widening multiplies the possible points of view on the durability concept.

Chapter 4: The components of the theme

1st part: The earth in question

To recall the history of agriculture and breeding in France on more than 4000 years is obviously impossible on some pages. Nevertheless, we endeavoured to recall, chronologically, the principal technical phases of evolution of French agriculture by supporting us on center technological major, in accordance with the spirit of the subject which we must cover in the Cult rural program. These independent factors constitute benchmarks which will be placed in the introductory space of the exhibition. The objective of this frise is to show how the man tried to overcome, at all costs, the food shortage, without never arriving there for most various reasons: control production equipments, technological changes, recourse to science, opening of the markets.

Origins of Agriculture and the Breeding: manual agriculture and animal energy (from the Neolithic era to the end of the Barbarian Invasions)

From the nomade man to the sedentary man

The agriculture and breeding mark a fundamental stage in the evolution of humanity, and the passage from a statute of predatory nomad (hunter, gatherer, fisherman) to sedentary men who domesticate plants and animals. Obtaining food products better and better controlled allows the growth of the human population. The agriculture appeared simultaneously in several zones of the world. The agriculture of the euro-Mediterranean zone, originating in the Middle East diffused towards the Mediterranean) then the South towards the North (Northern Europe) between 6000 and 2000 before our era. Originating in the Middle East, the plants (corns - engrain, starch manufacturer, common wheat -, barley, pea, lens, tare, flax) and the animals (goat, sheep, ox, pig, dog) arrive to Europe by the Danubian and Mediteranean currents.

Thus sedentarized, the populations develop production equipments which evolve unceasingly in their form since stone tools until those made of iron, but also their use passing from a manual agriculture to a tractor drawn agriculture.

Human energy and tools

Manual agriculture is based on human energy and the use of production equipments whose principal tools are the hoe (ploughing of the soil)) and the sickle (harvest of graminaceous, example of sickle dating from Chalcolithique - from 2500 to 1800 years before our era). These tools still remain most universal today. People use fire to clear before to sow, or to facilitate the animals access to the pastures.

Animal energy

The use of animal energy to draw farm equipment and cartages reached the North-West of Europe towards 2500 before JC. The first domestic animals, such as oxen, cows and asses are used little by little for the bearing, then for the traction of the first ploughing implements (swing-plough and harrow). The swing-plough does not turn over the ground and leaves between the furrows a peak which requires crossed passages. This plough has contributed to form square fields. The iron ploughshare was spread at the end of the metals age, but some

areas, in mountain in particular, only use iron very parsimoniously until the end of the XIXth century.

The populations are fixed in agrarian villages or cities. The villages gather farmers and stockbreeders who live in houses, places of consumption, domestic activities, rest, and protection. Life is organized around the hearth. The village allows the development of collective services, exercises the solidarity and user-friendliness. The cities are marked by a social division of work and a strong prevalence of the not-farmers, and also a power place characterised by the accumulation of riches and social inequality. Inequality is read in the structure and in the town planning (palaces, residential or popular districts ...).

As far back the proto-history time, the human society forms and constitutes villages, cities, empires, as the Roman Empire for example. In 46 av JC, Gaul becomes Roman, and the territory does not cover cities, rich person Gallo-Roman villas founded on agriculture and with infrastructures, like the impressive highway network. Lot of lands unexploited and covered of forests are converted into arable lands.

Middle Ages: the development of the agricultural age (XIst - XVth century)

The feudal system

This development of the territory exploitation begins in the Middle Ages with the feudal system based on the possession of the grounds by the noble and the peasants constraint. It is “the agricultural age” which determines very precise relationship between the lord and the serfs who are attached to the ground.

Technological development in the Middle Ages

The Middle Ages are characterized in Europe by the development of the harnessed agriculture, which appears by the substitution of ox by the horse, the invention of the shoulder collar, the development of the shoes fitting and the attachment on line. The swing-plough has tendency to be replaced by the plough in some areas. Even if the plough is known as of the first centuries of our era in Northern Europe, it is spread really only in the Middle Ages combined by the improvement of attachments which make it faster and more effective. The plough is provided by a coulter which splits the ground, a ploughshare which cuts out it horizontally and also a mould board which turns over it. It can be gone up on wheels and the ploughing depth can be regulated.

This distribution of the ploughing implements and the animals for traction almost does not evolve in France since the medieval period till the XIXth century.

In parallel, the water mills (known as know far Antiquity) then the windmills (which appear in XIIth century) facilitate the cereals grinding. The hydraulic force allows also the development of the metallurgy and actuates the bellows and the trip hammers of the forging mills. The way of “industry” is opened and one spoke for the northern half of the country of a “first industrial revolution” starting from XIst century.

From the XVIth to the XVIIIth century: the development and the assertion of the Absolute monarchy

From XVIth century, in Europe, develop the absolute monarchies and centralized, which remove serfdom and develop liberal capitalism, industrial and commercial. It is accompanied by cultural changes and mentalities taking their source in the Renaissance, the Reform and the scientific development of the XVIIth century. On the XVIIth century is formed in the Netherlands then in England (“enclosures movement”), New Agriculture, founded on a reasoned exploitation of the grounds and animals.

In France, it is only on the XVIIIth century that the Physiocrats, economists and agronomists, work out the theory of the New Agriculture (more fodder = more cattle = more manure = more cereals). It is at that time that the Philosophy of the Lights affirms the human faith, reason and progress. According to Descartes, Nature is unbounded and its resources are inexhaustible. The man can thus exploit it with leisure.

The XIXth century: the century of all the changes and the rise of the New agriculture

An economic growth of long life ever equalized: first steps of the XXth century

Exit of the French revolution, the economic growth of long time is born throughout the XIXth century from the conjunction from the political revolutions and social reforms, and from the revolutions agricultural and industrial. It is characterized by a growth of the gross domestic product (or value created) per habitant. The richness increases and the society leaves the mass poverty to reach, after a long transition period the consumer society from mass (middle of the XXth century) and which lead to the agro-industrial model (as from the years 1960).

The scientific base: formation and development of agronomic sciences

The XIXth century is also marked by the formation and development of agronomic sciences (together of biological, physical and human sciences applied to agriculture). The experimentation allows considerable scientific progresses in the field of chemistry, biology, microbiology, the mechanics of which the effects appear on husbandries, mainly in three fields:

Improvement of the species cultivated and raised by crossing and selection.

- The crossing consists of the artificial selection of reproducers, between two genetically different parental lines. The objective is to allow the improvement or the creation of varieties and animals races, which correspond to the objectives of productivity wanted by human.
- The selection consists in improving the crossing by the transfer of species which can resist the change of climate and the lack of food. This theory, developed by Darwin (1809-1882), was applied to the fields of the plant and the animal. In the vegetable field, the selection very early becomes national then international. Since 1850, the English varieties invade the continent. In France, the Vilmorin family creates new varieties and diffuses successfully them. In the animal field, the *standard* defines the ideal awaited by a race from the visible characters of the animal. Stockbreeders groups constitute themselves in the XVIIIth century in England and at the XIXth century in France, to create and manage the herd books. The transformation process of the species was implemented by the peasants since the beginning of agriculture, but in the XIXth century, the base of this

transformation is support by the scientific research which prepares the acceleration of science and the production at the XXth century.

Production and use growing of manures

Lavoisier (1743-1794) develop the nutrition science, i.e. assimilation processes which takes place in a living organism and which provides to itself the necessary vital energy. The agronomists applied this science to agriculture under the term of “agricultural chemistry”. It consists on the comprehension of the nutrition mode of the plants and the definition of the new rules of the manure. In 1840, Justus Liebig created sensation by developing a theory according to which the food of the plants depends exclusively on the biogenic salts. Manures are fertilizing matters whose principal function is to bring to the plants elements which are directly useful for them. They take part more or less quickly in the nutrition of cultures by providing major fertilizing elements (nitrogenizes, potassium, phosphorus), secondaries (calcium, suffers, magnesium, sodium) and of trace elements.

For the animals, incompetents to carry out the synthesis of the organic matter starting from carbonic gas, they must draw the organic matter in the external element. The fodder farming systems aim to provide this matter in abundance to the domestic animals.

Hygiene and protection against the diseases and the insects

Pasteur works (1822-1895) has many applications in the field of the bacterial diseases (cattle plague, coal of the sheep, cholera of hens, disease of the worms with silk, phylloxera etc...).

The practical application: from agronomic sciences to practical agriculture

The application of agronomic sciences to practical agriculture implies the training of the peasants. In France, Jules Ferry made adopt free, laic and obligatory primary school education. The teachers play a big role in the evolution of the rural world, parallel to the development of the agricultural training and the courses of popularization by the services of the ministry of Agriculture (conferences, course winter, démonstrations...).

At the same time, the firms of artificial fertiliser, of plant health products, of agricultural mechanics developed an active propaganda in favour of their products. Societies of Agriculture and agricultural shows encouraged output and quality, in particular by the generalization of the agricultural shows.

All these actions contributed to the growth of the agricultural production moved by the State policy to develop the family exploitation.

New Agriculture

The aim of the agricultural revolution is to increase the production of cereals, which constitute the base of food, and to diversify this one while introducing into rotation the potato and corn. For that, it is necessary to obtain more manure and more animals and also more fodder, which can be obtained by introducing those into the rotation and by the suppression of the fallow. New agriculture integrates the culture and breeding within a new system of production known as of “mixed-farming and breeding”, which will replace the old agro-pastoral system formed with the Neolithic era and based on the separation of agriculture and breeding. The s' production; intensified (suppression of the fallow, introduction of fodder into rotation) and became more demanding in work. The agricultural family counted neither her time, nor her sorrow and, according to Marx, *exploited itself*. Fortunately, mechanization reduced manual work and its hardness.

The mechanization of agriculture

The passage from a traditional agriculture harnessed to a mechanized agriculture constitutes the most important aspect of the development of the productive forces at the end of the XIXth century. That means that any agricultural operation which can be mechanized has to be. If animal remains the primary source of energy till the middle of the XXth century, the mechanization of the agricultural work develops from the years 1880 with the use of the seeder, the reaper, the tedder, etc.

At the end of the XIXth century, agriculture uses the steam engine, the spark-ignition engine and the first applications of electricity. These auxiliary energies facilitated daily beatings and work (creaming, churning).

But it is only in second half of the XXth century that motorised agriculture is developed in regard of the Marshall plan.

The revolution of transport and the conservation of the food products

Parallel to the rise of agriculture, transport makes great strides never equalized: the railroad, the steamer, then the car, starting from the beginning of the XXth century. The revolution of transport is made in parallel with the cold, developed with cold stores and specialized transport. The long-distance haulage of the perishable agricultural food products consequently becomes possible, and the transport costs decrease considerably.

From the local market to the national and international market

The revolution of transport provided the foundation of the creation of large national markets (central Markets of Paris) and of the regional specialization of the production, then large international markets and international division of agricultural activity.

Consequences of the New Agriculture: rural migration and rise of productivity

At the end of the XIXth century, the mechanization and the growth of the outputs but also the great agricultural crises like the worms with silk or will phylloxera is associated by a strong fall of the farming population and a massive rural migration towards the cities, but also a remarkable growth of the productivity.

Two great economic crises: at the end of the XIXth century and the 1930 years.

In second half of the XIXth century, under impulse of England, free trade was largely developed and facilitated considerably the expansion of the international business. However the great agricultural depression from 1880 to 1900 involved the return of some countries to protectionism.

Since 1945: the apogee of motorized agriculture and the productivism

Motorization of agriculture

After the second world war, agriculture is motorized and novel methods are developed in parallel to professional training and the incitement to produce always more in a context of family exploitation. Thus, the agricultural production believes exponentially as the beginning of the 1960 years.

The agro-industrial age

The agro-industrial age is characterized by a combination of the agricultural activities, industrial and services. On the basis of agricultural raw material, food industries process and prepare agro-industrial food which is not only any more intended the national markets and to Europeans but for the whole world. This step is accompanied by a considerable development of research, increasingly pushed formation of the farmers, a world development of the communication and grid systems. If this period marks the advent of the consumer society of mass, the richest societies did not manage to eliminate the hunger. In the poor countries, famines and underconsumption remain. The old combat of humanity against the food shortage remains unfinished.

Reduction of the farming population

The systematic mechanization of the agricultural operations proves as much more necessary than industrial development requires creation of employment and offers outlets to the farmers. Everywhere in Europe, the farming population decreases at variable intervals according to the countries. The decrease was fast with the United Kingdom, first industrialized country and laying out large farms, easy to mechanize. The fall was slower in the countries of the South, but a correction has been produced these last years. In France, in 1980, the number of active agricultural credit is in the order of 45 and our country became the second agricultural exporter of the world.

The rural migration

The rural migration is the displacement of population from the rural areas towards the urban areas, in a final way.

The reasons which causes a rural migration are:

- the increase of the rural population
- the growing need for labour of the urban areas (domesticity, factories),
- the increase in the agricultural productivity decreases labour necessary and causes a rural under-employment very extremely,
- the better living conditions downtown.

At the beginning of the XIXth century, 90% of the French population live in rural area and the industrial rise of France needs a labour abundant and not qualified to make function manufactures. Urban industry is characterized by the concentration of the labour force in only one place, the factory, whereas rural industry was characterized by the make up work (textile, clock industry...). The rise of capitalism, the mobilization of capital and infrastructures towards the city causes the fast decline of rural industries. The rural ones are also attracted by the hope of a life better, that of urban, are paid, eating white bread, and profiting one day of weekly rest then the peasants are badly nourished and the poor for a great majority of them.

The clergy was opposed to the rural migration by considering that the Christian lifestyle was preserved better in the traditional agricultural areas.

The exodus begins from the years 1850, it is variable according to the areas, according to their richness and of their demography. The rural migration touches in first the zones of low productivity, marginal. The fall of population involves the disappearance of the services and the craft industry. They are initially the farm labourers, wag-earner, small farmer who leave

the rural areas. Paris attracted many rural which held a specific know-how like the masons from Creuse, the cooks from Nivernais, the café owners from Auvergne, the servants from Brittany... Certain migrations proceeded abroad like the peasants of Barcelonnettes to Mexico or the Corsicans to the North Africa.

The craftsmen of village disappear little by little, victims by the industrialization and the customers fall. The reduction of the population involves a fall of the labour available, which pushes the farmers to invest more to make up this deficit. The investments carried out increase the agricultural productivity and decrease the needs for labour.

In the 1880 years, a very serious agricultural crisis (cereals) and the epidemics (silkworm, will phylloxera) accelerated the process. The First World War which made hundreds of thousands of victims among the rural ones, also played an essential role in the exodus of the rural young people towards the young cities while confronting rural and young townsmen.

In 1936, the improvement of the workmen rights (40 hours week, paid vacations) were also lived like strong injustices by the rural population, which was excluded from it. The exodus of the young people and the women also leads to the ageing of the population and the problems of celibacy, which cause a drop in birth rate. The urban population exceeded in France the 50% in 1937. It is after the second world war that the rural migration continued mainly in the areas of the West (the Vendée, Anjou, Brittany) which had managed to preserve their populations under the combined effect of family structures very strong and framed by the Clergy, and the maintenance of an autarkical agriculture.

The rural migration finishes about 1975 after the regrouping of 1965. Since the middle of the 1970 years, migratory balance countryside/city was stabilized. Since the beginning of the years 1990, it is reversed in the neighbourhoods of the great urbanized areas. One speaks now about "rurbanisation": townsmen settle in the countryside, but keep an urban lifestyle, a work downtown.

2nd part: Always more

Evolution of European agriculture: intensive agriculture with overconsumption

After the second world war, French agriculture has suffered considerable changes and adapted to the international requests of the market. In thirty years, French agriculture was modernized as never before. The Marshall plan combined with the government aid largely contributed to this change within the frame of European construction (creation of the Agricultural Common Market by the Treaty of Rome). Whereas in 1950, 30% of the active population lived agriculture and still largely used the draft animal, one could note in years 1980 that the motorization was generalized and that the productivity the labour productivity was considerably increased. Then after the second world war, France was in the obligation to import a very largely agro-alimentary products, but it becomes the second world agro-producer. Indeed, the Common Agricultural Policy (CAP) is founded on organization of the markets, improvement of the structures and the protection of the interior market. This policy was the lever of the modernization and the growth of the European and the French agriculture but became in the 1980 years, a "machine to produce excédents" (cereals, oilseeds, milk, meat...) qui implied a Community interdependent financing via the "Funds European

orientation and of guarantee agricultural (EAGGF). In 1992 an important reform of the CAP is imposed.

Europe, became exporting, asked the problem of the search for solvent external outlets, essential for the modernization continuation of the European agricultures which enter in wild competition on the worldwide market.

Overconsumption

Overconsumption indicates a level of consumption higher than the normal needs or means which characterize the developed countries, in particular the majority of the European Union countries, and whose consequences, particularly serious, are planetary.

Overconsumption recovers several aspects, whose the three principal ones are the following:

- the current consumption of the developed countries leads, in the long term, with an exhaustion of the world natural resources (energy, raw materials, but also drinking water and ground water for example). This type of consumption and development can't, shortly, being generalized with all the population of planet.
- this developed countries consumption has as a consequence on the dramatic effects at the planetary level like the disordered state of the climate, pollution (of water, by an excessive consumption of manure and pesticides, air according to the supremacy of road transport and air). This overconsumption also relates to the drugs (increasing resistance of the bacteria to antibiotics for example) which involves public health problems. This overconsumption is always increasing. So, the increase in consumption would not be necessarily positive, and could appear strongly against-productive.
- the "diseases of abundance" (obesity, diabetes, arterial hypertension, cardiovascular diseases, cancers, etc) develop, and they would be mainly related to the new food spending patterns (excess of sweetened, salted and fatty food, factory food less rich in trace elements and nutrients favorable to health, to replacement very protective fruit and vegetables) in the majority of the developed countries.

In the heart of this concept of overconsumption is included the concept of against-productivity, developed for example by Ivan Illich in the 1970years, and taken again in France by Andre Gorz, alias Michel Bosquet.

2.1. Deforestation

In Gallo-Roman time France was covered with forests to more than 90%. Deforestation accompanied man everywhere in sedentary place, because agriculture having been the main cause of deforestation (by the fire of wooded spaces) followed by the requirement out of firewood (by cut of the trees). In the Middle Ages, the considerable development of metallurgical industry requires much wood and charcoal to feed the forging mills. The increase in population involves the construction of villages and urban centres which also requires much wood for construction. Wood is generally transported by flotation on the rivers. Philippe Le Bel creates the administration of Royal Water and Forestry in 1291 but it is Philippe de Valois who founds the first forest Code in the XVth century.

In XVIth century, the forest accounts for nothing any more but 25% of the national territory. To limit deforestation, Colbert (1619-1683), Prime Minister of Louis XIV stops with deforestation and orders the plantation of forests for naval construction (example of the forest of Bord) and the houses building. Between 1661 and 1669, a new Code is worked out to reorganize forestry undertaking and to ensure perennality of it.

In 1827, with the advent of the industrial revolution, the forest does not constitute any more 16% of the French territory and a new Code is promulgated which restricts the rights of use of the peasants on the forests and which starts in particular the “War of Demoiselles” in Ariège (1829 - 1830). As testifies Daniel Peter in his book “be born, live and die in the Over-Forest” (p. 254), this new code “deprives number of inhabitants of deadwood for the heating, dead sheets used for the animals in the cattle sheds or like manure, of heathers and brooms which serve of fodder, the pasturage for the cattle and the gathering of bays and wild fruits and mushrooms”.

In 1850, the clearing reaches the slopes, at the tops of medium mountains until 1860, date on which is promulgated a law on the restoration of the grounds of mountain (1860) to change what Chateaubriant described as “appearance of desert”. At the end of the XIXth century, less than 15% of the French territory is wooded. Under the Second-Empire (1855-1870), great afforestations are undertaken of which most spectacular is the afforestation of the Landes.

After the second world war (law of 1951-1952), some spaces nonaccessible to mechanization (especially on middle mountain and mountain) are converted into timbered pieces, to feed in particular paper industry. The planted trees are with growth rapid of the Douglass type, and do not correspond to the nature of the ground and the local ecosystems. The storm of 1999 devastated many these parcels.

Nevertheless, France found a forest space now are equivalent to that of the XVIIth century. The forests cover 27% of the territory and are composed of 120.000 km² of public forests including 44.000 km² in Metropolitan France and 76.000 km² in the overseas departments, essentially in French Guyanne.

On a world level, the destruction of the forest is responsible for 20% of the gas emissions with greenhouse effect and contributes to the climate warming of planet.

In France, the ambition of the national Forest Plan (2006-2013) is that durable management, “all confused forests”, covers “two thirds of entire surface in 2015”. “The half of surface belonging to private owners would be concerned”, aim sometimes considered to be not very ambitious. The law of forest orientation of 2001 encourages a greater number of owners to compile a document of durable management or to adhere to a document durable management preexistent.

2.2. The pollution of grounds

The ground is a surface and alive layer, interface between the earth's crust, the surface waters and atmosphere. It results from the transformation by the alive of the primitive rock “called” “mother rock” by organic contributions.

Inadequate and intensive husbandries and forestry but also impacts caused by the urban, industrial, and tourist development prevent on the ground from providing qualities ecological and agricultural which they returned. The accelerated loss of humus (organic matter), fertility

and biodiversity cause a destruction of the composition of the ground (reductions cumulated in carbon, retention of water and disturbance of the cycles biogeochemical (gas and nutrient of the ground)).

The regression and degradation are evolution processes associated with imbalances with a ground which appear by the replacement of the primitive vegetation by a secondary vegetation, which modifies the humus and the formation of the ground. It is caused by the action of human by:

- Destruction of the insoluble humus by the ploughing which hides and destroys the alive roadbases of the ground.
- The compact aspect of the ground and its asphyxiates which is characterized by appearance a “sole of ploughing”, soil become sterile and damp-proof, unsuitable ground for the culture.
- The ground become acid or saline involving its turning into a desert.
- Erosion (hydrous or wind).

When the theoretical state of ground balance is reached, this one is “stable” in time, and tends to accumulate organic matter. The vegetation and the microfaune of the ground produce humus and assure the ascending circulation of the matters. The humus and the vegetable cover protect the ground from the erosion of water, of dehydration and the wind. The plants, the bacteria and certain micro-organisms of the ground reduce also erosion by linking the particles of the ground between them and the roots and skimming produced by the living organisms. Thus, any light modification is quickly corrected and balance restored.

An intensive exploitation of the ground or a geological or climatic catastrophe (avalanche, fires, deforestation, ploughing, flood of long life, salinisation, turning into a desert...) can involve their fatal destruction: the ground can “die”.

The “regression” of the ground can be partial or total: a clearing of inclined ground, follow-up of violent rains, can lead to the complete destruction of the ground and its “regression”, i.e. that only the rock-mother with naked remains then. A ground which had put million years to be made up disappeared for always. The repeated recourse and to broad scale of fire, the abusive close-cropped cuts, the overgrazing (including in forest), the ploughing, the intensive use of artificial fertilisers and pesticides can cause disappearance partial or total layer of humus.

In Europe, the enclosed land, which promotion has been developed to the influence of Colbert at the XVIIth century, has during a few century produced a very effective and productive compromise, but it has been destroyed by agricultural mechanization, the breeding out-ground and the regroupings, with the support of the agricultural lobbies most powerful.

The increasing mechanization of agriculture after the second world war and the use of increasingly heavy machines are in the origin of an impoverishment of the soil related to compressing operated by the agricultural and forest machines. Compressing is opposed to the circulation of water, air and the organisms on the ground. The plants roots suffer from this compressing and lost of yield and quality of the crop plants are observed and wasted. The streaming caused can provoke also erosion.

Manures are substances obtained starting from mineral mixtures intended to bring to the plants nutritive elements complements in order to improve their growth and to increase the output and the quality of the cultures.

The action consisting in bringing a manure calls fertilization. Manures and the amendments, added to the ground, are a part of the fertilizing products. Manures are known since Antiquity but are used in an empirical way. The fertilizing products bring on the ground phosphates (bones calcined or not), nitrogen (animal manure and human), potassium (ashes). In the XIXth century, the development of agronomic work and the exploitation of the potash mines in Alsace, contribute to the generalization of the recourse to manures reinforced by the propaganda active of the public services. The development growing of chemistry makes it possible to obtain increasingly powerful manures. Liebig even considers that the use of manure can completely replace the nutrients present in the ground. Although exaggerated, this vision will be present in the intensive agriculture of second half of the XXth century.

A pesticide is a substance emitted in a culture or in the animals to fight against organisms which are harmful (devastating insects, mushrooms, “bad grasses”, parasites worms...). It’s a generic term which gathers the insecticides, fungicides, the weedkillers, the parasiticide ones and which include the phytosanitaire plants.

2.3. The pollution of the ground water, the rivers and the sea

The pollution of water can be presented in various forms: chemical, bacteriological, thermic. Water concerned can be soft, brackish or salted, underground or surface. It can concern rain or dew.

The fight against this pollution is as much more difficult than elements at the bottom of water, or diluted in water is often invisible, and that certain toxic substances infiltrated in the ground often take effect only in the long run. In 1970, close to Erstein (Alsace), an accidental discharge of 4.000 liters carbon tetrachloride involved twenty years later a contamination of the ground water and a well dug seven kilometers downstream.

The intensive breeding can contribute to the water pollution owing to the absence of control of animal manure, called “liquid manure”, produced by a great concentration of animals on a very restricted surface.

The intensive breeding aims to increase the productivity of an animal race, by shortening its phase of growth, and by freeing it more or less strongly from the surrounding environment. This breeding system is characterized by the use of reduced surfaces, animals being placed in closed buildings, with a high density of population, and which depend completely on stockbreeder for their food. This breeding is also characterized by the important recourse to mechanization and the dependence of the stockbreeder with respect to great groups which provide him food and market the products.

This mode of production is less dependant on the climatic risks and provide meat (pigs, calves, poultryes...) fish (aquicultural farms) and derivative products (eggs, milk, leather, wool, fur...) at cost prices less as possible, which allowed a larger accessibility of this food for consumers.

The disadvantages relate mainly to the quality of the products, often criticized, as well as the life conditions of the animals (strong density of population) and the health risks which require

heavy preventive antibiotic treatments governed by European directives. One example is the famous crisis of hormones veals in the 1970 years.

In addition to the total dependence of the breeders regarding to multinational groups and to a variation of the market price which they cannot control (slump in prices of the pigmeat), the ecological consequences of this type of breeding can be dramatic, especially if breeding is “off ground” or “in battery” for calves and the poultries, i.e. led in a way completely independent of the local agricultural production. It is mainly about the treatment of the liquid manure of pig, which concentrated in excess in a weak perimeter, can cause the water pollution by nitrates and phosphates contained in this animal manure.

The liquid manure is a mixture of breeding animals dejections and water characterized by an absence of litter and thus by its liquid aspect. The liquid manure is not while oneself polluting because it contains nitrates which can be quickly absorptive by the vegetation and be transformed into nitrogen, essential to the growth of the plants.

Pollution comes an excessive spreading of liquid manure or a strong rain which happens just after the spreading of the liquid manure, before the plants could not absorb nitrates included on them. This surge water propels nitrates towards the ground water and the courses water. The nitrates, in abundance, causes an eutrophication of water, i.e. excess of nutritive elements in water and the proliferation of plants called “green tides”.

Today, to avoid this pollution, measurements are implemented:

- the large breedings must have sufficient surfaces of spreading,
- the breedings must be able to store all the liquid manure they produce till the end of the rainy season
- the taking into account of the fertilizing value of the liquid manures and the manures was improved by the farmers formation and information so that they limit the total contributions of nitrogenize - by the liquid manure, manures but also the artificial fertilisers - with the strict needs for the plants.

In 2007, in the basin Loire-Bretagne, the proportion of collectings water in conformity with the standard “nitrates” is now close to 100%.

Dolly

In some firm breeding, the production is increased with the animals genetics use. The scientific formula allowing this use is, of course, not without risk for the human beings, which eat these animals each week. For example of the allergies can de developed : some of the chemical remedies established with the animals have as a root a daily consumable (groundnuts, lactoses, plant species, etc)

Glanage

The glanage is a right use on the agricultural production existing in France in various forms since the Middle Ages. After the cultivated harvest of the products (like cereals or potatoes), rural poorest but also the children, the old men, the handicapped people, the unemployed persons can take what remains in the fields, and this during three days and after the rising of the sun. The glanage, which concerns what remains on the ground must be distinguished of the scrounging which concerns what remains on the trees (grapes, apples, fruits in general).

3rd part: To reinvent rurality

3.1. Theories and theorists/citizens

International conference on sustainable development

1968: creation of the Club of Rome grouping personalities occupying of the relatively important jobs in their respective countries and wishing that research is interesting by the problem of the world evolution on the aim to determine the limits of the growth.

1972: the Club of Rome publishes the report “Stop to the growth?, or “the growth limits”, written by its request by a research team of Massachusetts Institute of Technology. This first report gives the results of simulations by data-processing, with the model DYNAMO by Jay Forrester, concerning the evolution of the human population according to exploitation of the natural resources, with projections till 2100. The result is the continuation of the economic growth will involve during XXIst century a sharp decline of the population caused by pollution, impoverishment of the cultivated soils that can support vegetation and the rarefaction of the energy resources.

1972 (June 5-16): a conference of the United Nations on human environment in Stockholm exposes in particular “ecodevelopment”, interactions between ecology and economy, the development of the South and North countries. It is the first Conference of the Earth.

The environment appears indeed as from the years 1970 like a world heritage essential to transmit to the future generations and the philosopher Hans Jonas expressed this concern in his book the “responsibility Principle” (1979).

1980 The International Union for the conservation of nature publishes a report entitled the world strategy for the conservation where for the first time appears the concept of “sustainable development”.

1987 (April): A definition of sustainable development is proposed by the world Commission on environment and the development (Brundtland Report).

1992 (June 3-14): Second Conference of the Earth, in Rio de Janeiro: dedication of the term “sustainable development”. The concept starts to be largely mediatized for the general public. Adoption of the convention of Rio and birth of Diary 21. The Brundtland definition, spindled firstly on the safeguarding of environment and the careful consumption of the nonrenewable natural resources, will be modified by the definition of the “three pillars” which must be reconciled in a durable developmental perspective: economic progress, social justice, and the safeguarding of environment.

2002 (from August 26 to September 4): Conference of Johannesburg: In September, more than one hundred State chiefs, several thousands of representatives governmental and NGO ratify a treaty concerning the conservation of the natural resources and the biodiversity. Some French large companies are present.

2005: Coming into effect of the protocol of Kyōto on the reduction of the emissions of gases with greenhouse effect. This protocol appears constraining: a citizen infringes already on its level by accomplishment of an international travel by plane per year.

Conferences at the European level:

The impact of the environment on fields as vital as water, energy, services, agriculture, chemistry, is so important that the European Union has collected competences of the Member States, via the EU law (frame directives, directives, regulations) which are devoted to the Member States.

1987: The Unique European Act has transferred to the European Economic Community (EEC) some competence from the States: the environment, the research and development, and the foreign policy,

1993: During the creation of the European Union, in 1993, the environment was treated with a transverse way in the first pillar of European Union, that which is integrated the most, through the European payments and the European directives.

The treaty of Maastricht evokes objectives on environment. Sweden pushed with acceleration of the actions in this field.

1997: At the same time as the Treaty of Amsterdam, the expression “sustainable development” appears for the first time in a Community text and also includes a protocol on the principle of “subsidiarity”.

2000: At the time of the European Council of Lisbon, creation of the concept of “economy of knowledge” integrated into the durable development objective.

2001: At the European Council of Gothenburg, the relation between “sustainable development” and “engineering of knowledge” were recognized. A green book of the European commission tackles the subject of the societal responsibility for companies.

2003-2004: installation of a policy of “information day before” by the central administrations, the territorial collectivities and the societies in order to define a strategy of innovation.

Conferences in France

It is from 2001 that sustainable development looks needful for companies for giving an account of the social and environmental consequences concerning their activities, compared to the requirements of the civil society.

2004: Charter of the Environment. France is it first country in the world to include the Environment in its Constitution.

2007: Grenelle de l'Environnement

The philosophy of sustainable development

The man must “make himself main and owner of nature” (Descartes, Discourse on Method, sixth part). Hans Jonas, in the “Principle responsibility”, explains the fact that the economic model of Occident could not be viable on the long term; it did not become more respectful of environment. A recasting of ethics is essential to remove the threats which the technique poses for the future of Humanity. Indeed this philosopher was the first to tell that there was a duty with respect to the beings to come. The threats in question are as well environmental as nuclear.

The French philosopher Michel Foucault takes up these questions on the epistemological level. He speaks about changes of conception of the world, which happens at various times of the History. He calls these conceptions of the world, with the representations which are associated with them, the “épistémès”. Sustainable development, and its corollary universalization, correspond to the concept of “épistémè”, which, applied to our contemporary time, is called “hypermodernity” by Michel Foucault.

Citizens

The creation of the ecological militancy

In the 1970 years, the geographical step associates facts of nature and facts of societies, in connection with the development of the ecologists movements.

The pioneer work is the book by P. George “the environment” (1971) which develops a reflexion on the environment and its defense while insisting on “the conditions of existence of the human groups within their space frame”. He writes: *“the doctrines of economic development will have to make a broader place and more organics with the problems of the natural environment and human environment. (...). Undoubtedly very legitimately, thanks to scientific progress and technique, the man it sought to free himself from his dependence with respect to nature; but it passed measurement. Today, it must recognize that it is much related to nature than it thinks it, and than it cannot continue to use about it entirely with its liking and in a ill-considered way”*. P. George adds that with the science and technique, people own the possibility of transforming and modelling the nature. This action is beneficial if the human action on nature conditions directly the access of humanity to a better life. However, this action can’t continue any more in a disordered way, but must take account of multiple solidarity which link the components of nature.

At the end of the 1970 years, J. Tricard and J. Kilian develop the concept of “ecosystem” and study the taking away carried out by the men on the “ecosystems” and the modifications that causes in a voluntary way or not. The human is a decisive agent of “eco-dynamics” ; it means the degree of freedom that we own to modify the ecosystems without degrading them, without destroying them”.

At the same time, the concept of “géosystème” is introduced in geography per G. Bertrand and is interested in the “harmful effects” then with the “risks”. This concept integrates the erosion and the accelerated degradation of the grounds in relation to agriculture (J. Vogt, R. Neboit, S. Wicherek, Y. Veyret), climatic variability and its effects on the societies (P. Pagney, G. Escourrou, J. - P. Vigneau) atmospheric pollution and their effects with diffrentes scales (J. - P. Besancenot), the dynamic river ones and their modifications by the anthropisation (H. Vivian, L. Davy, J. - P. Bravard).

3.2. Applications

3.3.1. Energies: wind energy

The wind energy is drawn from the wind with different means ; a device of the wind mill type or windmill. The wind energy draws its name from Eole, god of the wind in Greek mythology. It is an renewable energy which one can exploit in a mechanical form (windmill, sailing boat) or be transformed into electrical energy.

- Mechanical energy: the wind is used to advance a vehicle (sailing boat), to pump water (wind for pumping of water) to drain the Polders in Holland, to drain cultivated spaces or to water animals, or to make turn the grinding stone of a mill. In the XVIIth century, sixteen miles windmills worked in France (cf. Map of Cassini).
- Transformation into electrical energy with the coupling of the wind mill to an electric generator to manufacture current. The generator is connected to an electrical communication network (Réseau de Transport d'Electricité, subsidiary company of Electricity of France - EDF) or functions in an autonomous way with a supplement generator (generator, park of batteries).

Since the Nineties, the improvement of the wind mills technology enable the building of aerogenerators of more than 1 Mega Watt. The manager of the French electrical communication (RTE), estimates that the integration of wind electricity in the current network is possible to a total value of 10 to 15 GW, in particular because France has the 2nd layer of wind in Europe after the United Kingdom. The wind mills can function alone or gathered in wind farm (from 5 to 50 wind mills). Connected to the RTE network, the electric current of the wind mill must have a frequency of 50 Hz and must thus provide this frequency, whatever the speed of the wind. This constant frequency passes by a number of constant revolutions of the blades. The latter is obtained by regulation in particular with orientation of the blades. If the speed of the wind is too low (less than 10 km/h), the wind mill come to an halt and does not allow any more to provide this frequency. In this case, wind the mill don't produce electricity, but could on the contrary become consuming; also, it is necessary to disconnect it. If the speed of the wind is too strong (higher than 100 km/h for example), the wind mill is put in safety and disconnected from the network, its blades are put in flag and come to in a halt to prevent that its blades don't break.

The French law obliges the national company of electricity (EDF) to buy the current produced by the wind mills or any other system of production of electricity. The purchase rate of wind energy is improved to support this young channel under full development and to allow France to reach the objectives of the European directive, i.e. 10.000 MW in 2010 (6 000 to 9.000 wind mills). Indeed, the European Union decided to produce 20% of its electricity in renewable energy, clean and sure from here to 2020.

Wind energy discusses

The debate on the wind energy relates on the harmful effects and the interests of wind energy. It concerns mainly: materials necessary to the manufacture of the wind mill and pollution which they generate, noise pollutions, the wind accident risks, the esthetics, the impact of the installations, the obstruction of the wind mills, the protection of the birds, the other human

activities, the insertion in the electrical network, the output, the intermittency of the wind, the purchase of the electricity produced by the wind mills.

In addition, according to a public opinion poll in November 2003 ordered by the Region Languedoc-Roussillon area to the CSA Institute, “the tourists are agree with the wind mills: 92% of the tourists questioned on 25 sites in full tourist period regard the use of the wind mills as “a good thing”. Only 16% estimate they “degrade the landscape in where they are established”. The tourists questioned in sites where exist wind mills or which saw some are definitely more favorable to the wind mills than those which n' in did not see.” A a public opinion poll carried out by LH2 institute in September 2007 indicates that 90% of French are favorable to the development of this energy.

In France, electricity produced by the wind mills is largely subsidized by the State; the promoters are ensured of a return on investment even in the sites most badly selected.

Salt-water marshes: sun and wind

The salt-water marshes are a whole of basins low depth, called “carreaux”, in which the salt is obtained by evaporation of sea water is collected, under the combined action of the sun and the wind. This activity names salt production “saliculture” and the people who collect the salt of the salt-water marshes are called salt producers or salt makers “paludiers, saluculteurs or sauniers”.

The know-how of the paludier is based on the optimal exploitation of the natural, especially weather conditions. The evaporation is accelerated by the following factors (by order importance): (1) wind, (2) a thickness of water as weak as possible, (3) sun and (4) the movement of the water by the paludier. The sea water is carried by gravity at the time of the average and strong tides through a great canal system, the “etriers”, till water-tanks of sizes and depths variable called slime place “vasieres”, “cobiers”, “fares” and “adernes. ”. In the “vasieres”, deep several tens of centimetres, the suspended matter settles by decantation, forming a layer of several centimetres per year, cleaned during the winter season. The “cobier”, less deep, assures a secondary decantation and allows the starting of the evaporation process itself. The “fares” are rectangular water ponds and allow a big raise of the degree of water salinity. Lastly, the “adernes” have two functions: to continue the evaporation of water and the storage of water necessary to filling of the eyelets “oeillets” (they allow to restock, with water strongly charged in salt the eyelets after one day of evaporation).

From there, finer channels, the “sauniers” supply of water strongly charged of salt the surfaces of crystallization or crystallizers, called eyelets or “saunate” surface. In these small basins, usually rectangular, the weak layer of water (of order of 5 mm in general) is favorable to the warming of water and later to its evaporation till the salt precipitation. The edges of the eyelet are generally hollower to recover a maximum of salt flower because otherwise the water thickness isn't sufficient for harvest.

In the crystallizers, salt is collected in the form of relatively large crystals at the bottom of the thin layer of saturated water. The paludier can also gather salt flower made up of smaller crystals remainder with flower water if the conditions are favorable (presence of wind).

A crystallizer measures from 20 to 100 m². The surface of the crystallizers represents a weak fraction of the entire surface of the saltworks. An eyelet produces approximately one ton of

salt per year. The production itself is takes place from the mid-June to mid-September. The remainder of the year is devoted to the individual and collective maintenance of the saltworks or with its safeguarding of the bad weather by sea immersion.

In France, the salt-water marshes are located mainly:

- on the Atlantic coast:

Salt-water marshes of the guérandaise presqu'île (10 000 tons of salt per year): Salt basin of Guérande (on the municipalities of Guérande, Batz-sur-Mer, Le Croisic, La Turballe and the salt basin of the Marshes of Mès (on the municipalities of Mesquer and Assérac).

But also Breton Marsh (country of Retz, Bourgneuf-en-Retz), Island of Noirmoutier, Marsh of Olonne (Olonne-sur-Mer), L'Ile-d'Olonne (salt-water Marshes of the Olonne island), Ile de Ré, Oléron Island, Saint-Armel (Gulf of Morbihan), salt Basin of Carnac.

- on the coast méditerranéenne:

"Camelles" (Hill) of salt to Saline of the South à Salin-de-Giraud (Arles), Saline-de-Giraud (in border of the Camargue), the Salins-d'Hyères (Hyères), the Saline of Saint Martin Island (Gruissan, close to pond of Bages (Aude)).

3.3.2. The natural and cultural protected heritage

Whereas the XIXth century is that of the Industrial revolution in Western Europe and in the United States, few geographers denounce the drift risks to overexploit the natural resources. The pioneers on the matter are American. In 1864, George Perkins Marsh publishes "natural Man and physical geography are modified by human action" in which he denounces the way in which the man exploited in a ill-considered way the forest in the Mediterranean causing his turning into a desert. It underlines the wasting of the natural resources and explains why this attitude is contrary with the will of God and the economic interests of the nation. He denounces excesses of industrial civilization.

The school of German geography denounces "the economy of wasting" by the voices of F. Ratzel (1891), E. Friedrich (1903) and insist on the use of the natural resources in a durable way.

The school of geography of Berkley (the United States) represented by Carl O. Sauer (1890 - 1975) stresses the relation of the man with his environment. It is interested on the natural components of the landscape, deforestation, the removal of hedges, erosion that these practices cause. He measures the ecological transformations of the environment under the action of the societies and the capacity of the social group to organize stable relations in a long time with this environment. In the same spirit, the biologists criticize environmental pollutions. F. Osborne, president of the zoological society of New York publishes in 1848 "planet with plundering". German Mobius and Malthus, the Scot P. Geddes denounces the plundering of the natural resources, the degradation of the forests and the grounds, too the demographic strong growth. A. Surell in 1841, denounces deforestation like person in charge of torrentiality of the mountains.

In France, the denunciation of these excesses is less vigorous. E. Recluse takes as a starting point the work of GP Marsh and publishes in 1866 "About the feeling of nature in the modern societies". In 1866, he denounces deforestation which provokes the devastated action of the

torrents. These studies lead in France to the creation of the law on the restoration of the grounds of mountain (RTM) in 1882.

In 1880, in “the history of a mountain”, E. Recluse insists on a romantic vision of the mountain and the idea of a nature, good, harmonious. However, it integrates the nature in a vision not virgin but arranged by the man. It considers the action of the man not only in a negative way because it is able of happy changes like the polders of Holland or the cleansing of big spaces. According to him, the integration of the man is varied; it can be “excellent or pathological”.

Jean Bruhnes, in his human Geography (1920) denounces the action of the societies on nature “it is particularly strange that phenomena of characteristic devastation accompanies in particular civilization whereas the primitive people know only attenuated forms of them”.

Safeguarding of the natural resources: national parks

At the origin of the protection of landscape, the American current preached by J. Muir called “preservationnism” for which there exists an antagonism between nature and society which ends to the creation of the park of Yellowstone in 1872. In France, it is only in 1960 that the law concerning the national parks is promulgated. This choice of protection is not without posing problems related to maintains “balances” of the ecosystems, the access control to protected spaces, the impact and the local activities of the local population which live in this space.

Conservatoire

The protection of the biodiversity goes back to the years 1960 with conservative measures like national nature reserves, the regional natural parks (decree of March 1, 1967), natural reserves, littoral spaces (Conservatoire du Littoral). The interministerial circular of June 1, 1967 specifies the missions of the Regionnal Natural Park (PNR) “of preserving the original fauna and the flora of our natural areas, to make it possible to the more townsmen each day to find periodically in true contact with the rural areas, to help certain agricultural areas to find a way new in their development”.

3.3.3. Biodiversity and landscapes: terrace cultivation

Long time ago, the farmers could draw the best part of the smallest cultivable or exploitable surface by the animals. All the territory was developed in this manner and involved a balanced distribution of surfaces. Mechanization has constrained a selection of the cultivable grounds in conformity with the constraints imposed by mechanizations: flat and accessible grounds in large content.

This step caused a selection of arable spaces leaving with the abandonment of zones became waste lands, most of them in the mountainous or marshy areas. The effects were the overexploitation of restricted surfaces which are now impoverished and unsuitable by exploitation in spite of the constant and massive additions of inputs. The CAP with its policy of fallow in 90 years was very harmful with the good balance of the rural territories. Today the CAP reconsiders these requirements and proposes new modes of cultivation. The peasant wisdom becomes again necessary. The landed patrimony can't stay abandoned. Old management reflexes are rediscovered for the re-use of difficult grounds, the re-uses for productions adapted better to the local requests. In the terraces where corn was cultivated,

aromatic plants are cultivated now with small output but which correspond to contemporary requests for savour and taste.

“Terrace” comes from the former French of the XIIInd century “terrace” as “ground heap”.

The terrace cultivation consists in cultivating on usable airfields in horizontal terraces, staged, in areas of medium mountains, to facilitate the water infiltration of streaming in the ground, to fight against erosion and to allow the setting in culture of the ground. The terraces are supported by low stone walls or ground liftings.

The terrace cultivation allows intensification of work on the parcel, but requires a constant maintenance. This farming technique is often synonymous a strong agricultural population density and requires an abundant labour and tends to being abandoned in the areas victims of the rural migration.

In Desaignes, agricultural terraces of the "Coste des vignes" who overhung the village, remained invisible during the last decades, camouflaged by advanced forest. After four years of work, some passionate people, under the conduct of Alain Angello, president of the tourism office, decide to give again life to the terraces and to replant the first vines.

This rehabilitation are mixing tourism, agriculture and valorization of the heritage. From the idea to the realization begins a long preliminary work: inventory of the parcels, feasibility study, conditioning of the ground. Many partners are involved quickly into the project, with the wish “to create social link” around this initiative. The "Green Brigades", which works for insertion of people in difficulty, have intervened for the plantation of the 25 ha vines. The work in progredd "International Young people" also restorated two terraces which will accomodate the first producers.

The objective is also to create the dialogue between generations. “Our territory abounds of old persons who carry this memory, says Alain d’Angello. If we don’t organize the work of collecte now, it will disappear”. An ethnologist was charged to collect their words, before presenting his work at the time in a conference; meetings times between old people with the scholar’s are also programmed. “The children know that it calls "vignes", but the transfer of memory did not exist, tells Charlotte Martin, teacher. A mother explained us that its generation had rejected the ground. It’s now the coming back to the earth”.

3.3.4. Food: the biological agriculture and the cantal cheese

The biological agriculture in France

The biological agriculture is especially developed in the West (Brittany, Countries of the Loire and Normandy with a total of 27 p. 100 of surfaces) and the South-East of France. The percentages indicated for each department correspond to the share of useful agricultural surface (SAU) dedicated to organic farming (certified surfaces and surfaces in progress.

In France, recognition of biological agriculture is registered in the law agricultural orientation of 1980. The creation of a National Commission of biological agriculture, charged with homologation of the schedules of conditions (1983), then that a first logo “AB” (1984) make it possible to concretize the potential of this recognition. With the scale of the European Community, the recognition of this agriculture (called “biological”, “organic” or “ecological” according to the countries) intervenes in 1991. European schedules of conditions unified in vegetable productions are adopted in 1992.

The rise of the biological products, which is inscribed in a general tendency to the segmentation of the market of food products, is also associated by the entrance in the sector of great food groups or their subsidiary societies, which seek to diversify their product range. It generates finally, being given the insufficiencies of the European production, a strong recourse to the imports, coming from country of the South and East of Europe, where countries - Hungary for example - launch out in the organic farming to answer to this Western request.

All qualities that consumers await of AB products are not established yet. The non-utilisation of synthesis pesticides results well in contents of very weak residues in food; However they are not existent, owing to the remanence of many pesticides and the contaminations by treatments carried out on close parcels.

The cantal cheese

The cantal is a cheese with not cooked pressed paste originating of the Massif-Central, made starting from milk believed or pasteurized cow in the shape of high cylinder (fourme). The surface of production of the Cantal, called the “Green Country”, is a territory of almost 600.000 ha with in its center a solid mountain of extinct volcanos.

The cantal profits since 1956 a Name of Controlled Origin (Appellation d’Origine Contrôlée – AOC). The cheese can be made in all the Cantal department and in few municipalities of the close departments. The cheese are appeared as cylinders, with a weight from 35 to 45 kg, and a diameter from 36 to 42 cm. The dry extract is of 57% minimum and the dry/fat is 45% minimum. The paste (also called soft part “mie”) is in ivory color and sinks slightly into the old growing. The rind is thin and grey-white color at the beginning of refining then it thickens and become appearing buttoned gilded during refining. The authentication AOC is meant by aluminium mark (gray) enched in the rind. 17.974 tons of Cantal were produced in 2003.

Pliny the Old spoke already about cheese of the area. The difficulties of circulation related on the relief and the winter climate led the ancestors of the cheese-making Masters to made a cheese of carryforward, in an important size, the Cantal, to constitute a reserve of food always available and a trade product.

During the mountain pasture, from May to October, the Cantal was made in “ burons”, stone buildings of squat form being used at the same time as living place for the cheese makers, cellar and workshop. In October, the cheeses were descended into the valley, and were directed towards the warehouses of Aurillac, privileged place of the trade of High Auvergne. During strong a long time, the Cantal fourme was used as currency of exchange between the wine-producing areas of the South of France and High Auvergne.

Emile Duclaux, disciple of Pasteur, who had a property with Marmanhac (Cantal) largely contributed to the development of the cheese-making economy of the Cantal by describing the manufacture of the Cantal in a treaty of 1893 heading “Principle of dairy”.

The first industrial dairies have been created in 1910.

Making stages

- Preparation of curd
- emprésurage of milk with 32 °C,

- Coagulation,
- Décaillage and mixing of curd,
- Evacuation of the serum and rassembleage of curd in a compact mass,

Making of cheeses

- The First pressing of curd to the press,
- Maturation,
- Crushing and salting in the mass,
- Maturation of the tome cheese with salt,
- Assembly of the cheese piece,
- Second pressing with reversals.
- Refining of cheeses

Traditionally, the milk is collected in wood gerles and at immediately “emprésuré”. In dairy, the collected milk is brought back beforehand out of tank to the temperature of 32°C. When presses it made take curd, this one is cut out first once in small blocks, is brewed and drained to extract small milk from it. Then it is collected with a cloth to be pressed and worked till to obtain a flexible and coherent paste: the tome cheese knows a first and short maturation. The tome cheese is taken again, and be crushed again. It is kneaded and salted in the mass and the salt impregnates well the cheese. The tome cheese is broken and salted and then packed in moulds cloth-lined to suffer a second slow pressing. The cheese acquires its final form, the “fourme”.

The refining of the fourmes is done in fresh and wet cellar for a minimum duration of one month. Cantal spontaneously produced there its rind which the color and the aspect evolve with the maturation duration. Several stages of maturation can be distinguished, according to the duration of refining of the fourmes: the cantal tome cheese (coldly produced) young cantal (between 1 and 2 months of refining), cantal interval or gilded cantal (between 2 and 6 months), old cantal (more than 6 months).

Fourmes in small size also profit from AOC cantal under the denominations: small cantal (between 15 and 20 kg), the “cantalet” (between 8 and 10 kg). Two other cheeses, also produced in the Massif-Central, are made according to the same process. They profit AOC distinct and from more restrictive schedules of conditions: the “lagiole” and the “salers”.

The cantal tome cheese allows the realization of various regional receipts, of which the “truffade” and the “aligot”.

The young cantal is a soft and delicate cheese. It can be tasted it in fine section on rye bread with currant or raspberry jams.

The interval cantal and old cantal have more pronounced flavours but they should not be prickles. They can be associated with Cahors wine.

Data INAO 2005

- Geographical surface: 1.000.000 ha

- Number of operators: 3.177 of which: 3.150 milk producers, 111 transformers (96 farm producers, 9 co-operatives, 6 industrialists), 99 refiners (74 farm producers, 7 co-operatives, 18 industrialists)
- Production AOC: 19.000 tons

3.3.5. Recycling:

Washable nappies for baby

Since Antiquity until the end of the XIXth century, the care approached with new born almost did not evolve.

After the washing, fine salt was powdered on the small child in order to constrict the grain of his skin. After dried, the baby was to be modelled. The midwife massed the body of the baby, kneaded the body to give him the suitable form. For example, a too aquiline nose or too camus was to be given to the standards. The child, held by the ankles the upside down, the midwife gave to his spinal column the curve "souhaitable".

Then came the swathe whose objective were the development of the legs by them maintaining quite right, to prevent that the body of the baby does not become deformed and to provide for civilizing action which moved away the baby from the animal character (his mollesse was regarded as a suspect sign of animality always ready to open out). A first layer of langes and strips maintained splints to keep the stiff legs and the open hands. Two other bands of langes enclosed the baby and held it with the heat. The ankles of the child were bound, with the attention that the ends of the body don't become livid. In the second month, the strips are loosened a little, one released the right-hand man, to be sure that newborn is not left-handed.

To the Middle Ages, several bonnets will come to supplement swathe. The bonnets protect the head from the shocks. The bath is abandoned because it is feared that miasmas do not circulate by the means of water. The filth is thus perceived like protective. Dirtiness and "crusts of lait" served to protect the fontanelle one on cranium as the infant. The lice were welcome. They came "to eat the bad blood". The tight swathed langes were permeable: urinate and excrements macerated there. Rednesses, scabs, scales and buttons proliferated on the baby.

Because of swathe, the baby could not scratch. When the child was temporarily free from his langes putrid, it was wiped with oil or butter and nimbly swathed, of fear he doesn't take an inhuman form. To protect him, amulets, small bells, wolf's teeth, coral, amber and other sachets magic were hung to his shirt.

In the XVIIth century, the English philosopher John Locke is the first to raise the question of block the child and to recommend to leave it free its movements.

In the XVIIIth century, doctors explain that the shirt and its splint do not have nothing to do with the growth quite right legs. Jean-Jacques Rousseau develops the thesis of the members in freedom in his book; "L'Emile ou l'éducation".

At the end of the XIXth century, appears the English method: napkin and lange-breeches. It is noted that child acquires more quickly the control of his body. Till the beginning of the XXth century, in the north of France, the "pichou" kept the quite right legs of the babies. It was a system of tight napkin, made with cloths and worn covers.

In the XXth century, the napkins become cotton shaped nappies, attached with large, pink or blue, pins and which it is necessary to make boil. The first disposable nappies appeared in 1956 but they appear in France with the beginning of the 1970 years.

Today, from 0 to 2 years, a baby consumes 4.000 nappies approximately. During the 2 years 1/2 need for a child to acquire cleanliness, it will produce one ton of waste. Waste will put more than 300 years to decompose. To manufacture cellulose of nappies, it is necessary to cut down 4 and 5 trees. What gives on the scale of France: 3 Billion nappies, 5,6 Million trees, 47000 tons of unrefined oil to produce 15200 tons of plastic.

The washable nappies are sew today with elastic bands with the waist and the thighs, closings with pushes (very resistant and anti-allergic) which make them very practical to use. The protection breeches are flexible and aesthetic, they let breathe the skin, while being tight. Some nappies resemble even the throw away nappies, and are used in the same way. The impermeable fabric is integrated into the nappy.

The washable nappies are spread in many countries (Germany, England, Canada, Austria...). England set up the national week of the washable nappies. Some towns of Belgium subsidize the families for the purchase of washable nappies and also make economies, since in this way they reduce their quantity of waste considerably.

Internet website:

“How much washable nappies and at which cost?

We advise between 15 and 20 nappies (single size or multi sizes), 3 protection breeches (multi sizes), for a good bearing with washing every 2-3 days. The budget which represents the starting purchase depends on the choices which have been made, but it should be known that the savings made over all the duration (from the birth to the cleanliness) are consequent: reduction of the costs of a third even of half compared to the throw away nappies (even by entering the cost of washings). And the economy is even more considerable if you to re-use them for a second child!

In 2 years ½, the cost of throw away nappies can represent until 1700€. Into washable nappies, you can spend 400€ at least and 200€ should be counted maintenance.”

The ecological lye

The origin of the word of lye “lessive” is in popular French, XIIIrd century, water run on ashes, “lixiva” (feminine substantive of *lixivus*).

The lye is a liquid or solid mixture products used for domestic or industrial washing. Washing action is in particular ensured by detergent products traditionally containing ashes and water or like the soap or by deterging products industrial.

Today, the detergents are presented in the form of powders, of liquids or shelves and contain:

- detergents (“surface-active”) which increases the damping of fabrics, coat the stains, detach them from the linen then maintain them dispersed into water.
- alkaline compounds, which increase the effectiveness of active-surface while acting on the pH of water for it remains high.

- sequestering agents (chelating), improperly called antiliming, which trap calcium, which increases effectiveness of the detergents.
- complexants products, also called anti-redeposit agents, which prevent the stains trapped by the active-surface to redeposit themselves on the linen.
- enzymes, which degrade the organic molecules by divide them into smaller particles. The various enzymes act on various spots: fatty spots, protein spots.
- bleaching agents, which oxidize the molecules.
- optical blueings, which absorb ultraviolet rays and re-emit blue light, so that the linen appears more luminous and more white;
- ballast, granular material of filling which facilitates the handling of the powders;
- water, if the detergent is liquid.
- conservatives.
- perfume.

The detergents generate an important pollution, from the presence of more or less unstable, toxic and remanent molecules:

- The detergents, by forming moss, decrease the water oxygenation. Their active-surface properties enable them to solubilize toxic molecules and, thus, to ensure their diffusion in the aquatic environments. As pesticides, detergents are strongly suspect to interfere on the animals metabolism, in particular of the Amphibians, fishes and human. They could be at the origin of the changes of sex of molluscs and fishes, the drastic decline of the frog populations and the reduction in the human spermatogenesis. The active-surface poured out water react in contact with salt and return by air destroying the pines of the Mediterranean coastline.
- By increasing pH the water, the alkaline can disturb balance watery ecosystems, generating chorologic modifications.
- The phosphates are not toxic by themselves - phosphorus is a major element for the living organisms - but are often at the beginning of the eutrophication phenomenon (green tides). They are often replaced by zeolites which do not cause eutrophication, but are not very biodegradable.
- The chelating are sometimes very toxic: EDTA (acid Ethylene Diamine Tétra-Acetic) form extremely stable complexes with metals, such iron haemoglobin of, which makes a poison of it.
- The launder agents are powerful oxidants and can thus destroy the organic matter.
- The detergents contain derivative products of the oil which is a very polluting industry. The additional additives (dyes, conservatives, etc) can also act on environment.

Preparation of wash containing ashes

The aim is to extract potash from ashes and use it as stain-remover. Fern ashes were famous for the wash making. The apple tree gives very white soaps. The ordinary wood used to be burned in very hot fires can also be appropriate to make very white ashes. There should not remain pieces of coal! Ideally ashes should be filtered. If the water is hard (difficulty of making foam) it is necessary to add bicarbonate of soda till it is easy to make foam your water.

Technique

Ashes are filtered to keep only finest. A cloth is filled with ashes then closed again with a solid knot. The water is boiled then the tied cloth is plunged in the water which continues to boil during a few minutes. Then, the fire is stopped and this mixture lets infuse during one hour. The linen is soaked in this infusion during a few hours before rinsing it with warm water.

Preparation of washing containing plants

Saponin is a substance having the capacity to make foam water. It is possible to extract it by the made of a decoction with some plants: saponin roots, ivy leaves, India chestnut peeled and grated.

The saponin is a grass which was used abundantly in Europe before the XVIIIth century, in the same time the soap industrial production started. The saponin roots contain the greatest part of the active ingredients of the plant. Settings in decoction to 60 gr per water liter, they produce a washing foam which can be employed like shampoo or vegetable soap.

The lucerne (*Medicago sativa*), was also usually cultivated. It is a perennial plant, of which the root can be tear off in anyway season. This root must be washed and dried, then cut it in small dice and throw it into ebullient water like the saponin root. This wash must be boiled during half an hour.

The India chestnut tree (*Aesculus hippocastanum*) produced chestnuts which must be peeled, crushed and then thrown into ebullient water (the decoction must boiled during one hour). Then, the decoction must be pass into sieve, the juice collected, and put into bottles: it is a good wash for fabrics and woollen articles in dark color.

4. Conclusion: redynamisation of the rural areas

The case of the itinerant trader

The itinerant trader has been developed between the two world war with the appearance of the commercial vehicles for delivery. Rural desertification was in progress time after time, and also diversification and contribution of new services became as much more necessary for the survival of small trade.

Citroen was one of the car manufacturers who provided the greatest number of commercial vehicles. Cases of vans (Norman, Boulangère) equipped with tourism frames "A" , " B-2" , " 5 CV" , " B-12". The type H often called in an unsuitable way " tube" was presented in 1947; a simple cube, summarizes the philosophy of the most extraordinary French utility of the post-war period, which traversed all the French campaigns. The TUB inside can be very easily arranged with a stall, a table of cutting, a balance (Berkel generally) of the shelves.

Several installations were created by the carriage-builders, in particular Théault in Avranches (Normandy), where the opening is back or side, the side panel can be opened and become shelter, installation can allow a cooled window.

Whatever you want could be found in the village grocer: food products, bread, pastry on Sunday, but also of the nails, painting, bottle of gas, various hardware, newspapers, cigarettes, and even of the drugs... All of things ordered could be found in the van which circulated in the most far hamlets. The sens of the service rendered to its customers, user-friendliness, the smile, devotion, here were the symbol of the village grocer.

The desertification of the 1970 years, the retirement of the tradesmen, the development of the mini-markets and large surfaces little by little eliminated all these small trade formerly so prosperous, which brought a life and an essential presence in a village. Nowadays, grocers are closed... the travelling tradesmen became rare: sometimes the baker and the butcher still pass one or twice by week in almost deserted villages, but for how long time?

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