# Theme : 11th Belgian Surgical Week

*Acta Chir Belg*, 2010, **110**, 510-516

## Surgeons and the Paradoxes of Disaster Situations Presidential Address at the 11th Belgian Surgical Week

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A paradox is a statement or tenet contrary to received opinion (*doxa*) or belief. Despite sound reasoning from an acceptable premise, misunderstanding can arise leading to conclusion that is against sense and logically inacceptable. However, a paradox can sometimes appear as a seemingly absurd or self-contradictory proposition which, when investigated or explained, may prove to be well-founded or true. I will try to clear up some paradoxes hidden away in the minefield related to the role of Belgian Surgery in Disaster Situations.

### Disasters and Gross Domestic Product

One could read in the April 19, 2010 issue of Business Week under the heading *Chile Disaster may accelerate GDP Growth* the following analysis : "Chile's economy may expand faster than previously forecast as the country recovers from the fifth-biggest earthquake in a century, . JP. Morgan Chase & Co. said. Gross domestic product (GDP) may rise 5.5% in 2010, more than the 5% previously forecast, because of reconstruction work after the February 27 earthquake". Such a rather cynical and optimistic statement at the same time is, however, counterbalanced by a more in depth analysis already published in 2005 by the Johns Hopkins University School of Applied Economics : "It's common to be told that a problem with the GDP statistic is that natural disasters increase measured GDP. Sadly, even some textbooks say this but as a general matter it's false. The broken windows fallacy is a fallacy for measured as well as for real GDP because the money spent on new windows would have been spent on other goods and services". The fallacy is even more obvious if one considers the death toll according to the local GDP, i.e., registering 7.0 on the Richter scale, the Haitian earthquake in 2010 killed tens of thousands of people. But the quake that hit California's Bay Area in 1989 was also of magnitude 7.0. It killed only 63 people.

### Hubris and Nemesis

In an opinion paper published in Nature (1) about modelling economics two authors ironically but pertinently stated that : "The leaders of the world are flying the economy by the seat of their pants and there is, however, a better way to help guide financial policies. The policy predictions of the models that are in use aren't wrong, they are simply non-existent". So much also for the profitability model of disaster situations in term of GDP growth! Too often, new economic measures are implemented without any prior testing (all the same for surgical innovations not yet clinically validated).

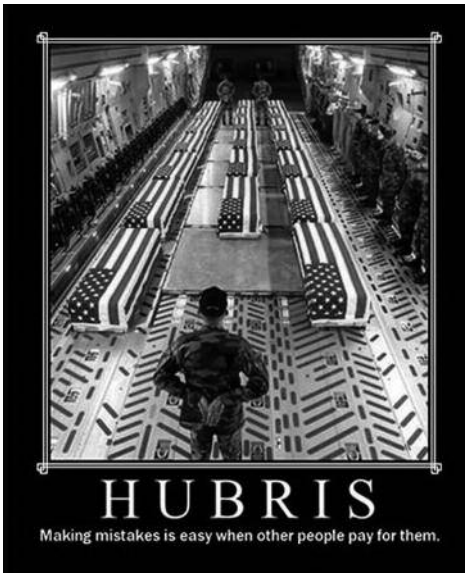


*Fig. 1*
***Hubris*** : the insolence and excessive self-confidence of man, the "*pride that blinds*".

Furthermore, one can oppose a counter-argument to the economists' hubris (Fig. 1) speculating clumsily and rather belatedly on Aldous Huxley's hubris against the essential order of Nature that would be followed anyway by its appropriate nemesis (Fig. 2). The proverb "pride goes before a fall" is thought to sum up the modern definition of *Hubris* (the insolence and excessive self-confidence of man). It is also referred to as "pride that blinds", as it causes someone accused of hubris to act in foolish ways that belie common sense. It often resulted in fatal retribution or *Nemesis* (the righteous indignation, personified as the goddess of vengeance or retribution, i.e., the antique version of the anti-Bernie Madoff). The action performed by the hero, usually because of his

*Fig. 2*
***Nemesis*** : the goddess of indignation against evil deeds and undeserved good fortune.

hubris, or great pride, leads ultimately to his death or downfall.

Paul Valéry's definition of hubris (Fig. 3) is more profound and rather paradoxical : "The folly of mistaking a paradox for a discovery, a metaphor for a proof, a torrent of verbiage for a spring of capital truths, and oneself for an oracle, is inborn in us". This definition could apply to disaster situations in general and to the health care system in particular.

**The principle of complementarity**

Living during the same period as Paul Valéry and Aldous Huxley, the Danish-born physicist Niels Bohr (Fig. 4) conceived another paradox : the *principle of complementarity*. It is the basic tool of Quantum Mechanics ; items could be separately analyzed as having several contradictory properties. For example, light behaves either as a wave or as a stream of particles depending on the experimental framework – two apparently mutually exclusive properties. The principle of complementarity is the capacity of two paradoxical theories (e.g. the wave and particle theories of light) together to explain a body of phenomena, although each separately accounts for only some aspects.

Bohr, 1922 Nobel Prize in Physics, made then this ingenuous, candid but straight comment : "How wonderful that we have met a paradox. Now we have some hope of making progress".

Thus, let us try to make some progress with the remaining role of surgeons in the field of emergency and

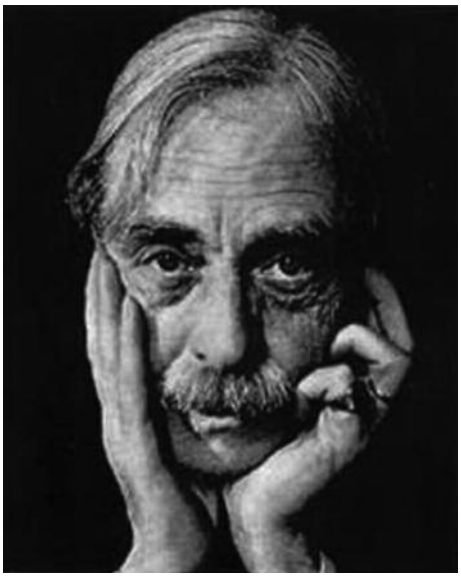

*Fig. 3*
Paul Valéry : "*The folly of mistaking a paradox for a discovery, a metaphor for a proof, a torrent of verbiage for a spring of capital truths, and oneself for an oracle, is inborn in us*".

*Fig. 4*
Niels Bohr, 1922 Nobel Prize in Physics : "*How wonderful that we have met a paradox. Now we have some hope of making progress*".

disaster situations. Susan Briggs from Harvard Medical school at Massachusetts General Hospital gave recently an in depth analysis (2) of the challenges of disaster medical response which was divided in two parts : the fact that the demands of international disaster relief have changed over the past decade and the fact that contemporary international disasters follow no rules!

**The demands of international disaster relief have changed over the past decade**

The change is in the *scope of medical care*. Indeed, the complexity of today's disasters demands civilian and military surgical partnerships.

The change is also in the *spectrum of threats* ranging from war to natural and man-made disasters, including terrorism. The change is in the *field of operations*. Many of today's international disasters occur in austere environments, which are settings where access, transport, resources or other aspects of the physical, social, economic or political environments impose constraint on the adequacy of care for the population in need.

**Contemporary international disasters follow no rules**

No one can predict the time, the location or complexity of the next disaster. Nevertheless, all disasters, regardless of their aetiology, have more or less similar medical and public health concerns. Therefore, a consistent approach to disasters, based on the understanding of their common features and the response expertise they require, should become the standard strategy and accepted practice throughout the world. Such a strategy is called in the USA the Mass Casualty Incident Response (3), which includes four components.

**Four components of the Mass Casualty Incident Response (2, 3)**

*1. Search and Rescue*

In disasters involving large number of victims trapped in collapsed structures, it is initially very important to have specialised search and rescue teams with the technical equipment and expertise to facilitate extraction of the victims.

*2. Triage and Initial Stabilization*

Triage is the most important - and often the most psychologically taxing – mission of disaster response teams, especially with disasters involving a large number of casualties.

*3. Definite Medical Care*

In fact, disaster care is initially "minimally acceptable care" (eventually in mobile field hospitals) due to the large number and diversity of victims.

*4. Evacuation*

Evacuation can be useful in a disaster as a means of decompressing the disaster scene. Evacuation of victims with serious injuries to off-site medical facilities not only improves their chances of survival but also allows increased attention to the remaining casualties at the disaster site.

**Dominique Larrey's Concept of Triage & the Modern Paradox of Triage**

No doubt, we are meeting a new paradox, i.e. search, rescue and triage ; definite care and minimally acceptable care. How can we do some progress ? By keeping in mind that good intentions alone do not constitute a successful disaster response, that intercultural effectiveness remains the ultimate key to successful international disaster response because it is associated to unique challenges : geographic, organisational, ethnic, cultural and political.

Therefore, surgeons must be clinically competent and understand the general principles of disaster response such as incident command, decontamination, provision of minimally acceptable care in a mass casualties setting, and disaster triage.

The *concept of Triage* was actually conceived by Dominique Jean Larrey (Fig. 5), the French surgeon in Napoleon's army and an important innovator in battlefield surgery. His concept was simply phrased : "Those who are the most severely injured must be cared for first regardless of their rank or their decorations. Those with minor injuries must wait until the severely injured were operated on". Larrey performed 800 operations at the end of the battle of Eylau (1807). Napoléon once

*Fig. 5*
Dominique Larrey making "triage"
on the battlefield of Eylau (1807)

said : "*Larrey, l'homme le plus vertueux que j'aie connu*".

Since Larrey, surgeons are uniquely qualified to participate in all four aspects of disaster medical response because of their expertise in triage, their expertise in care of critical patients, their rapid decision making ability, their ability to understand the world as it is : that politics, more than a lack of personnel or the availability of supplies and equipment, often limit the effectiveness of local or international disaster response.

**Vanity Parade versus Vanishing Parade**

A recent BBC report was rather severe about the noria of rescue teams that came and went in Haiti early this year. Some of them flashed past the local disaster, others just paraded in front of the media, and few did actually a tremendous job (those were well prepared and demonstrated a sheer scale commitment). Anyway, we certainly may question the effectiveness of international aid. The BBC report used the expression of Vanity Parade of nations struggling to show how big and important they were. Without real international coordination the Vanity Parade turned very fast into a Vanishing Parade considering the absence of long term commitment. However, such was the desperate level of need in Haiti and there were so many people needing relief that nobody did care which country the relief came from and which was the motivation for providing it.

Can the international community do better ? Certainly yes! But to do so require true international political will. The ways and means will then follow even if all needs won't ever be met. Abraham Lincoln (Fig. 6) once said : "It is possible to meet all people's needs some of the time and it is possible to meet some people's needs all the time, but it is impossible to meet all people's needs all the time". Nevertheless, there are enough goods on earth for the basic needs of everyone, but not enough for the greed and lust of each one of us.

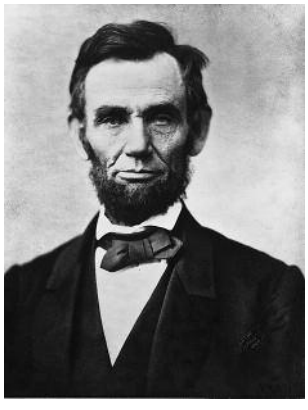

*Fig. 6*
Abraham Lincoln : "*It is possible to meet all people's needs some of the time, and it is possible to meet some people's needs all the time, but it is impossible to meet all people's needs all the time*".

**Militaro-Industrial complex versus Militaro-Humanitarian complex**

In his farewell speech given on the 17 January 1961, President Eisenhower (Fig. 7) warned the USA and the World about the threat of the military-industrial complex : « We must guard against the acquisition of unwarranted influence, whether sought or unsought, by the Military-Industrial complex. Disarmament, with mutual honour and confidence, is a continuing imperative. Together we must learn how to compose differences, not with arms, but with intellect and decent purpose».

What could be a more decent purpose than designing a Militaro-Humanitarian complex to replace the Militaro-Industrial complex ? Is there a better way to reallocate the resources wasted in unproductive but destructive weapons of all kinds ? Is there a better solution to meet the challenge of the complexity of today's disasters which demands civilian and military surgical partnerships ?

This is far from being utopia if we put numbers into perspective! In early 2010, President Obama's Health Care Plan represented 950 billions in 10 years. By comparison, the total defence spending is 762 billions for 2010 alone. In 2009, natural disasters killed 235.000 people, affected 214 millions people and cost

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190 billions US $. The US defence spending for 2009 was 745 billions US $. Thus, the money is there, the political will is not.

**The Paradox of the Belgian Surgical Situation**

*Culture & cross-fertilization*

During vacation on the Obersalzberg in 1929, Sigmund Freud (Fig. 8) wrote Das Unbehagen in der Kultur (The Uneasiness in Culture, Malaise dans la Culture) in which the following definition of culture can be found : *"Culture is our collective mental being"*.

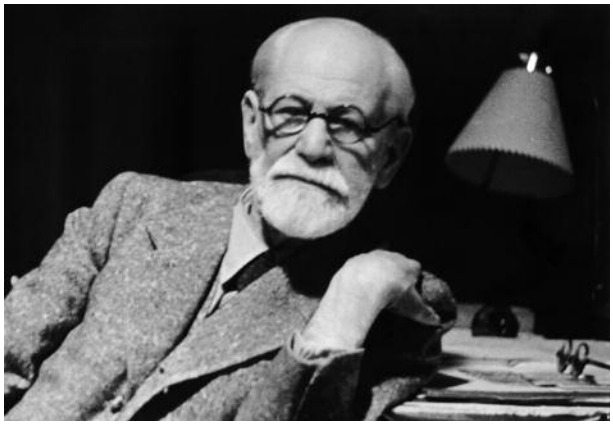

*Fig. 8*
Sigmund Freud : "*Culture is our collective mental being*"

Regarding Belgium this definition has to be somewhat revisited : "Culture is our collective multicultural Belgian mental being ", because Belgium is a land of cross-fertilization. Indeed, during the XVI$^{th}$ century, Rembert Doedens, Charles de l'Escluse, Matthias de Lobel (*Lobelius*) were the Flamish founding-fathers of modern Botany. They were physicians and their most complete botanic achievement was the garden's Azalea coming from the crossing, between Rhododendron molle and Rhododendron japonicum. In fact, thanks to them the success of Azalea was at the source of the world famous Gentse Floraliën. Nevertheless, if we cross the Belgian linguistic border going to the south of Belgium, we can find another example of cross-fertilization : the Belgium Blue cows (bleu blanc belge) with their scars from caesarean section.

*Utopia & Optimism*

Belgium is also a land of European and World cross-fertilization. Erasmus lived some time in Leuven. He was a friend of Thomas More who published a little book "*Libellus Vere Aureus Utopia*" (Fig. 9). This book became the "best-seller" of the Renaissance and is still

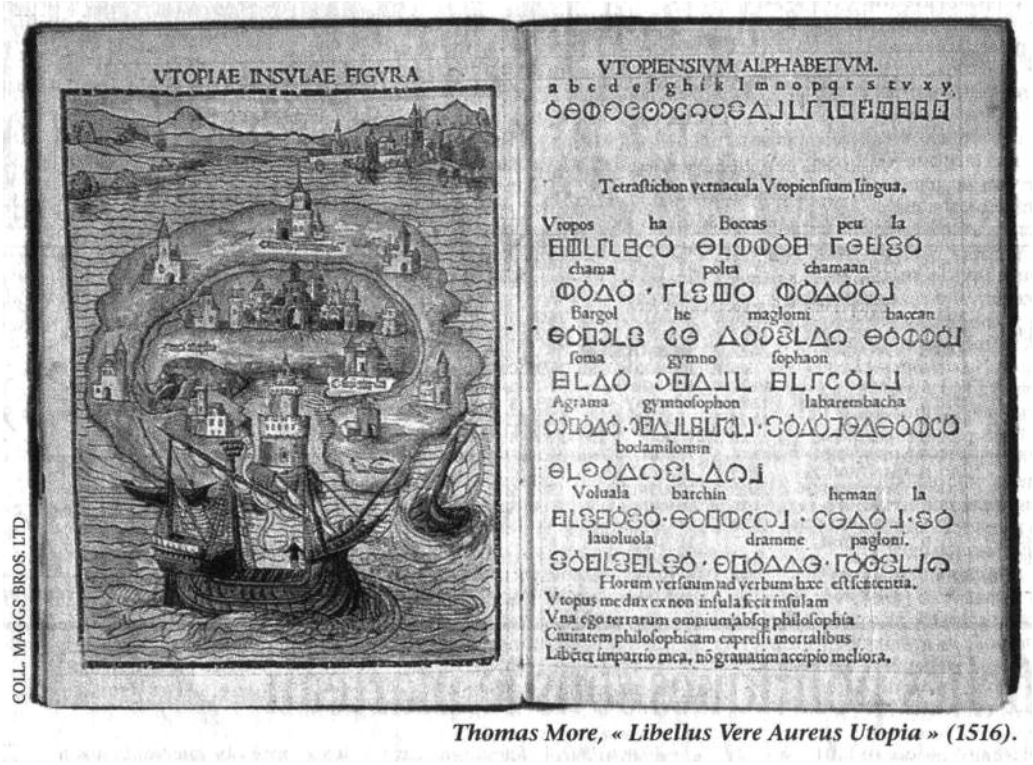


*Fig. 9*
Thomas More *Libellus Vere Aureus Utopia* published in Leuven in 1516

well known as UTOPIA. In fact, it was published in Leuven in 1516. Utopia is the word coined by Thomas More to designate an imaginary place (*topos*) considered to be perfect and where human people are willing to go in order to find meaning in their life. Utopia is associated with Optimism, which is the reason why we, Belgian surgeons, have more to loose by being divided than remaining unified as a collective body (in a rather utopian country). Actually, Belgium is a fantastic land of cross-fertilization in Surgery and that is most likely the reason why our 117 year old Royal Belgian Society of Surgery (RBSS) is still unified since 1893! Is this politics ? It's simply surgical pragmatism! Just one proof of this : the remarkable way Belgian Surgery has succeeded in negotiating the bend of endoscopic surgery at the end of the past millennium.

One citation from the Uruguayan writer Eduardo Galeano applies very well to what utopian surgical pragmatism is : "As I am getting close to my utopia, it moves away. I wend my way at ten steps from the horizon and the horizon fades away ten steps further. As long as I wend my way I won't never reached the horizon. Which is the useful purpose of utopia ? Utopia serves just that : wending on my way".

*The RBSS & the Federal Ministry of Health*

For the first time the 11th Belgian Surgical Week has welcomed and organised the participation of two Departments of the Federal Ministry of Health in the scientific program, represented by Christiaan Decoster and Margareta Haelterman (DG1–Hospitals'Organisation and Patients' Safety) and Michel Van Hoegaerden (Primary Health Care and Crisis' Management). It was important to get those two Departments of the Federal Ministry of Health at the 11th BSW. Why ? For one simple reason : there are two main types of risks in Health Care in general and in Surgery in particular : the *unpredictable* risks and the *recognized* risks.

The unpredictable risk is illustrated by the potential threat of the $AH_1N_1$ pandemic dealt with by the Crisis' Management department in order to comply with the principle of precaution and the recommendation of the WHO.

The recognized risk is illustrated by the accidents that can occur in the operating theatre, dealt with by the Hospitals' Organisation and Patients' Safety department in order to comply with the principle of protection of any patient and the recent recommendation of the WHO about the surgical checklist.

Despite all of this, there is, however, another paradox with regard to the fact that surgeons are not part and not officially represented in the National Council for Emergency Medical Aid (KB/AR - 5 July 1994). The actual composition of this council is as followed : Scientific Association of General Practitioners, Association of Emergency and Disaster Medicine, Association of Hospitals, Association of Nursing, Association of Ambulance Personnel, Aid Centres "100", Belgian Red Cross, Belgian Army Medical Service. The absence of professional and scientific surgical associations and societies in the National Council tells us that, too often, official entities attempt to steer the ship of health care without regard for surgeons' insight.

*Surgical Malpractice & Quota Restrictions in Surgical Workforce*

Intelligence is the faculty to adapt, to learn from our errors. It is not just discovering or rediscovering the wheel. Once again, Belgian surgeons have intelligently demonstrated their ability to learn lessons (sometimes the hard way) from bottom-up analysis of surgical errors in malpractice claims in Belgium (4), but also their capacity to adapt to political regulations falling on them from top-down (5). When the services of the ministry of public health impose quota restrictions without even establishing à clear job description and definition of what a hospital ward physician is, it is up to the RBSS to renegotiate accurate and safe standards for the surgical quota restrictions (5) in order to avoid a forthcoming public health disaster. Indeed, anybody able to count could have forecasted that the post WWII baby boom would become a papy boom in 2010, which explains that

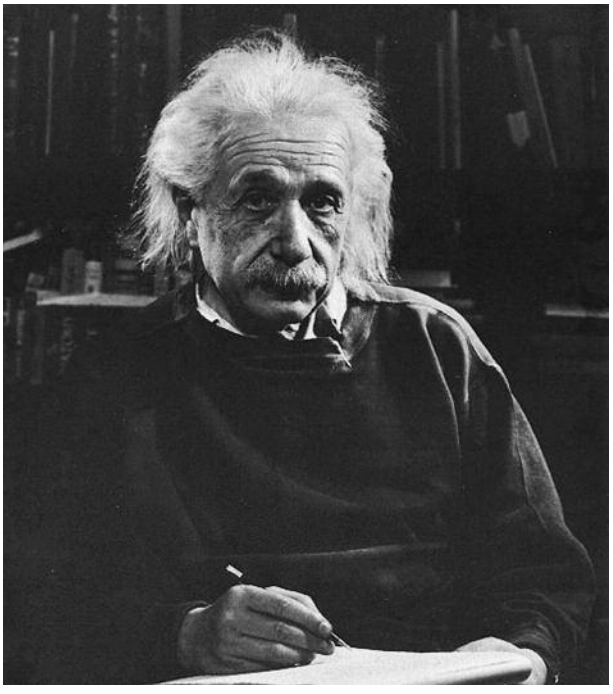

*Fig. 10*
Albert Einstein : "*Not all that counts can be counted and not all that can be counted counts*".

the mean age of general surgeons is well above 55 in Belgium.

Quota is not the final word. *Quota* means *numbers* and numbers means *counting*. This essential sequence has already been laconically rephrased by Albert Einstein (Fig. 10) : "Not all that counts can be counted and not all that can be counted counts ".

## Conclusions

To conclude, let me propose some optimistic analogies between Music and Surgery.

The surgeon has two hands, ten fingers and one patient at a time to deal with ; the musician has two hands, ten fingers plus seven notes to cope with.

The talented musician can innovate ; the creative surgeon too. Despite the fact that Surgery is not anymore only an Art, it still has something to do with creativity for the simple reason that hands are bound to artistic creativity. However, the *latest* and the *newest* is not always the *best* whether in Art, Music or Surgery. Therefore, balancing Hubris with Nemesis is appropriate in all those fields.

*Fig. 11*
Claudio Abbado's "*Zusammen Musizieren*", an analogy between the Berliner Philarmoniker Orchestra & the Operating Room Team.

During the performance of a violin or a piano concerto, the conductor must downgrade his ego while facing a good soloist. It is the same in the operating theatre. In addition a good surgeon is a team worker, i.e. two hands and ten fingers, several inflated egos but only one team dedicated to the patient's care.

Claudio ABBADO, the Italian Maestro of the Berliner Philarmoniker Orchestra (Fig. 11), likes to use the German expression of *Zusammen Musizieren* to describe the goal that the conductor and the orchestra have to reach together. It is all the same in the operating theatre. However, the analogy between an orchestra and an operating theatre terminates when too many outsiders interfere with the Zusammen Musizieren, and when lobbies and so-called health care economist and financial wizards invade the sanctuary that the operating room should remain. Therefore, it's time for surgeons to take back the helm of the Operating Theatre.

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