OVERLOOKED

THE PRINCE'S EYE-GLASSES

According to the philosopher Heidegger, what we see worst is the pair of spectacles which, in front of our eyes, we see through. This saying is still pertinent. The prince, as a metaphor of those who hold power, has turned his eyes toward other objects: the overriding concern is no longer the imbalance of trade but unemployment. But does he freely choose his pair of glasses? Lenses have changed, but the powers-that-be still too often eschew contact with reality.

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During the French parliamentary elections in 1978, a television debate, based on apparently opposite conceptions of leadership, took place between Raymond Barre, the prime minister, and François Mitterrand, the leader of the principal opposition party. The press analyzed this tense debate by referring to a match or even a skirmish between warring forces. Nearly everything said during it could be reduced to four statistical values: rising prices, the balance of trade, industrial production and the number of unemployed persons. Each speaker claimed he could improve these values more than his opponent; but both seemed to agree that these statistics adequately described the state of the nation. By adding to these four statistics politicians' popularity ratings, which have been regularly published in recent years, we obtain a nearly exhaustive description of what, by analogy with driving a vehicle, is called a dashboard by senior executives in corporations. The warnings, satisfactions, judgements and choices of government officials very much depend on the values of these indicators, measured as regularly as possible.

One day, a friend of mine, a young administrator at the French National Institute of Statistics and Economic Studies (INSEE), pointed out that extrapolating a statistic indirectly related to inflation over a year from its last known value yielded a figure higher than the one announced by the government. This finding had very little worth since any statistical phenomenon normally undergoes fluctuations with local maxima. After writing a short, informal note about this, he was, nonetheless, rewarded by a call from a senior government official who demanded that this subversive text be withdrawn from circulation!

The infinity of events that, at each instant, enters into the operation of the country's economy is thus reduced to a few figures, which everyone looks at and talks about. It is, therefore, important to ask what statistics reveal and hide, what they twist out of shape and how – to study the reactions to statistics and, if these reactions turn out to be unfortunate, to see whether we can propose other indicators.

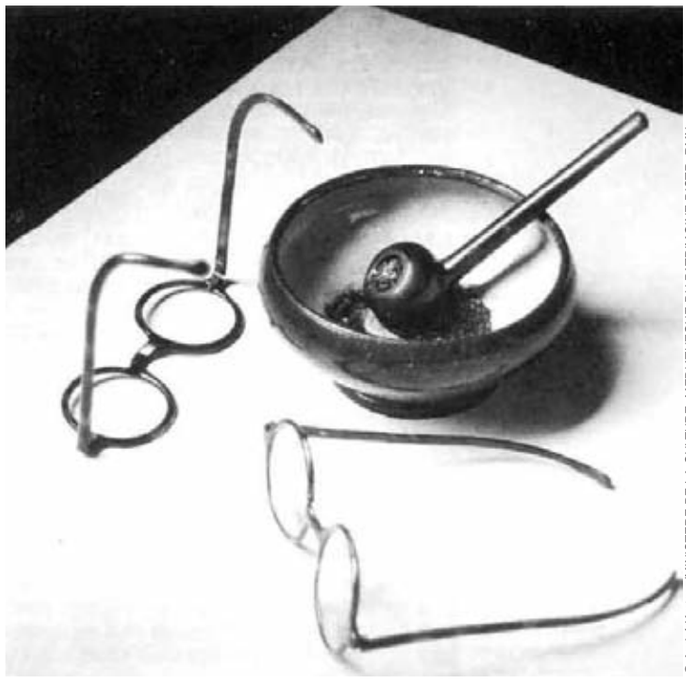
Most of these tasks have been left unaccomplished. Economists, whether academics, journalists or advisors to the powers-that-be, apparently cast doubt on a statistic only when they deem it advantageous to question a numerical value that contravenes their arguments. Even in this case, they do so with moderation, as though only certain criticisms could be aired in public. The chief French labor union (CGT) does calculate a price index different from INSEE's; but no rival calculations have been made of official statistics about manufacturing output or foreign trade. Regardless of how much the prince's eyeglasses deform or filter reality, everyone seems intent on wearing the same pair.

The author of this article is not a specialist in macroeconomics or statistics. His field of research is corporate management. The following thoughts spring from applying the managerial tools with which he is

familiar to the study of government. The findings of research on management are so far from what commonsense suggests that it is worthwhile to examine whether something similar might be happening in the running of the state.

IN A HURRY AND UNDER THE TYRANNY OF NUMBERS

Let us start by observing that top managers, whether a corporate executive at General Motors or the owner of a grocery store, never have enough time to do everything they should do. Customers, suppliers, colleagues, bankers, public administrations, products… all cry out for attention. Managers make most decisions in a hurry. The owner of a small company envies senior executives in big corporations who have specialized staffs for preparing reports. In turn, the latter envy small businessmen who, they imagine, can keep an eye on everything. In both cases, "bosses" are doomed to basing their judgements only on those pieces of information that they have the time to perceive and understand. The bottleneck in decision-making is not at the level of collecting and processing data, despite what computer salesmen say, but at the level of what the head of a firm understands, whether he has a vast computerized system or only a small notebook where he scribbles down observations. In all cases, the same scenario: at any given moment, a top manager takes into account but two, three or maybe five statistics at most. Of course, his experience, informed by the past values of the statistics being used, has gradually led him to form an idea about the scope of his activities and reflexes. However he must always place himself in the current setting, and an old reflex might turn out to be ill-timed.



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According to the philosopher Heidegger, what we see worst is the pair of spectacles which, in front of our eyes, we see through. (Anton Kertesz: *Mondriaan's glasses and pipe*, 1926)

In comparison with all other types of information, the advantage of numbers is that they are concise, appear to be objective and lend themselves to incomparable visual presentations. Borrowing the language of poets, Saint-Exupéry had the Little Prince say,

"If you tell grownups, 'I saw a pretty red brick house with geraniums in the windows and doves on the roof…', they are unable to imagine the house. You have to say, 'I saw a house that cost a hundred thousand francs.' They then exclaim, 'Oh! It's pretty!'"

The statistics used by top executives have a tyrannic impact on their judgement, as can be seen when this tyranny leads to absurd decisions – an absurdity revealed by the decision's impact on other numerical parameters, as studies in management (BERRY *et al.* 1979) have shown. Let us cite but three cases. First of all, owing to their obsession with monthly tonnage figures, metal-working shops executed the heaviest orders toward the end the month without paying attention to whether or not the order was urgent (HATCHUEL & MOLET 1983). Secondly, given their preoccupation with maintaining a constant daily output, operators mined the least profitable coal first, an act precipitating a shutdown since the most profitable veins were not worked (RIVELINE 1973:50). Thirdly, on account of the method used to calculate the cost of biochemical analyses, the most sophisticated equipment was assigned to the best equipped hospital laboratories (MOISDON & TONNEAU 1983).

Repeated findings of this sort in hundreds of studies have led researchers in ma-nagement to postulate that everyone behaves rationally using the indicators that he feels are used to judge him, but that there is no *a priori* coherence among all these "local rationales". We would be mistaken to imagine that every organization has somewhere at its top someone who sees to it that this coherence exists. This would lead us to overlook the fact that even this guardian of coherence bases his judgement and decisions on from three to, at most, five statistics, some of them possibly quite different from the ones used by colleagues.

If we apply these remarks to the operation of a government, we can imagine that, during cabinet meetings, viewpoints clash since each minister is the guardian of a few statistics that serve to judge his own management. In fact, each of the four statistics mentioned earlier can be attributed to a ministry: the price index to Finances, the balance of trade to International Trade, manufacturing statistics to Industry and the unemployment rate to Welfare. However the policies to be adopted in favor of these four viewpoints are different, even contradictory. Increasing manufacturing output often requires immediately importing more capital goods, which are not always offset by a subsequent increase in exports. Fighting against joblessness by creating unproductive jobs pushes price upwards. Improving the balance of trade by increasing productivity so as to lower costs or by reducing economic growth so as to curb imports increases joblessness. And so forth. The head of state, or of government, has to arbitrate day after day and, when doing this, focuses on the aspects he deems the most important politically.

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Top executives are forced to base their judgements only on those pieces of information that they have the time to perceive and understand. (J.H. Lartigue: *Richard Afedon*, New York, 1966)

This is normal – even, we might think, the way institutions should operate. Before adopting this serene conclusion, we should inquire into the quality of the four statistics available to ministers. In firms, the calculation of a cost price might be so conventional that its variations have little relation with its assumed economic effects. In the case of tonnages, delivery dates or cash flows however, errors take place within limits and are soon detected. On the contrary, an error in economic aggregates at the national level might, as we are going to see, result in figures of sizeable proportions without any possibility for rectifying them… or even being aware of the error.

THE PRINCE'S FUZZY STATISTICS

Let us examine each of the four statistics used by the government.

The price index

Measuring the price index, as we know, raises thorny – theoretical and practical – questions. Not all prices vary in the same way: some fall while others rise. This difficulty can probably be handled by using an average. However new products come out, and the prices of older products change without any certainty about when a modification is significant enough so that comparing prices over time has lost meaning – unless we define a precise list of products (supposedly) corresponding to consumers' needs. A rise in the index by 10% should signal that consumers need 10% more cash if they are to feel that their consumption has not changed.

For these reasons, statisticians draw up lists of products adapted to various categories of consumers. Best-known is the list of 295 items used to calculate the retail price index. It is drawn up on the basis of an average established between the consumption habits of quite different households. Frankly, it represents noone's consumption (LÉVY *et al.* 1995:121)! For example, "public transit" corresponds neither to the more-than-average use of public transportation by suburbanites in big urban areas nor to the underconsumption of this item by people who dwell in small towns. The item "rent" represents about half what is actually paid, because calculating it takes into account all persons who do not pay rent, in particular homeowners. Nor does the price index accurately reflect consumers' intuitive feelings about their purchasing power, since it includes neither income taxes nor social security payroll taxes. In fact, the latter are considered to be a levy on income instead of an act of consumption. Not to mention insurance annuities, an expenditure that cannot be broken down into a "volume" and a "price".

Given all the conventions and exclusions affecting the calculation of a price index, we are not surprised when a national labor union computes a different one, per-

haps as scientifically sound. What is surprising, on the contrary, is that several other indexes have not been made, eventually with quite different numerical values. However the index published by INSEE is significant. It serves as the peg for wage hikes. The government makes commitments about its future value and proffers explanations when the figure observed ex *post facto* is higher than predicted. As we know, officials pay close attention to the price trends of products on the index, even though, in principle, this list is drawn up independently by INSEE and not disclosed to the executive branch.

The balance of foreign trade

The balance of trade, a topic already treated by an article in this journal (HOCQUARD 1985), is the quaintest of the four. The balance of exports and imports is measured in two different ways: by the Customs Office and by banks. Customs, not without error, records the quantity and price of all merchandise that crosses the borders, whereas banks, the indispensable go-between for moving funds between France and foreign lands, publish statistics that the Bank of France periodically centralizes. Comparing these two sources brings to light major discrepancies that cannot be set down to errors in reporting.

One reason for these differences is known as leads and lags. Customs coverts all product prices cited in foreign currencies to francs at the last known rate, usually from the evening before. Actual payments, which figure in the banks' records, take place approximately three months later. In the meantime, currencies have fluctuated, but there is no way to correct Customs' statistics ex post facto. Despite methods for correcting (as best possible and in general) the distortion due to leads and lags, the difference between the circulation of merchandise and the corresponding payments amounted to +21 billion francs in 1980. In 1981, it amounted to -21 billion, a decrease of 42 billion (21+21) in a year's time, while the balance of current transactions was -41 billion. The uncertainty surrounding this figure reflects the magnitude of what is being measured!

The balance of trade by industry can be calculated only by using the classification made by Customs. The latter contains enormous classes (for example, the automobile industry) but also breaks important groupings up into smaller classes (such as the "parapetroleum" sector). Furniture, depending on whether it is made of wood, metal or plastic, figures under different headings along with products other than furniture (1). For a long time, software, of which France has turned out to be a leading exporter, went unrecognized because Customs classified it as "used magnetic tapes", which were taxed less than unused tapes.

These observations directly mold the government's ideas about foreign trade. Selling a nuclear power plant is gratifying, since the sale can be measured right away. Month after month, officials anxiously await results from the automobile industry, whereas the range of products derived from petroleum deters drawing any general conclusion, and nearly nothing is said about

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A not very sure statistic is used to measure the health of manufacturing.

(1) *L'État et le commerce extérieur*, p.40

many other products, such as furniture. As for software, which has turned out to be a substantial source of foreign currency earnings, the National Five-Year Plan did not even mention it.

Manufacturing

We might assume that more would be known about the output of industry. However it should be pointed out from the start that manufacturers are not inclined to communicate their statistics to the administration, too familiar criticisms. This statistic increases with output of any kind – whether weapons, gas burned up in traffic jams or drugs that do not necessarily improve well-being. Clever arguments have taken shape around the idea of the utility of production (FOURQUET 1980: 347), but there are no criteria for quantifying this utility.

We are tempted to say that an increase in production, whether useful or not, is always good for jobs. Let us temper this opinion however. Contrary to what is generally thought, manufacturing, owing to rapid

Even if this statistic were accurate, its portrayal of the economy is the target of well-known criticisms

despite INSEE's provisions for confidentiality. It took a long time with many a storm since WW II, for manufacturers, INSEE and the Ministry of Industry to reach the current modus vivendi (VOLLE 1982).

For technical reasons, this working arrangement is far from satisfactory. First of all, many production figures are reported not monthly but quarterly at best. Nonetheless, a monthly index is calculated, and then variously corrected to make its fluctuations meaningful. It is an index of the "volume" that, for each product, results from dividing the value of output by a price index – whence formidable problems: what is the volume of radar or mainframe computers?

A not very sure statistic is thus going to be used to measure manufacturing's health. Even if it were accurate, its portrayal of the economy is the target of all productivity increases, plays a limited role in creating jobs. In 1983, it employed only 32,3 % of the labor force in France (INSEE 1984: 100). Its ability to create jobs cannot be compared with that of commerce and the service sector. Since 1993 in the United States, high-tech industries created 217 000 new jobs whereas traditional manufacturing lost 565 000. Over the last ten years, the number of secretaries has increased by nearly a million; and that of cashiers, by half a million (Saint-Gobain 1984). We shall come back to this question of job creations.

For the time being, note that an index of manufacturing output can be produced but that problems of classification arise similar to those encountered in calculating the balance of trade. For example, the "textile industry" taken as a whole underwent, from

1963 to 1973, a period of stagnation followed by moderate growth. If we distinguish between three subcategories however, we notice that hosiery's experience resembled that of the industry as a whole whereas "artificial and synthetic textiles" grew tremendously, and "natural textiles" dropped into a lasting recession. Clearly, the prince will react differently depending on which of these three pieces of information he is given. Classifying economic activities under headings is an ongoing political issue, one that is all the more complicated insofar as the contents of headings often differ country to country (VOLLE 1980: 43).

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The number of jobless

Unlike the previously mentioned statistics, rival estimates of unemployment abound. Since all this has been amply covered in the press, we are spared dwelling on this topic. Suffice it to say that the very definition of "unemployed" is riddled with problems. If we separate the persons holding paid employment from the others, the latter category will contain children, students, retirees and homemakers along with the jobless. When a homemaker decides to earn a living, she is counted, actually or potentially, among the unemployed. Although early retirement programs frequently serve to avoid dismissals, it should not be taken for granted that a 55-year-old "preretiree" is in a better situation than a 22-year-old who has lost his job. Beyond any question, many 55-year-olds are experienced, useful or even indispensable. Finally, there is also a group of more or less "clandestine" workers or volunteers, for whom the borderline between work and a past-time is not clear.

Release fuzzy figures

Oscar Morgenstern, an American economist, has suggested that economic statistics should be published along with indications of their degree of reliability (MORGENSTERN 1971). After all, a number is not published in physics without a description of the measuring procedure; and the margin of error is often indicated. In economics, nothing of the sort! Morgenstern has ironized about deviations of 5% from statistics that have a margin of error of 30% owing to the difficulties of definition or measurement. However, as he has pointed out, no government has imagined releasing statistics with their probability ranges. For the sake of economics, he has lamented this situation, attributing it to politicians' need to express opinions in peremptory terms.

This explanation seems too simple to me. Politicians are subject to voter expectations, and we doubt that public opinion would accept statistics that keep it from deciding whether a policy will work or fail. On the contrary, the public would conclude that the truth was being hidden from it; and there would be no lack of pundits abounding in that sense. Divergent statistics are sometimes released about, for example, the size of a demonstration: "The unions estimated participation in the march at 200 000; the Home Office, at 30 000." However it is hard to imagine such fuzzy declarations about foreign trade or manufacturing.

The demand for accurate statistics arises out of ordinary mortals' intuitions (necessarily based on personal experiences) about economics. Everyone knows how hard it is to estimate the size of a crowd, but we are all sure of our feelings about whether our purchasing power is rising or falling. Everyone knows what sales figures and earnings mean in a small company, and we are all conscious of, or able to intuit, the situation of the jobless. Though lacking an advanced education in economics and statistics, we are naturally inclined to believe that concepts from these disci-

plines can easily be transposed to a nation-state and measured.

Let us draw a parallel with the legal sphere. Civil courts continually have to make awards under uncertain conditions – for example, apportioning goods that have no market value, compensating the damage done to a business's image or a person's reputation, or indemnifying a physical or moral precium doloris. A magistrate who shirks his duty by claiming that the situation is fuzzy would commit a miscarriage that exposes him to legal proceedings. To keep the peace, truth and falsehood, right and wrong, must be sorted out even if this sorting is largely a matter of convention, or is arbitrary.

These remarks lead to the idea of taking issue with the statistics chosen for an executive dashboard and of eventually replacing them with more relevant indicators. Studies of corporate management usually draw this conclusion. It is worthwhile reexamining whether this idea can be transposed from the corporate realm to governmental circles.

FOUR FORCES OF RESISTANCE

When a decision-maker is pushed by a specific parameter toward a choice that can be criticized, he comes up with the idea of eliminating the trouble-making parameter. This happened in the three cases cited at the start of this article. The metal-working plant and the mine were both subject to the dictate of tonnages; and the laboratory, to requirements about the cost price of B, a key used to set the tariffs of biochemical tests and calculate the proportion covered by Social Security. In each of these cases, researchers and their contacts inside the organizations under study realized that four forces of resistance – always present but of variable intensity – kept statistics in place: resistance from materials, from persons, from institutions and from norms. Since reality, it is said, is what puts up resistance, we assume that these statistics draw their substance from these forces.

• The *resistance from materials* was obvious in the example of the mine. Nothing was easier to measure than daily output, by simply counting the number of mining-car loads extracted. Hiding an automatically measured figure would have been senseless, since we can hardly think that someone can manage better by knowing less.

• The *resistance from persons* changes when the people involved are replaced. This resistance is not so evident in the examples cited. It is more visible when the institution is small, a family company for example. However, in big organizations too, we are familiar with fixed ideas that, held by senior executives, do not survive the latter's departure. A famous example was the ageing Henry Ford nearly ruining his company because of his immoderate sense of power and secrecy (DRUCKER 1957).

•The *resistance from institutions* stands out in the case of the laboratory. Quantifying tests was a response to requirements from the hospital and Social Security. Hospital expenditures were calculated in relation to a per diem defined for all services in medicine or surgery. Since this per diem included biochemical tests, laboratory expenditures had to be spread over various services. The general method for doing this was to calculate the service or product as a whole number multiple of an elementary unit of production, in this case B. It followed that the cost of B could be used to evaluate laboratory operations. This boosted the tendency toward overequipment and an overconsumption of lab tests: the more B units produced, the faster they are produced, the more the cost of B diminishes. Unlike tonnage in the mine or metal-working shop, output is hard to measure for a hospital laboratory. How many B units should be assigned to a lab test triggered prickly discussions. Social Security required an answer in order to calculate its coverage of tests run in private laboratories.

The *resistance from norms* is related to what is universally taken for granted, even if the latter has lost its validity, as illustrated by the case of the mine. Measuring daily output led to extracting the coal that was easier to get but of poorer quality. This was absurd given the menace of a shutdown owing to the mine's deficits. However it was a rational decision when no such menace existed and coal production was a national priority — equipment was used to full capacity, and a maximum of what could be mined was extracted.

These four forces of resistance are felt when a new instrument or measurement is to be introduced. The materials, persons, institutions and norms in place must go along with the change. The failure of many an attempt to set up managerial dashboards or controls can be interpreted as the victory of one of these forces, despite support from the other three.

Transposing these remarks to the statistics used by the prince presents no particular difficulty except for the resistance from persons, even though historians attribute a decisive role in affairs of state to men such as Philip the Fair, Colbert or Napoleon. François FOURQUET (1980) tells how certain strong personalities in France undertook, after WW II, to build a national accountancy system that would play a key role in steering the nation's economy, like ordinary accountancy in firms. Their work has deeply affected economics, but it is doubtful whether any government has ever put it to much use (p.353). On the other hand, the other three forces of resistance have played an obvious role in maintaining the four statistics under examination.

The price index and resistance from institutions

Though hard to measure, price indexes are an overriding institutional requirement not only for calculating wage hikes but also for applying contracts with clauses about indexation. Their use is an inevitable antidote for inflationary phenomena. Their publication sets off wide-ranging reactions among players in the economy, including national and international financiers. Since every serious country releases a price index, we cannot imagine not doing so.

The balance of trade and Customs

Statistics on the balance of trade have an impact on institutions when they are released, but are maintained in place owing to resistance from materials (like a mine's daily output). Nothing seems easier than to add up figures from Customs. Nonetheless, no such calculations are made for transactions between regions or departments inside France. We might wonder whether transactions between the Provence-Côte-d'Azur and Rhone-Alps regions are balanced, in the same way we inquire into the exchanges between France and Germany. That would have been possible under the monarchy, when countless tolls were collected at gates on transportation routes. The estimates we have nowadays are fuzzy, based on the transfer of funds between banks – an ignorance with possibly fortunate effects for national unity.

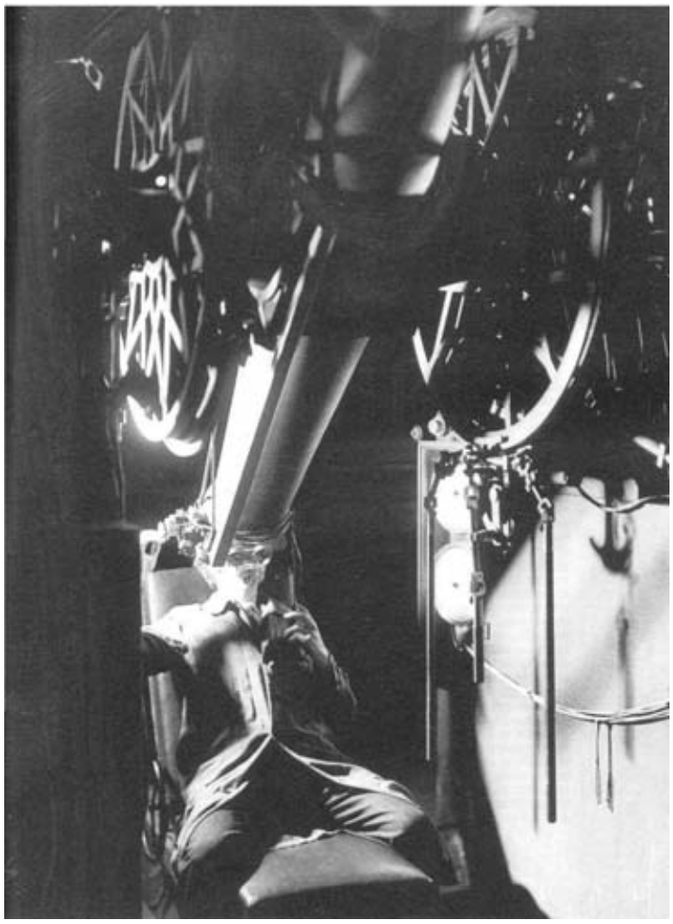
Industrial output, a single source of value?

Industrial output is not easy to measure, and its index is not linked to clearly defined institutions. This statistic is maintained by a norm, namely the previously mentioned idea that manufacturing is the only true source of value. According to Jean FOURASTIÉ (1959), a reputed economist, "We clearly see why we work. We work to transform nature into artificial objects that satisfy human needs, which otherwise would be poorly satisfied or not at all. We work to transform weeds into wheat and then bread, wild cherries into edible cherries, and rock into steel and then cars."
Declarations like this should be compared with the fact that agriculture employs but 7% of the labor force in France and industry 32,3%, as already pointed out. Furthermore, these figures count many administrative jobs, thus reducing further the number of those who actually work at transforming nature.
In developed societies, most people work in public administrations, banks, insurance companies, the wholesale and retail trades, advertising, the mass media, education, leisure activities. Obviously, their social utility does not reduce to the transforming of nature. The most brilliant civilizations were not necessarily industrial societies. We need but think of Italian city-states during the Renaissance or the "world economies" described by the historian Fernand BRAUDEL (1979). According to Jean-Marc OURY (1982), the conviction that value springs from production (in the strict sense of the word) stems from our overlooking a third ingredient that, besides capital and labor, is indispensable for making goods and satisfying needs, namely "vigilance". Vigilance enables us to detect the imbalances that generate the circulation of merchandise, and brings buyers and sellers into contact. It helps us anticipate breakdowns, ruptures in stock and technical failures in machinery (RIGAL & WEILL 1984).(2) Sentinels or hunters on the lookout seem to be doing nothing, but they are the ones on whom the tribe's security and supply of game depend.
Let us imagine the extreme case of a developed country without any raw materials, farming or industry. As disturbing as this picture might be, we have to admit that many of these activities are in the red in most countries, which, in fact, could obtain goods on the international market at prices lower than domestic costs. The strategic risks immediately come to mind, since the countries supplying goods could, during war- or even peacetime, impose restrictions or an embargo. Such preoccupations carry weight, but it is not so easy to assess them. They predominate in iron and steel and in shipping, two bloated sectors, far in excess of what is needed for defense purposes (GREM 1978).
Counting the unemployed is an institutional phenomenon related to the benefits served by the National Employment Agency (ANPE). It is easy to show the force of cultural factors in this field by making comparisons over time. The concept of "employment" has several aspects: a job, a pay, a social status. The etymology of the French word for work *(travail)* goes back to the idea of torture. In ancient Greece, work was what slaves did. French nobles were forbidden to exercise an activity for pay under the monarchy, an infamous act called *dérogeance*. The idea of the salutary value of work apparently does not date back farther than the 18th century in France (GROETHUYSEN 1977). The same holds for the idea of a linkage between a job, a means of livelihood and a social status. Is this linkage not changing imperceptibly owing to the longer time devoted to education, the ever younger age of retirement and the growth of activities related to associations and local life? Whatever the case, being unemployed is still a calamity, and the prince will be judged by what he does to limit the number of the jobless.

(2) See, too, *Gérer et comprendre*, 2/3/4.

SLOT MACHINES, EARTHQUAKES AND OBSCURE ACTS OF BRAVERY

The conclusion to draw from these comments is that the prince wears whatever glasses he can, and sees those statistics that are maintained by powerful forces of resistance. The introduction of a new statistic has to overcome major blockages. Let us hypothesize that the prince, like any other manager, logically reacts to the parameters that he feels are used to judge him. We then see power as a vast mechanism governed by principles as forceful as the laws of nature. This view overdoes it, of course. Regardless of how overworked the "boss" might be, he always keeps for himself certain crucial issues that he takes the time to mark with his personal stamp. However this view is not any falser than the contrary one that sees the exercise of power only as a game between persons, ideas and passions.



The prince wears whatever glasses he can, and sees these statistics that are maintained by powerful forces of resistance.

Were we to adopt the mechanistic view, we would have to realize that it is not shielded from change, whether spontaneous or deliberate, as the findings of research in management prove. As explained, a parameter is maintained by four forces of resistance, but these forces use it in a diversely coherent manners. These forces are constantly evolving: materials owing to the progress of techniques, persons by ageing and changing, institutions under the brunt of new regulations, and cultural norms on their own. Consequently, a situation perceived as harmonious is bound to deteriorate.

This suggests the image of a slot machine, with its randomly rotating cylinders decorated with various designs. The player wins if the cylinders stop in an improbable pattern, for example lining up four lemons. This holds for the forces that determine and modify managerial parameters. In management, the cylinders rotate spontaneously, and a winning position is ephemeral. For example, a company, realizing its technology is obsolete, modernizes machinery. While doing so, it realizes that too many people on staff are too old to learn the new methods. It hires young people, but they do not accept the hierarchical relations which their predecessors put up with.

Another analogy comes to mind, one borrowed from geology. Earthquakes result from an accumulation of elastic energy owing to the contact of two masses of rock that a resistance owing to friction keeps from sliding over each other. Once this resistance is overcome, the accumulated energy is suddenly released with sometimes devastating effects, as we know. Likewise, organizations might cover their eyes to keep from seeing the gap widening between two of the four forces of resistance. Suddenly, a change reduces this gap, perhaps with losses and much noise, by introducing a new point of friction with one of the other forces spared by the quake. There might even be incurable patterns, gaps without any outlet. In such cases, office-holders are not totally helpless. They can anticipate quakes by exercising vigilance and supporting gradual adjustments. They can use the quake to introduce well thought-out reforms. They can help others understand the complexity of these phenomena and turn them away from crude, simplistic remedies.

Transposed to the affairs of state, these comments open several lines of thought. How did ancient sovereigns supervise their affairs? What criteria were forced on them for judging and making choices, and with what effects? How did these criteria emerge, and vanish? To the best of my knowledge, these questions have not been asked in these terms, although we can probably find answers in the works of historians.

This analysis also turns our attention toward the dis-

creet efforts by those who, in the sphere of power, try to impede the making of decisions that would be too hasty and who devote thought to improving managerial tools for implementation under the right circumstances. The image that comes to mind is of Richelieu with Father Joseph, or of the 18th-century Enlightenment salons, where philosophy was discussed and the conceptions of the future assemblies of the French Revolution were patiently molded.

Finally, it should be borne in mind that the prince, especially in a democracy, is forced to see his land in the same way as public opinion. Voters, too, are decision-makers in a hurry. They want to justify their vote with a few simple criteria. This draws our attention to education. There is hardly any other means for turning people away from simplistic schemas, which stand in the way of making smoother transitions, than to teach them more demanding paradigms, whether they come from statistics, economics, history or philosophy. Through their efforts day after day, teachers, students, pupils and writers contribute to free the prince from the tyranny of his eyeglasses. ■

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