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Risk "Culture" in Populations Using the Sea and Coast of Western France (11th-16th Centuries)

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ABSTRACT

Among populations using the sea and its coastlines, danger was not perceived as a sterilising and inhibiting notion but rather a datum which had to be factored in, evaluated and surpassed, something man had to make allowance for in order to do business and prosper. This inclination for daring and adventure to be found in a secular culture of maritime risks, partly gave rise to technological and economic innovation and authorised the crossing of geographical, conceptual and theological thresholds at the dawn of the modern era. Voluntary exposure to risk meets a need for liberty, innovation and progress. Viewed in the context of the 12th-16th centuries, this behaviour broke with certain conservative tendencies to favour the status quo sometimes characteristic of populations and authorities of the land. We are therefore right to consider that these medieval experiments with risk management were key sources for the expansion and transformation of Europe initiated during the modern era.

1. Introduction

Being at the mercy of an uncertain future and environment, the human condition is by its very nature closely intertwined with risk. Arising between the 16th and 18th centuries, from the development of maritime insurance and the investigation of probabilities, particularly by the Italian Jérôme Cardan, the Frenchman Blaise Pascal and the Swiss Jacques Bernoulli, this concept currently remains within the sphere of mathematics and the related science of economics, especially when it comes to resolving the problems raised by investors, bankers and insurers. Since the 1970s, earth and life sciences, medicine, law, psychology, philosophy, sociology, political science, anthropology and geography have also come to embrace cindynics[1] – the formal term for the science of risk – within research and higher education establishments, not to mention consultancy and expert appraisal firms[2]. It should be added that increasingly pressing demands from political and economic decision-makers, keen to protect citizens in some cases and financial investments in others, are helping to stimulate this sector of research. Moreover, some recent crises – related to health (HIV, BSE, H5N1), earthquakes (tsunami in the Indian Ocean, earthquakes in Turkey and Afghanistan), the weather (storms in France in December 1999, Hurricane Katrina in the United States), industry (the Chernobyl and AZF explosions, asbestos), terrorism (destruction of the World Trade Center), or concerning transport activities (fire in the Mont-Blanc tunnel, sinking of the Erika) – have caused such enormous losses and generated so much emotion that the public authorities tasked with responding go to great lengths to obtain diagnoses and solutions, sometimes as a matter of urgency. The growing widespread awareness of the existence of potential dangers on a planetary scale now requires implementation of instruments for measurement, forecast and prevention founded on international cooperation. Monitoring units, watch and surveillance systems, anticipation and warning procedures continue to be developed and deployed across the world and in space to assist collective efforts to combat all types of major risk. At the same time – as demonstrated by complaints filed with law firms each day – the individualism of modern life is gradually imposing a principle of precaution and a duty of responsibility on all human activities. Risk and its related problems - the random nature of existence and the ongoing need to adapt to the environment – are no longer acceptable and bringing us ever closer to zero tolerance, to such a degree that these days safety is tending to become a right. So it is that a kind of structural ambivalence is gradually coming to light within our western societies. In the same way as progress, risk management is undoubtedly emerging as one of the facets of modernity thanks

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to which man, armed with knowledge, is seemingly capable of controlling both nature and his own activities. But this degree of unequalled conscience, endlessly fed by media information, makes populations ever more actually aware of their external and internal vulnerability and endlessly obliges them to anticipate the fallout from any uncontrolled development. It would not be overstating the case to rally to the German sociologist Ulrich Beck by stating that this notion has never been more central to contemporary societal concerns[3].

And yet, since the 18th century, technological progress has enabled Europe to make advances in terms of safety. It has freed itself - perhaps only provisionally - from the major perils which still posed a serious threat to its populations at the start of the 20th century. This is a particularly sensitive issue in the health arena. We merely have to imagine the existence of an individual in the Middle Ages to be immediately convinced. The European statistics in our possession for the second half of the period speak for themselves. They show that, across all social categories, between one quarter and one third of children died before their first birthday and half before adolescence (10-12 years) from a variety of diseases which we are now able to control such as postnatal infections, malformations and congenital deficiencies, digestive and pulmonary disorders and childhood illnesses. On reaching adulthood, and provided they were not unfortunate enough to witness an epidemic of the plague, typhoid or dysentery, peasants were then subject to the harshness and hazards of their labour which was particularly demanding due to the rudimentary tools and hostile environment[4]. In addition, the archaic nature of farming methods exposed crops to climatic hazards and made the amassing of stocks impossible, with the result that even during the most conducive periods of the 11th-13th centuries, famine remained an annual threat. During the frequent periods of war, populations suffered from abductions, ransom demands, depredation and destruction on the part of belligerents. There was a constant fear of the arbitrariness of nature, not to mention that of seigneurs and princes whose justice, tax systems and currency deliberately hit the poorest hardest. And what might be said of coastal populations who were not only exposed to all of these threats on land, with perhaps even greater intensity, but also exposed at sea to terrible storms, currents, reefs, tidal waves and acts of piracy? Texts surviving from the Middle Ages illustrate these perilous living conditions and crises of all kinds which hit the West. However, if we follow Alain Guerreau's example and content ourselves with the theological explanations contained in the clerical literature to assess societies' perception of danger, we have to conclude that medieval Europe had "no notion of risk"[5]. This would be to overlook the fact that their practices in the matter were largely disconnected from a stereotypical religious discourse, always quick to profit from crises in order to recall the limits of human liberty faced with nature and the need for Christians to submit to divine will. We know this from the work by several specialists with backgrounds in human and social sciences: the representation of a danger, which leads to construction of the risk, is part of a mental process from which the divine is rarely absent[6]. Needless to say, risk was not conceptually defined in the Middle Ages. However, if we examine the reactions of populations in history, we can see that it existed in reality.

2. Historical research into the notion of risk

It is important to dwell further on the main patterns describing the history of risk, mostly conceived of by sociology and political philosophy in the course of the last thirty years[7]. Setting out the principles of the reflexive theory of modernity, Ulrich Beck has offered us a passionate representation of the changes in relations cultivated by societies with their perceptions and experiences in terms of danger. On the basis of his work, we can in substance, identify three successive historical periods. During the first, "preindustrial" western society established its relations with risk according to an exogenous mode, by rejecting disaster as a phenomenon of supernatural and religious inspiration. This was the time of a theological interpretation of crises, whereby either a providential God affirmed His power, His will and His judgement by unleashing the elements and disease, or the devil manifested his evil intentions. According to this same process of differentiation, danger could originate not only from nature and the divine but also others, whether real or symbolic, the foreigner, the vagabond, the enemy, the Jew. Subsequently, the developments of the industrial society gradually freed individuals from traditional representations thanks to the promises of Science and the Welfare state. Henceforth envisaged according to an exogenous approach, risk seemingly became a "predictable, calculable, reducible and insurable" element, a central subject for reason against which progress and modernity were deployed. This conception would appear to have survived until the mid 20th century, as long as society remained dependent on shortage principles. Again, "in the industrial society, the principle of wealth redistribution dominated that of the shared risk". The turning point came at the end of the last century when, "in advanced modernity", true material misery was reduced and nature, sufficiently subject to science, knowledge, technology and human will, was transformed into an internal, socialised subject through an endogenous mode. From then on, man's activities were placed at the centre of causes and responsibilities in respect of disasters. This reversal characterises "the risk society"[8]. Though no doubt appealing, the approach developed by Ulrich Beck strikes the medievalist or modernist historian as overly synthetic and standardised. In particular, it intentionally fails to take account of fundamental changes occurring as of the Renaissance, then the Enlightenment, which gave rise to the role played by secular knowledge in combating certain risks. Moreover, as Andrée Corvol points out, the contemporary media discourse continues to feature reflexes from ancient times which reflect the permanent nature of certain types of reaction in the face of danger and which we should take account of: "Nature in its fury would return man to his primary condition. He must accept the lesson or else the world's matrix would unleash more murderous violence still[9]". A complementary approach to this history is offered by Peter M. Wiedemann[10]. In his view, three concepts can

be employed to encompass societies' relationships with danger: taboo, sin and risk. The first refers to an archaic and magical concept of perils, these being beyond the reach of any attempts at human remediation. The second comes under religious conceptions of disaster which invite us to accept submission to God as the only avenue for protection and salvation. Finally, risk reflects a rational conception of danger and places human action at the heart of the resolution process. To Wiedemann's way of thinking, these three concepts do not represent successive phases in the history of man's relations with threats. He sees them more as analytical data which combine in variable proportions depending on the societies and eras. Viewed thus, we might argue that taboo and sin dominated medieval western conceptions but without risk being totally absent therefrom. Managed retroactively, danger came under a shared responsibility between the human and non-human. Conversely, it remains the case today that magical and religious explanations continue to be deployed, albeit in more subtle forms. This presentation, which does not resolve all problems of vocabulary, has the merit of offering the risk historian tried and tested keys for understanding. These sociological approaches can be supplemented and compared with the work of the philosopher Michel Foucault relating to biopower and governmentallity[11].

As numerous authors have already pointed out, by its very nature, this theme gives rise to a necessary interdisciplinarity. And yet, we must acknowledge that, with very few exceptions[12], it continues to be studied in a segmented and partitioned manner, each contributor developing their own definitions, problem sets, tools and methods concerning it. Historians are indebted to Jean Halpérin as early as 1952, then Lucien Febvre in 1956, for their pioneering lines of research in a field still in its infancy[13]. As the latter stated "it is not about reconstructing history on the basis of the sole need for safety but essentially replacing it with, and restoring a rightful role to, a complex of feelings which, in view of the latitudes and eras, could not have failed to play a key role in the history of human societies"[14]. In other words, risk, which has always been at the heart of man's concerns, is a central historical question which historians must grasp. In some respects, Emmanuel Le Roy Ladurie was the first to go down this avenue. As he himself recalls in a recent article, guided by Marxist and scientific preoccupations of the post-war period as well as his fascination for rural history and interest in dendochronology, as of 1955 he focused on the history of climatic events, conducting research into the ice age and, as a consequence, certain major factors of the crises which marked the 14th-19th centuries[15]. In his wake, Pierre Alexandre, Alain Foucault and Pascal Acot, supplemented or detailed this climate history which, in France, is the foundation for a history of risks of natural origin[16]. The fact that the latter subsequently evolved into a separate field of research can be ascribed to the work of Jean Favier as well as those whom he inspired or guided. In his view, it is a question of drawing historians out of their reductive role of source technicians in which they have been shackled by the demands of other sciences and encouraging them to decipher the memory of crises themselves[17]. Firstly calling on data relating to catastrophic events occurring in the Alps, he quickly set out the initial definitions, problem sets and methodological bases[18]. Moreover, in many cases, it is modernists who have taken forward research on the subject, focusing their efforts on natural risks related to glaciers, rivers, earthquakes and storms[19]. However, René Favier did not restrict his investigations to modern societies alone. He also examined the relationship with risk maintained by ancient societies, seeking to demonstrate that "we cannot reduce [their] behaviour to mere ignorant or fatalistic passivity faced with catastrophic events[20]". Research shows that in the Middle Ages, as during the modern period, individuals and especially the elite, were simultaneously conveyors of superstition, theological conceptions, rational explanations founded on observation and experience, knowledge faced with perilous events and a memory of events. In short, ancient societies built and permanently cultivated a risk culture of their own. Which places the memory of dangers and its uses in the front line of the historian's attempts at deciphering. It is up to the historian to appreciate why and how catastrophic events were invented, manufactured and recorded and how they became public problems.

Regarding the medieval period, the study of risk has not remained entirely dormant. We are, in fact, indebted to Jean Delumeau who, through his work on the 13th-17th century, partly answered the founding call of Lucien Febvre. Focusing on sin or the misfortunes of time, on the feeling of fear which they generated and the responses forthcoming, he opened up a whole segment of religious history and mentalities[21]. In that respect, he helped specify the historical pattern whereby the problems of risk, so long dominated by explanations, ecclesiastical practices and orders, partly threw off their shackles as of the 18th century thanks to the key contribution made by the criticism, rationalism and positive sciences of the Enlightenment. However, it would be wrong to suggest, and Jean Delumeau shows restraint in this regard, that in the Middle Ages, exercising safety, in other words, the response to potential dangers, was entirely under religious control. As with the modernists, it is crises of natural origin which have mainly attracted the attention of historians studying the medieval period. An A.C.I.[22] for "Young Researchers" conducted between 2002 and 2004 by G. Arnaud-Fassetta, was devoted to "Hydraulic risks in the Rhone delta during the Middle Ages". Among others, it is also worth mentioning the studies by Jacques Berlioz concerning calamities contained in the *exempla*, or those of Élisabeth Carpentier dedicated to the Black Plague. Jean-Pierre Leguay even endeavoured an all-encompassing interpretation of disasters in the Middle Ages[23]. Research into misery and poverty, marginality and dependency, in their own way help to define and describe the crises as well as the human reactions they gave rise to[24]. A recent conference, organised on the topic of violence and the sea, offered participants an opportunity to scrutinise the dangers, tensions and fears caused by the maritime environment and activities together with solutions deployed in the way of defence[25]. Finally, it is worth mentioning the pioneering contribution from Louis-Augustin Boiteux although this has not been followed up. In fact, he was the first to focus on the beginnings of maritime insurance[26].

Without being entirely original, research in the specific field of risk is therefore only at the stage of initial explorations. A good deal remains to be done. The Middle Ages have thus remained virgin territory when it comes to any investigations in this field. The same is true for maritime areas and their resident populations. And yet, the sea has always been a place of predilection for risks, whether real, imagined, exaggerated or mythologized. It is present in the ecclesiastical symbolism and fantasy which make reference to its perils in order to condemn disorder in the natural order of things[27]. And this is what now makes it the preferred playground of adventurers and aficionados of extreme sports. We should begin by venturing beyond risks of natural origin and broaden the question to include multiple anthropic risks which were already posing a major threat to medieval societies.

The zone under consideration – the seas of the Ponant, comprised of the Gulf of Gascogne, the North Sea and both the English and Portuguese channels extended by the Baltic Sea, is sufficiently homogenous to favour more general responses and yet sufficiently rich in detail to envisage comparisons. Its unity stems in part from the internationalisation of trade which brought these maritime areas into contact and secondly adoption of the jurisprudence of the *Rôles d'Oléron* by all residential populations. However, each of these seas was marked by a particular environmental, political and economic problem set giving them a specific identity. The chosen chronological field, circa 1100 – circa 1550, corresponds to the first rise and development of western maritime activities. As of the 12th century, man seemed more at ease with nature. Each coastal region, attached to its hinterland to varying degrees, was then specialised in specific productions and trade such as salt, wine, iron, wool, wood, animal hide and freight. This was also a period of growing competition between the seigneurs on the coast and the princely authorities in terms of maritime jurisdictions, competition which port towns were soon to join. There were successive periods of growth and peace, a period of depression, misfortunes and war, then a period of reconstruction enabling a distinction to be drawn between structural and economic risks. After the mid-16th century, the development of trade between Europe and the new worlds raised fresh problems for maritime activities.

Though too often incomplete, the medieval documentary field which we can call on is vast. Narrative sources, such as chronicles, stories and princely, seigneurial and urban records contain information relating to crises encountered by populations, the memory they give rise to and any provisions taken in their respect to remedy recurrences. It is undoubtedly the case that they must be handled carefully. Thus, medieval *exampla,* founded on catastrophic events sometimes described with only relative accuracy, simultaneously convey a theological message comprised of evil powers, eschatology, divine punishment, protection and intercession of the Virgin Mary and saints which can be criticised[28]. The same is true for hagiographic literature which often makes reference to events related to the sea and where disasters are highly symbolic. Normative sources, which might be seen as more neutral, are also extensive. Laws and regulations concerning defence of the fleets and coastlines, or the extension and development of admiralties, treaties setting out the conditions for navigation of ships, sea customs such as the *Rôles d'Oléron* stipulating behaviour on board, contain vast amounts of information on the factoring in of various risks. We can learn a good deal from the sources concerning actual practices. In fact, notaries' registers contain numerous charter parties, *parsonnerie* contracts or naval construction agreements of which certain provisions aim to limit the dangers and losses impacting navigation and trade. The records of municipal meetings detail the measures implemented to prevent hazards and protect urban populations. Legal instruments issued by contentious jurisdictions (seigneurial and royal admiralties, *Table de Marbre*, the Paris Parliament, local authorities) can reflect the maritime violence and certain vulnerabilities specific to coastal populations. Accounting sources (merchants' accounts, royal, seigneurial or urban accounts) include tax data relating to certain protection and defence measures as well as information on the expenditure approved to these ends. "Literary and scientific" sources, such as rutters of the sea, shed light on the technology available to the masters of vessels in anticipating hazards at sea and close to the coast. Archaeological (shipwrecks, accounts of natural disasters, sea defences) and iconographic (illustrations, seals and portolan charts) sources supplement the information provided in written documentation.

Risk is a notion whose historic added value has thus far been underestimated. René Favier makes the case as follows: "research into natural disasters offers historians a broad gateway into understanding societies[29]". In other words, whether of natural or anthropic origin, risk represents a stimulating and dynamic datum for man, on both the individual and collective levels: it fashions his relationship with the world, it recomposes social inequalities, it inspires public policies, it models subjectivity, it objectifies anxieties and it guides personal and collective decisions[30]. In addition, when applied to populations using the sea and its coastlines, research in this area should help facilitate their definition. They grouped together varied levels of rural and urban societies: seamen, masters of vessels, salt farmers, beach fishermen, peasants when their land was directly exposed to maritime hazards, merchants, shipbuilders, charterers and boat builders, etc. These should not be confused with "coastal societies" to the extent that this expression designates all of the residents of a coastal zone of varying width who are not universally subject to dangers coming from the sea, far from it. Our study populations are therefore heterogenic and do not in principle make up a clearly established society. In reality, their unity did not come under a territory nor a public authority. It is largely their representations and their practices faced with risk, whose sum represented a fully-fledged specific culture, which help fashion a fairly coherent social ensemble on the European scale. In short, the scientific challenge consists not just in detecting and analysing historically and spatially, and as accurately as possible, all the threats liable to weigh on individuals in order to envisage and understand the management strategies which they have invented and implemented. On another level, it is also about grasping the medieval genesis of a risk culture, specific

to populations using the sea and its coastline, which is thought to have transformed the methods of economic, social, administrative and political organisation, methods of representing the world, and which as a consequence would have led Europe to its expansion and its "modernity", together with major scientific and technological advances.

3. The notion of risk in the Middle Ages: problems of definition

We cannot call on a unified definition of risk. And for good reason since this concept is polysemic. Each discipline which embraced it has left inappropriate interpretations which should not be overlooked on the grounds of chronological and scientific distance but, on the contrary, drawn together, compared and criticised. Let us begin by stating that they commonly agree that risk only exists because the inherent damage is liable to impact man: a solar eruption is not a risk, which is not the case for a volcanic eruption and yet the destructive energies released by both phenomena are out of all proportion. Moreover, it is important to distinguish between the risk of disaster (or crisis), the latter being either its origin or its outcome.[31].

Several meanings give additional shading to the term in the *Grand Robert* dictionary of the French language: "Possible danger of varying degrees of predictability"; "Possibility of a future or uncertain event or one of an undetermined duration, not exclusively dependent on the will of the parties and able to cause the loss of an object or any other damage"; "The fact of exposing yourself to a danger". Three key elements arise from these proposals: risk contains notions of a threat, hazard and prejudice. This is confirmed by the UN definition, which is generally accepted and employed, particularly in the field of geography: risk is the probability of exposure to an event, which can occur with varying severity at different geographical scales, suddenly and expectedly or gradually and predictably, and to the degree of exposure. Recently, interdisciplinary exchanges conducted within the Geneva-based group named M.R.M. (Major Risks Management), between specialists in earth sciences, life sciences and social sciences, enabled the nature of the functional ingredients which make up risk to be more precisely identified: it can be defined as the combination of a hazard (natural or anthropic phenomena giving rise to danger, of which the workings, occurrence and intensity must be described and quantified), a risk element (individuals and everything related to their existence, liable to be subject to the hazard), a vulnerability (fragility of the risk element) and a resilience (capacity of an individual or individuals to absorb and tolerate the impact of the hazard and reorganise to return to a balanced state) in a given time or space[32].

The analytical and operational definition of M.R.M. seems valid, especially since it reports on the two principal methodological approaches adopted by scientists[33]. One, which is objectivist and also termed realist, considers that risk exists by nature and as such can be appraised, quantified and modelled according to technical/scientific methods like scales of intensity or probabilities. The end purpose of this work is the subjugation of danger. Also, there is a particular focus on hazard which must be identified in the merest detail so that the individual or the group which is potentially under threat enjoys the freedom needed to make rational choices: ignore the peril, defend against it, confront it, defy it or eliminate it. In a certain manner, climate history feeds into this work and can be used as a model for describing the past of other natural or anthropic phenomena. The other constructivist approach insists more on the subjective and qualitative character of risk which, on the contrary, does not exist in itself. It then becomes the partially irrational perception and representation which man has of danger. From this perspective, risk is not objectively measurable - or in any case not entirely - because it still concerns data which escape the conscience and control of its observer. It is borne of a feeling of insecurity generated by something which is not entirely known: "If everything was explicit and presented with no possibility of variation compared to what we expect or presume, the condition of risk would be eliminated, being stripped of all meaning[34]". Here, vulnerability and resilience are the functional data which are especially factored in. Between nature and culture, these two scientific directions, which are objectivist and constructivist and too readily opposable, actually participate in the same semantic *continuum* supplemented by the psychoanalytical approach. In a situation of risk, choices are subject to distorted perceptions and evaluations. The fear caused by an external object, which is identified and threatening, provokes behaviour determined by unconscious psychological factors. These concern instincts for life, self-preservation and death. They resort to defence mechanisms which tend towards stability and maintenance through measures of safeguard, protection, unification and definition[35].

Validated by human and social sciences, all of these definitions must be covered in our study. However, it is worth noting that they accord little room to time. And yet each risk is also a specific history, that of a relationship between an individual or a social group and a perilous event. To flesh out the polysemy of the concept within a more historical perspective, we must add that risk draws on experience, detection and recollection of an initial dangerous event (an attack, an injury, a destruction or even an annihilation) suffered by man, what he produces or appropriates; there subsequently comes the representation, anticipation and apprehension of a recurrence of the initial event or its derivative. In other terms, its construction arises from a chronology of events starting by the crisis on the basis of which a danger is identified and then dreaded as a risk. This definition highlights the experience of the original damage which is the central object and referent of all risks. The initial crisis makes reference to the "idea of disorder, of chaos challenging or even endangering that which is established in the order or things, man and institutions". Whatever the objective nature, scale and intensity of danger, its original subjective evaluation conditions the way in which it is subsequently memorised and feared. Moreover, as suggested by the *Grand Robert*, this definition underscores the fact that it concerns a performative notion[36]. Risk does not merely designate the possibility of a danger; it simultaneously expresses reactions in the face of it. And this is what interests the historian.

Without underestimating the objectivable nature of certain functional data, what counts most is the restitution of all the sequencing of causality links which pass from danger to human reactions. Thus, the threat of possible reproduction of damage obliges provisions to be made by, for instance, assessing, understanding and explaining the nature and cause of the peril or by developing forecasting, preventing and safeguarding. Sometimes, through the insecurity it generates, risk even gives rise to innovation and can therefore be sought for its stimulating virtues. On a higher level, it is then the memorial and systemic nature of risk which captures our attention. It is a potent sociocultural notion charged with identity and ideology which generates acts of solidarity. Politicians use it to help manage and regulate tensions experienced by the community or to ensure their autonomy by distinguishing the "other", the foreigner, the bringer of danger[37]. In other words, it is a way like any other, of factoring in a problem. Finally, it is a significant marker of modernity which varies according to the society and individual over time and space.

Contemporary terminology must then be viewed alongside medieval vocabulary. We should state from the outset that the word "risk" was still evolving within European languages in the Middle Ages. It only came into common usage as of the second half of the 16th century. Other related terms were employed but they only partially covered the word's current semantics and had more to do with the notion of hazard. One might associate it with the Latin term *periculum*, which also has the attendant notions of danger, peril and a test. According to Du Cange it is similar to *malum* (calamity, evil, misfortune) and *damnum* (loss, damage, detriment, prejudice, tort). In old French, certain similar terms enable medieval presentations of risk to be defined. For instance, according to Frédéric Godefroy, the word *danger* or *dangier*, refers to notions of power, right, empire, domination and enjoyment. He points out that "contemporary understanding of the word danger came from *dangier* taken to mean power since being under someone's power often meant being in potential peril". In fact, the term "peril" also originally has a dual meaning of power and fear. Finally, the term "fortune" which is synonymous with misfortune and accident but also malevolent fate, supplements the vocabulary of the Middle Ages. Compared with contemporary semantics, the medieval lexicology concerning the notion of danger stands apart in two ways. Firstly, the term does not only make reference to a perilous event: it also simultaneously indicates that it concerns a superior power exercised over man. Secondly, it implicitly induces the unforeseeable nature of the threat.

The etymology of the term "risk", which is difficult to trace back, would appear to be abundant in this sense. Two recent articles by Mikel de Epalza and Christiane Villain Gandossi allow its origins to be identified[38]. The word is borrowed from the Italian *risco*. The first formal evidence of the term dates from the mid-13th century and is to be found in Genoese documents relating to the sea: *risicum et fortunam maris*. Prior to that, two etymological hypotheses had been envisaged: an ascendance from the verbal substantive *resecum* (from *resecare*, "to cut") which by extension would appear to have taken on the meaning of "stumbling block" then "danger"; the transformation of *rixicare*, after *rixare*, "to quarrel", "to fight"[39]. Another, more convincing, explanation is defended by the two authors. The term would appear to come from the Arabic word *rizq* which in the Koran signifies: "all that providence provides which might be good or bad for Muslims". To extend this interpretation, we can in some ways view it as the Arabic counterpart of ancient *Fortuna* (goddess of fortune) and Christian providence. These conceptions, relating to the notions of danger and risk, would suggest that they were accepted as something divine, inducing the renunciation of all attempts to protect oneself against them. Thus, a ship leaving on a long journey would navigate, according to the expression used in charter parties, "at God's pleasure". Ultimately, we can assume that, despite the existence of the word as of the mid-13th century, the conceptual content of risk did not yet exist in the thoughts and deeds of people in the Middle Ages.

In concrete terms, the reality of the facts replaces the partial emptiness of words and René Favier reminds us of this point. Since ancient times, natural disasters have led the public authorities, whether local or central, to assume responsibility for the protection of populations and prevention of crises. This was already the case during Roman times. Without clearly formulating the concept, the State reacted to the risk of flooding with laws so as to ensure the regular upkeep of the Tiber and its banks. This regulatory model was subsequently reproduced by the towns in the Rhone Valley[40]. Further to flooding in the Valley of Grésivaudan in 1219, the Grenoble municipality and the *dauphins* endeavoured to prevent repetition of an event which had a massive impact on the collective memory by imposing a policy of redevelopment of the Drac Plain[41]. The Cistercian "engineers" mastered methods for draining marshland and channelling, redirecting, containing and storing water in order to circumvent, sometimes preventively, various hazards such as drought or flood. Under the *Ancien Régime*, when water levels were high, urban societies held religious ceremonies in a bid to fend off or limit disaster. But they also simultaneously engaged in a rational investigation of the causes and developed protection and prevention policies[42]. It is also worth considering the quarantines established as of the 14th century around towns when epidemics were declared in order to contain them. These then are examples of practices which demonstrate the existence of the notion of risk in the thoughts and deeds of those living in the Middle Ages. Whereas hazard (the causes of the plague for instance) were indeterminate, the public authorities were aware of the existence of a potential threat and sought to prevent its impact by isolating outsiders. In a more empirical manner still, in order to anticipate food shortages, peasants were in the habit of diversifying crops. They had noticed that the variety of plant cycles for cereals grown limited the impact of bad weather on the yield. Though unable to put it in such terms, they were therefore protecting themselves from the risk that climatic uncertainties created in respect of their food supply. And here I restrict myself to those scourges with which there was no choice but to find an accommodation. In the 13th century, there was nothing forcing a Bordeaux wine merchant to load wine for England on a creaky and poorly equipped boat under the threat of the weather, high

seas, currents, war, arbitrary arrest, piracy, price and currency fluctuations; and yet, aware of his vulnerability and attracted by the dangling bait of financial gain, he probably estimated that these risks could be assumed.

In his supplementary volumes, Frédéric Godefroy offers an insight into the term risk which slightly amends the initial approach[43]: "uncertain chance (in other words, hazard) to which one is exposed". This albeit belated and more neutral proposal distances us from the theological vision of danger and is more in line with a current conception. In reality, there were two perceptions of risk at work in the Middle Ages: one religious and dominant in the writings of clerics focused on divine providence; the other, which was secular and practical, leaving man the possibility of analysing, reacting or even anticipating. Traditionally, it is true that in the absence of a technological viewpoint, ancient societies sought to limit uncertainty by imposing magical/religious explanations on mindsets and a stable social order on behaviour. But narrative objects, which associate disaster with divine action, should not be read literally: "The anger of God is often the means for the religious authorities to exploit disaster for their own ends[44]". Therefore, it is not enough to rely on the words of the Church. "In the Middle Ages, an event could be explained either for theological and moral reasons or for natural reasons. They were more complementary than contrary: the former offered general explanations and the latter specific ones[45]". As a consequence, the dominance of ecclesiastical representations of danger in medieval writings which advocated the rejection of all other forms of explanation and combat - particularly when the peril was of natural origin - should not distract the historian from observing the facts. If we examine the reactions of populations faced with a threat, we can discern strategies for forecasting, preventing and protecting on the basis of risk as understood today. In particular, this can be verified among those using the sea: having to deal with a multitude of dangers which, in one way or another, they had to control in order to survive, they consequently exceeded by their activities the religious conceptions in respect of the marine element - both purgatory and an area of chaos - and commerce - suspected or even forbidden when it concerned money. With the assistance of more recent intellectual devices and respecting the cultural realities of the Middle Ages, it is this very reality that a research effort of this kind is intended to grasp.

With this semantic hiatus behind us, we can see the extent to which research into risk challenges the determinist approach which is too hastily adopted by historians of the medieval era. Consequently, a much vaster field of research has now opened up and several questions should be put in respect of the objectives of the work. What conscience, what perception did the populations using the sea and coast have of the surrounding dangers? Why were certain events or problems encountered by human societies dreaded as risks while others were not[46]? What natural and supernatural explanations did these populations assign to them? To what extent were they able to anticipate their occurrence? How did the normative actions of public authorities, both local and central, gradually take the upper hand over religious explanations and fatality? How were these rules accepted and implemented by the populations? Since risk was borne of both maritime activities and lay at the heart of modernity, in what ways did coastal societies become modern early on? These questions will give rise to others which we can answer by adopting an over-arching research strategy.

4. Nature of risks incurred by coastal societies

In the Italian merchant cities of Venice, Florence and Genoa, as early as the 14th century people took out insurance against "acts of God, the sea and man". And in Marseilles, two centuries later, coverage was available for risks which were "divine, human, from friends or foes, pre-meditated or otherwise, concerning the possessions of seigneurs, both ecclesiastical and temporal, reprisals, fair or very unfair mark and counter-mark, fire, wind, jettison in the sea[47] etc.". In accordance with the initial definition of risk given by the M.R.M., we must separately analyse its functional components in order to study their interactions. As of the Middle Ages, two types of hazard, which are not entirely separate but, on the contrary, often overlap and influence each other, had a specific impact on coastal populations: some of natural origin and others of anthropic origin.

The former are perhaps more accessible to the historian. They have a profound impact on societies which still only possessed little in the way of technological literacy. These are symbolic representations which turn up endlessly in the theological discourse. In particular, they were tied to the sometimes brutal and always daunting instability of the marine element. In all weathers, sea currents placed constraints on navigation. This is particularly true in certain sectors such as estuaries, the zones between islands and the continent (Oléron, Ré, Noirmoutier, Sein, Ouessant, Jersey, Guernsey), whether at the passage of narrow channels or steps (Galicia, Finistere, Calaisis), or at the bottom of coastal embayments. The tide can rise 13 metres at Mont Saint-Michel for instance. In the Gulf of Morbihan (Auray harbour) or along the western coasts of Cotentin, the currents attain or sometimes exceed a speed of 10 knots. And tidal surges occur in the vast estuaries of the Seine, the Loire and the Gironde. Beyond the sheltered harbours, everywhere close to the coast the swell encounters reefs and shoals against which it crashes with varying degrees of force. In less common circumstances, during storms or earthquakes, the sea can "leave its bed", cause a *vimer*, in other words a flood or tidal wave. Meteorological disturbances also presented many dangers. One immediately thinks of the deep depressions which cross Europe from the west in winter, causing hurricane winds of over 200 km/h in extreme cases. Though less intense, summer thermal winds and storms present another real threat, both on land and sea. The thick and stubborn winter fog in the Channel could disorient the ship's master reducing visibility to zero. Displacements of sand banks were also to be feared. In estuaries or along the coastal sectors of Gascogne, Poitevin, Normandy, Picardy or Flanders, they formed so many moving traps on which the sea unfurled and ships would beach. They would even sometimes seal off the

sea inlets or mouths of rivers. In ports, they filled and obstructed access channels. On land, dune migrations formed other *vimers* which covered homes and fields.

In addition to these perils, created by the natural environment, there were other dangers just as daunting caused by man himself. As of the 12th century and even more so during conflicts starting in the 14th and 15th centuries, war had a serious impact on maritime frontiers which became a strategic challenge for the belligerents. Naval battles, sieges of port cities, landings on islands and corsair expeditions saw a marked development during the One Hundred Year war. In times of truce or peace, the cacophony of arms, force and exactions did not however die down. Raids continued to create insecurity in rural areas along the coast. And, well after the Middle Ages, piracy continued to plague seas with vulnerable sea routes. Aboard ships and in the ports, recurring social and economic tensions led to fights, destruction or depredations whose sometimes fatal consequences filled the court registers. Technical failures, while not on a par with contemporary impacts, gave rise to many dangers. A poorly constructed, badly handled and loaded or wrongly ballasted ship ran the risk of sinking or simply collapsing; an inappropriate port area, badly marked out and maintained made approach and mooring manoeuvres dangerous; under-equipped quays and creeks undermined unloading operations; inappropriate jettisoning of ballast created obstacles at the entrance to harbours. The disorder caused by ever greater internationalisation of trade stoked fears as to the negative effects of competition and innovation. We must also consider the arbitrary fluctuations concerning safe conducts, taxes and currency imposed by the princely authorities who were able to significantly modify the conditions of trade at the drop of a hat. Finally, it should be added that various types of contingencies could combine and aggravate their hazard potential. Thus, the disposal of all kinds of waste, as often in ports, combined with the phenomena of silting, to accelerate their filling. During a storm in a busy harbour, poor anchoring of a ship could cause mooring ropes to snap and cause a knock-on series of collisions.

The inventory and qualitative description of hazards should be supplemented by an estimate of their intensity which is as accurate as possible, a factor which greatly complicates the task of the historian[48]. This work is rendered extremely difficult by the absence of clear, neutral and detailed data on the crises and accidents arising in the Middle Ages. Thus, within a narrative source, to correctly identify the objective intensity of a hazard, in other words, its actual intensity expressed in a quantitative manner (scale, extension, duration), we need to measure the subjective intensity which can modify its scale. Yet, the latter, which relates to the perception and degree of fear of the phenomenon, and therefore varies according to the nature of the losses incurred - from mere forests or land to human lives - tends to submerge the reality of events. Moreover, narrative sources must be subjected to critical review and "corrected" before any statistical use. To remedy this situation, we must have access to supporting indicators that only archaeology, together with earth and life sciences, can provide. Thus, in the case of a tidal wave, the traces and vestiges of destruction incurred by human constructions and their environment should be sought out and analysed. It is also necessary to simultaneously establish mapping and a chronicle, in other words a historic mapping of the manifestations of danger in order to grasp the phenomenological *continuum*[49]. It would then be possible to take an overview, in space and in time, of the concentrations, dispersions, continuities and discontinuities of different types of hazard.

Risk elements were obviously extremely numerous and we are not concerned with drawing up an inventory here. We shall, for the time being, restrict ourselves to those whose vulnerability was the most apparent and sensitive. In brief, we are concerned with all players, equipment and activities related to the sea. Seamen and their vessels were in the front line in terms of the hazards of the maritime environment. Their vulnerability was due to the weaknesses of their technological resources which, although undergoing constant improvement, barely allowed them to overcome the perils of the sea. Dependent on the wind and hard to manoeuvre, their ships struggled to escape a strong gust or the currents. Their empirical navigation methods founded on observation of the environment, nautical know-how, the taking of depth measurements, and sometimes use of compasses, kept them hugging the coastline for navigations which were essentially conducted in the daytime. Salt farmers who had claimed back marshland were acutely aware of their dependency on clement weather. Sea level transgressions and heavy rain soon caused the dykes to overflow and wore down their patient efforts, making drainage, channelling and distribution of water more complicated. Fishermen, most of whom were established on the foreshore, feared that their fishing materials would be destroyed or swept away: although some stone-built fisheries were more resistant to the sea's force, the nets and creels were far more vulnerable. To a lesser degree, the same applied to farmers in rural areas on the coast. Ports and their adjacent cities, hubs of wealth but also seats of power, were undermined by their success. The density of their traffic and the congestion of their banks exposed their practitioners to collisions, groundings and fires, while also attracting interest from external forces. In the absence of any real protection, merchants feared the impact of the natural perils of navigation on themselves and their goods, but also depredation which could arise at any time and place, in times of war and peace on the open sea or in a harbour. Without being decision-makers, players also had to suffer the sudden changes in economic context made random by arbitrary orders from the political and judicial authorities and by seasonal variations in productions and prices.

5. Representations and reactions

The history of factoring in and managing risk merges with that of natural environments, perceptions and representations of dangers, vernacular and scientific knowledge as well as mobilisation of economic, social, political, administrative and cultural forces[50]. In fact, it is not so much the perils as the attempts to counter them which interest us here. In part, they

come under the capacity of man to understand and describe hazards, his vulnerability and the territory with which he was associated. This was the task of engineers of the modern era from the second half of the 17th century. It is this also which was employed by coastal populations in the Middle Ages, with less discernment and method.

The question of representations is crucial and merits close scrutiny. This raises a whole host of problems relating to perception, conscience and the ranking of dangers, to the nature of estimated or determined explanations, learned or invented, suspected or demonstrated, to the memory of events. As we have begun to point out, taboo and sin together encompassed risks of natural origin whose divine inspiration, creation and manifestation seemed beyond dispute. But this explanation in no way precluded the accumulation of empirical, memorised and objectified knowledge. Although the marine element was commonly perceived as a theological power, an abyss and a purgatory symptomatic of humanity, its coastal zones could also be the subject of knowledge. Rutters and portolans offer proof in this regard. Currents, obstacles and depths were carefully recorded and identified by seamen. They knew how to calculate the time of tides and estimate their amplitude. As with contemporary primitive societies, their nautical know-how also had to encompass observations relating to climatic circumstances, birds and sea life, the water's colour, the shape and direction of the swell, etc. thanks to which it was possible to predict the occurrence of a danger. We must also analyse on the basis of which conceptions, criteria and measurement these populations could deem whether a risk was acceptable or not. It was acceptable as long as the relationship between material and psychological damages, real or imaginary, that an event could give rise to, on the one hand, and the capacities of the community which had to defend itself against them and manage, accept and tolerate them, on the other, was not overly imbalanced[51]. When, conversely, this relationship proved too important and left no hope of any useful reaction, risk led to a fatalist attitude in the face of danger. What is more, the cost of resources to be pooled in implementing risk management also strongly influenced the propensity to accept or reject it.

However, solutions were sought within the limits of representations and the technological resources available to users of the sea and coastlines. To that end, it was necessary to act on at least one of the functional components of risk: master, or even eradicate, hazard, reduce vulnerability, distance hazard from the risk element and increase resilience. In concrete terms, this translated into several attitudes which could combine: detect, understand, evaluate, anticipate, protect, compensate, defend, alert and save. Among the principal strategies for management implemented by the populations, a number can be identified. Multiactivity, the contemporary notion developed, by geography and economics in particular, was for a long time a means to secure one's existence by diversifying productions and occupations. Practised in a horizontal manner, it enabled an individual or a group to broaden the potential of their economic resources and therefore dilute the risks of shortage. Fearful of climatic hazards, the producer acted in accordance: salt farmer, he employed his *bossis*[52] for raising livestock; winegrower, he could keep a flock which moreover enriched his land. In these circumstances the aim was firstly to guarantee a minimum revenue and next to access the means for supplementary subsistence. The seaman was driven by similar motivations when he hired out his labour for working in fields. The ship owner, subject to the seasonal nature of his work, used his boat for transport of goods and people as well as fishing or piracy. As for the trader, even when specialised in a particular sector, he was willing to trade in anything liable to procure a profit. We might add that many families maintained a vegetable garden for domestic food and that everyone turned to commerce when they had something to sell. Practised in a vertical manner, multiactivity enabled the control of all or part of a sector, from production through to trade. Faced with the instability of the markets and competition, the merchant specialised in trading a product sought to remove uncertainties weighing on his activity, full control of the economic process. Whether it concerned wine, wool, iron or wode, he did his utmost to have land, workers and salaries, to possess infrastructures for transformation and storage, to govern transport, sale and loan mechanisms. However, multiactivity was not always sought after. For instance, mono-agriculture was a standard practice among certain communities between the Loire and the Gironde.

Risk management could also entail its pooling. In its most limited and primitive form, it concerned a simple commercial shipment, collective and temporary, organised by a "cap-marchand"[53]. Acting as initiator, he managed the interests of several loaders, leased the necessary craft and paid taxes and transport expenses on behalf of all parties. Repeating similar operations, a single trader shared his cargo, so proportionately reducing the economic impact of an accident concerning goods loaded onto a single vessel. Functioning as a more sophisticated associative form, a financial group could be agreed on via the drafting of a *parsonage* agreement. By these means, the ownership of a vessel was divided up into three or four portions. Maintenance and running costs were split in the same proportions as were profits. But, above all, the cost of any losses incurred during trips was borne by all of the *parsonniers* rather than a single individual. In order to share and limit maritime risks, boat builders preferred to invest in the shares of several boats rather than directly own a single vessel. This strategy to dilute the cost of potential damages no doubt contributed to the success of the Breton fleet during the second half of the 15th century. Faced with competition from large vessels (over 100 barrels) launched by a number of major Castilian, English or German boat builders, Bretons came up with small units in the shape of carvel-built boats owned by a grouping of small-scale players. A Bordeaux charterer using them would ship his wine in several boats alongside other goods such as cereal or wood, so limiting the risks being run: the sinking of one vessel did not affect the whole shipment; and his barrels, loaded alongside goods of lesser value, attracted less attention from pirates and looters. On a bigger scale, pooling was favoured as of the 13th century by certain seafaring communities who organised themselves into professional associations. Between 1204 and 1213, Bayonnais created

their *Societas navium*, a professional body whose articles of association reflected the ambition of masters and fellows: protect its members, defend their interests and govern their relations. The first of the stipulated rules concerned mutual aid and assistance in all circumstances, particularly faced with the perils of the sea[54]. The founding of the *Companhia das naus* by the grace of the Portuguese King D. Fernando I. (1345-1383), provided for the creation of two funds, in Porto and Lisbon, built up by a tax of 2% on the value of freight with the collected sums to serve as compensation for the insured parties under this "mutuelle d'armement"[55]. The merchant guilds which sprung up in northern Europe responded to the same concerns. These associations often had access to a common fund intended to compensate all or part of the losses suffered by fellow merchants following an incident. Finally, the gradual establishment of port, urban and merchant networks taking similar forms helped share out the risks inherent to sea transport. For instance, in 1296, professionals in the principal port towns in the north of Castile joined together to form the powerful *Hermandad de la Marina de Castilla* protectionist naval body particularly adept at resisting competition on the freight market. It is true that these organised structures offering mutual support and assistance were not just for maritime populations. It is worth noting too that the church was often behind them. And in European cities, many professional activities were structured into occupations in the late Middle Ages. However, among sea-using communities, these organisations appear to have emerged earlier and in more varied forms and were closer to risk pooling institutions in nature.

Rather than sharing the brunt of hazards among several partners, players in maritime trade also sought to transfer it to an external agent - another individual or financial grouping - specialised in the matter. Thus directly concerned by the proper conduct of their debtors' shipments, the funders would soon agree to guarantee the success in one way or another. Already using foreign exchange to get around religious bans on trading in money, this gave them another means of concealing their interests. To that end, they developed specific financial tools which paved the way for modern insurance. Inspired by Roman practices, these instruments were perfected in Italy during the 14th century and spread around the western Mediterranean in the first half of the 15th century. Their principles finally reached Castile, France and Flanders as of the 1450s. They first emerged as a special type of credit, "loans for an intrepid adventure" which freed the lender from the obligation to repay his debt if the goods bought and shipped by these means incurred damage during the journey. All or part of the "risks, perils and fortune" were thus transferred to the creditor, the insurance premium being contained in the profits he made if the journey took place without incident. Then, through successive changes, it became incumbent upon the insured party himself to pay a premium in advance, his insurer undertaking on his behalf to pay compensation for any prejudice or damage. The pioneering work of Louis-Augustin Boiteux does not release contemporary researchers from the duty of pursuing his investigations in this area. Jacques Bernard has borne witness to the fact that the notarial documentation of the late Middle Ages offers numerous legal instruments, bills of lading in particular, which, without reproducing Mediterranean contractual practices line for line, reveal the multiple experiments and inventions intended to financially guarantee the *fortune de mer*[56] (perils of the sea). For the Seas of the Ponant, we should call on work already conducted concerning the Italian cities of Genoa and Venice and systematically analyse contracts containing a maritime insurance provision in order to determine, depending on their type and form, the hazards and vulnerabilities which they were intended to cover, their cost and profitability, their complexity, their legal technicality and their dissemination[57].

The private initiatives of economic players were surpassed by public provisions taken by the urban authorities, both seigneurial and princely. The port administration offers a valuable illustration of this aspect. In order to secure access and mooring in their harbour, municipalities continually tightened legislation in respect of the markings, piloting, mooring, deballasting, *désarmage* (removing equipment), *quillage* (keel fitting), *amarrage* (docking) and *quaiage* (moorage)[58] of vessels. Each of these obligations gave rise to the payment of a duty intended to guarantee the safety of the site, through maintenance of the appropriate equipment. In addition, complementary rules, both temporary and permanent, might concern the port opening and closing times, the nationality of ships entering and leaving, their tonnage and the purpose of their visit, etc. As we have seen, changes in taxes on sales and the circulation of goods were often justified by the need to absorb certain risks. This was the case of Breton writs, ducal documents which each ship's master travelling along the Amorican coast had to have in order to insure themselves against exercise of the right of salvage. By overtaxing imports or exempting exports from taxes, States were taking protectionist measures aimed at limiting foreign competition and making indigenous productions and commercial activities more competitive. The creation of admiralties was also part of this quest for security. Created under Saint Louis during the 7th crusade, the post of Admiral of France saw its prerogatives stipulated in 1373[59]. Originally a mere honorary title commanding the royal fleet, he would soon been tasked with surveillance, defence and maritime police then primary responsibility for questions of incidents during the journey and piracy. The Admiral of France, with a specific administration in the major ports held by the king, was thus responsible for delivering letters of marque. And he was not the only one able to claim to be protecting the kingdom's coasts. The admiralties of Flanders, Guyenne and Brittany for a long time continued to oversee their own coastal defence systems as well as organising and supporting journeys in convoys of commercial fleets by their citizens. Special escorts were financed to this end and a regulation stipulating the conduct and dates of gathering of the fleet governed them. Protecting trade centres against possible incursion by enemies meant navigation by foreigners along French coasts was dependent on obtaining an individual or collective "safe conduct". On the occasion of the drafting of truces and treaties, each signatory thus took care to negotiate the protection and freedom of circulation granted

by the other party to its citizens. These agreements could also result in an alliance and mutual aid.

Ultimately, the role of public authorities in risk management varied according to their political prerogatives and clout, their proximity to the population under their authority and the nature of the hazards which they had to face. It was, above all, incumbent upon the local authorities to combat natural and technological threats through the creation of systems and infrastructures for protection, as well as the introduction of appropriate regulations. Royal crowns restricted themselves, where appropriate, to assisting their implementation by means of tax support. The central authorities had more of a duty to ensure that peace reigned on the seas, stabilise the markets and protect the economic interests of their subjects. Together, they also had to prevent foreign attacks through the organisation of warning and defence systems. In such times of never-ending war, prevention of this risk was of capital importance. As of the late 13th century, vessels, coastlines, coastal infrastructures and armed men all formed part of the defence system. By successive measures, a sea watch system was established. Each coastal village participated under the leadership of a large port city or a coastal seigneur. Strategic points such as harbours, estuaries and their urban centres were fortified and watch systems established. Defence fleets and naval stations, such as those in Rouen or La Rochelle, were reinforced to ensure a rapid response to any attack. Surveillance, warning, fortification and armament measures mobilised all efforts when tension was at its highest. Overall, at great cost and with variable results, the protection of the coastline became a major challenge for the public authorities in the late Middle Ages.

Finally, coastal populations combated risks by means of technological progress, particularly in terms of naval construction and port facilities[60]. International trading ships benefited from the widespread use of the Etambot rudder in the 13th century, an innovation originating from seamen in northern Europe. Its widespread adoption and upgrades were to offer a suitable response to new demands from boat builders previously restricted to using the traditional lateral oar. Fixed on the centre piece of the frame, this powerful axial rudder enabled the building of taller ships with bigger load capacities. Easy to use, requiring more strength than know-how, these vessels meant that the helmsman no longer had to stay on the bridge to check his course and steer but instead received orders to act from his master without seeing much beyond a cubby hole in the stern. The more widespread use of carvel planking during the second half of the 15th century, replacing conventional clincher planking, also simplified and rationalised the methods of naval construction and repair; to the extent that the hulls of the different models (*vaissel, escaffe,* barge, *carvelle, cogues, nef*) allowed progress to be made in terms of both performance and solidity. They were also better defended: from submersion by a continuous deck, enemy attacks thanks to the development of defensive superstructures and projectile weapons. At the very end of the Middle Ages, the hull had become sufficiently robust to accommodate powder artillery. Sails were also improved, ensuring safer navigation. The single central mast bearing a single square sail was soon to be supplemented by foremasts and mizzen masts, the latter bearing a lateen sail. This allowed ships to gain in speed and manoeuvrability. In the port area, a sector which has not been sufficiently studied, we can also note the widespread adoption of certain technical advances. In the biggest harbours, quays and cargo holds were gradually cemented and their layout streamlined. Iron rings secured boat moorings. Sometimes winches or even cranes assisted with transhipment manoeuvres. Man-made jetties were used to protect passages and limit their silting. Finally, it is important to recognise the progress made in terms of navigation techniques. The recording in portolans and rutters of nautical knowledge, broadened by the extension of commercial and exploratory routes, and their distribution within the professional milieu of pilots, helped make international journeys safer. There was more widespread use of stars for navigation and establishing positions in time and space which protected against the risk of dispersion and allowed the use of more direct routes on the high seas, away from the dangers of coastal waters.

These few lines echo research which merits to be individually taken further, broadened out and combined in order to record the permanent efforts made in all areas of their existence by coastal populations who endeavoured to respond to the multiple risks generated by their environment.

6. Can sea and coast user populations be considered societies at risk?

As a whole, this initial research must make it possible to highlight the resonance of risk for sea and coast user populations in the late Middle Ages. Their perceptions of the multiple and permanent dangers facing them and their related reactions gradually constituted a fully fledged cultural heritage which was their own, anchoring them in their territory and setting them apart from communities in the hinterland. We postulate that an initial maritime identity was built during the medieval period around practices related to risk management and that it expressed itself through historic dynamics on a large scale.

There was considerable economic antagonism in the Middle Ages between the sizeable investments needed for the activities related to the marine environment and the uncertainties weighing on them. Salt production, fishing and trade suffered from the threat of damage due to natural events and technology, but these were not necessarily the most feared. For many reasons, which we have not fully elucidated, the relationship between supply and demand could suddenly vary significantly, modifying the prices of goods, transport and currency. Each political crisis could at any moment collapse into military confrontation, simultaneously reigniting privateering, looting and bans on trading. In accordance with the requirement of the authorities for new money, the fiscal context was liable to be modified, sometimes in unbearable and pointless proportions. In such economic situations, how aware were coastal populations of the threats surrounding them? Did they act in full knowledge of the conditions of the activity or on the basis of estimates? What was their threshold for accept-

ability and tolerance? To what extent were these dangers borne or bypassed rather than confronted and challenged? The violence and destructive power of the hazard, on the one hand and the nature of the risk element on the other, seem to have often determined human behaviour. When it led to an inevitable disaster, the risk was incurred passively: it then took on a theological nature, becoming the expression of divine will in the face of which all Christians were bound to incline. It should be recalled that vessels were the subject of a religious blessing and a journey was always undertaken "at God's pleasure". During a storm or in the event of serious damage, in other words when dramatic situations put human lives in dangers, seamen made a final prayer to the creator, promising Him actions of grace and penitence if saved. Coastal churches and places of pilgrimage were filled with these votive tablets left in memory of miraculous protection.

Even clearly identified, many risks of natural or anthropic origin were accepted in full conscience due to the absence of means to protect oneself or counter them, and in this respect recorded in the all-encompassing nature of the maritime economy. The approximate way in which time, space, objects and values were counted, characteristic of practices and medieval conceptions, made it necessary to adopt the same relativist attitude in order to face up to possible damages. Quantified to an uncertain extent, the latter could not be precisely attributed nor delayed. The spectrum of agents liable to guarantee them was also enlarged. The sum of the compensation processes - multiactivity and associations in particular - should have made it possible to assume and absorb all or part of the most common losses, even if the latter were only roughly estimated. The remarkable responsiveness, adaptability and versatility of the players in this economy, in other words their considerable capacity for resilience, supplemented their aptitude to positively absorb the ills whose causes they could not tackle directly. In times of war, losses incurred by destruction, price variations and bans on circulation and trade could be considerable, leading to the abandonment of means of production and the bankruptcy of trade. And yet, the slightest lull or window of truce was the chance to reactive dormant trade. Once converted into corsair vessels, the merchant ships rediscovered their initial vocation. When soldiers burned fields and vineyards or ruined farming land, the moment they departed, villagers endeavoured to replace them with something better. When a trading partner found himself banned from staying in a port then a lawful intermediary was immediately sought or else he was replaced. When a ban on trading was handed down then illicit exchanges took over. When currency grew scarce then other means of exchange were soon found. As a result, during the Hundred Year War, the coastlines, which were nonetheless overexposed to military incursions due to their border situation, never witnessed the scale of the rural and urban withdrawal sometimes observed in the hinterland. It is therefore important to underline the strong spirit of enterprise displayed by their populations, a spirit which seems to have stood in contrast to the relative conservatism which prevailed elsewhere.

The usual practice of risks not only influenced economic associations established in corporations but also urban structures in depth. Certain city-ports, governed by powerful bourgeois merchants, took advantage of their community statutes and their power of deliberation to take the form of mutual organisations. This was a noteworthy development at La Rochelle. The annals of the city record the permanent security concerns of the aldermen whether in respect of fortifications, its privileges, suburbs or its trade. In particular, as of 1294, the municipal authorities decided to provide from their own funds compensation for Rochelais in debt. A fund of 200 *livre tournois* (Tours pounds) was reserved for members of the *corps de ville* to assist them if they were unable to settle with their creditors. In 1407, the measure was renewed, specified and even extended. Naturally, this guarantee did not cover bankruptcies caused by dice games, living in luxury or excessive spending. However, assistance for peers in the event of bankruptcy covered losses caused by *fortune de mer*, in other words, arising during a storm or a raid by pirates, for instance[61]. It would be worthwhile compiling, analysing and comparing constitutions and regulations specific to coastal towns. This would make it possible to highlight the role of mutual and protectionist provisions in the concerns of their authorities. It could on the same occasion test the Foucaldian genealogy of governmentality. On an even greater scale, there were towns which, driven by common economic and sometimes political interests, took the initiative to join forces. It is worth noting that most medieval Hanse towns were concerned by coastal urban communities or of which the commercial activities largely depended on maritime traffic. Founded circa 1050, the Hanse of Bruges, soon to become the Hanse of London, gathered together over twenty towns in western Flanders which imported wool and exported sheets, in relation with the English capital. Two centuries later, consolidating the urban and economic rise of Germans in the North Sea and the Baltic sea, the cities of Lübeck and Amsterdam joined forces in 1241, marking the union of city-ports on the Dutch, Rhine, Saxon, Wendes, Pomerian, Prussian and Livonian coasts. Regularly gathering in *Hansetad* as of the mid 14th century, their ambition was not actual political autonomy: they would never form a state even if, individually, they had considerable legal, economic, fiscal and monetary freedoms. It was an organisation primarily focused on the defence of people, goods and the interests of its members. This was reflected in protectionist measures aimed at the development of trading posts and commercial privileges, control of markets, flows, prices and routes of maritime trade, the security of merchant fleets, combating foreign competition and monetary regulation, etc. In the 15th century, it was even deployed to combat the systematic use of credit in commercial relations with non-Hanseats which destabilised prices, disrupted business, in short, made traders take risks liable to lead to bankruptcy and dishonest practices. In the most perilous situations, the *Hansetad* sent delegations to embassies in order to settle disputes and conflicts, decided on setting up blockades or funding an army of men and ships to ensure its interests were respected, fight against piracy and support convoys, and to this end raised taxes on trade[62].

The quest for security, balance and stability, in other words, trust, without which international maritime trade

could not have developed, therefore had a major repercussion for the forms of political and social organisation of coastal populations in the late Middle Ages. This observation also applies to the legal framework of sea-related activities. At the dawn of the 13th century, under the presumed influence of Mediterranean Law - in any case, as it appeared in certain parts of the *Digeste*, *Basiliques* and *Consolat*[63] – the *Rôles d'Oléron* were drafted, lying midway between written law and customary law. This compilation of jurisprudence and practices of users of the Seas of the Ponant had practical objectives. Their constitution was dictated by the daily realities of using the sea and the need for simple rules, in such a way that during four centuries, they were the benchmark for courts, industrial tribunals and private contracts, whose clauses and rulings they underpinned[64]. The articles which they contained were so many obligations to which masters, seafarers and charterers had to submit in order to guarantee the safety of the vessel, people and goods. From unberthing of vessels to their arrival, the behaviour of each person was defined in order to prevent all damages (breakage of the boat or its cargo) and, where appropriate, by storm or sinking, to rescue what could be saved: check on the standard of the hoists and ropes, proper berthing, unloading and storage on the quay of freight, jettison of food and removal of the mast in extreme conditions, etc. Depending on the role they played in the shipment, each person's liability was also in play, obliging them to pay compensation from their own goods in the event of proven negligence. Moreover, these rulings were aimed at ensuring a peaceful spirit of camaraderie among the crew. In particular, a deckhand had to be given medical treatment at his employer's expense. Finally, efforts were made to limit the risk of fraud and embezzlement. Article 15 specified that in the event that a ship at anchor which was stationery in the port should strike another ship, all damages occurring were shared equally between both parties suffering a loss. The aim was to avoid "a crew of an old ship being tempted to position themselves in the path of a more robust craft in a bid to gain compensation for the outcome of the impact[65]". The *Rôles d'Oléron* enjoyed such success that they were imposed on other stipulations of the same kind contained in the constitution of the celebrated S*ocietas navium* in Bayonne in 1204-1213, in the Custom of Hamburg of 1292, or in that of Lubeck of 1299[66]. Local uses were either gradually incorporated or neglected. Multiple versions[67], on the basis of the original compilation, were translated and adapted. The *Waterrecht*, maritime law of the Hanseatic cities of the north sea, is a 14th-century adaptation. Adopted by Lubeck, it subsequently spread to the cities of the Baltic, and particularly Wisby, under the name of *Gotländisches Waterrecht*[68]. In Flanders, the *Droit maritime de Damme* was a virtually literal copy[69]. A translation was also made in England in the shape of the *Black Book of the Admiralty*[70]. Traces have been found in Bayonne, Libourne and Bordeaux.[71]. Finally, Castile, with its *Partidas* attributed to Alphonse X in 1266[72], and Seville, with its *Leyes de Layron*[73], possessed one of these versions. In the wake of Jean-Marie Pardessus, it would also be of considerable interest to draw together and compare all of these versions in order to make a more precise determination of the origins and relationships, the objectives, principles, procedures and methods, the common thread and the specific features, the changes and improvements, as well as the dissemination. The internationalisation of maritime law, dictated by the need to protect seafarers from the natural and anthropic dangers to which they were exposed and to therefore govern the conduct and designate the responsibilities of all parties was a major development in European history. Whereas, inland, local customs would tenaciously resist the extension of national laws, in the specific case of settlement of these causes seafarers formed a community which was original in legal terms.

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Did sea users have a special relationship with mobility and consequently with danger? This question has been little examined by geographers, which is somewhat surprising, and is key to defining the outlines and scope of a risk culture. Europe was then dominated by partitioning of the space operated by seigneurs from which, even in the late Middle Ages, an individual barely escaped. The rudimentary means of transport, the poor land routes, the conservative and centripetal forces of the power of the "ban", the church and custom to maintain the status quo, the obstacle of seigneurial taxes and currencies, the distrust of outsiders, all these factors conspired to limit the mobility of individuals. This conservative force, specific to rural societies, was inclined to limit their exposure to dangers. They therefore severely judged, with fear and incomprehension, through their clerics, the growing mobility of the coastal populations who on the sea were free of the thresholds, limits and borders of a terrestrial kind which they helped by their attitude to undermine. It is undeniable that the extension and intensification of maritime journeys caused those undertaking them a probability of loss which was proportionately higher. It is also true that the non-stop migratory flows observed in these societies sparked community conflicts. The mass presence of Bretons and Castilians in La Rochelle and its suburbs, the former working in vineyards, the latter imposing their commercial power, generated endless rivalries. And each city-port continually witnessed fights between crews of different nationalities. However, unlike the hinterland, they therefore rejected inertia, by its very essence contrary to their activities. Taking measure of the perils they had to manage, they adopted singular behaviour around the risk with a focus on initiative and daring.

This research project is therefore founded on a hypothesis whereby populations using the sea and its coastlines constituted early examples of risk societies. Naturally, it is not meant in the reflexive sense which characterises the contemporary West. In all likelihood, risk was a central and dynamic element, integrated into their activities and their representations as per original processes which complemented each other. Among these populations, danger was not perceived as a sterilising and inhibiting notion but rather a datum which had to be factored in, evaluated and surpassed, something man had to make allowance for in order to do business and prosper. This

inclination for daring and adventure to be found in a secular culture of maritime risks, partly gave rise to technological and economic innovation and authorised the crossing of geographical, conceptual and theological thresholds at the dawn of the modern era. There exists a "pendulum tension" between seeking risk and the quest for safety [which] constitutes the jurisdiction of human existence and helps give it meaning[74]". Voluntary exposure to risk meets a need for liberty, innovation and progress. Viewed in the context of the 12th-16th centuries, this behaviour broke with certain conservative tendencies to favour the status quo sometimes characteristic of populations and authorities of the land. We are therefore right to consider that medieval experiments with risk management developed by populations using the sea and coastlines were key sources for the expansion and transformation of Europe initiated during the modern era.

References

[1] *La géographie des risques dans le monde*, dir. Gabriel Wackermann, Paris, Ellipses, 2005, p. 21.

[2] Claude Gilbert, "Un tournant dans l'analyse des risques et des crises ?", dans *Risques collectifs et situations de crise. Apports de la recherche en sciences humaines et sociales*, dir. Claude Gilbert, Paris, l'Harmattan, 2002, p. 7-38; François Gillet, "Les Pouvoirs publics et la recherche sur les risques naturels", in *Les Pouvoirs publics face aux risques naturels dans l.histoire*, dir. René Favier, Grenoble, MSH-Alpes, 2002, p. 347-362. Since 1990, national research into human and social sciences concerning risks has witnessed its first deployments. Two GDR research groups ("Crisis" and "Soristec" – Society and Scientific and Technical Risks, 1990-1994), a programme headed "Collective risks and crisis situations" (1994-1997-2000) followed by the creation since 2000 of a GIS - scientific interest grouping- of the same name, two national research programmes on "Natural risks" and "Hydrology", ACIs - incentive concerted action - and programmes backed by the ministry for regional development and the environment have enabled the emergence in France of a scientific capacity in the field, identification of problem sets and fostering of interdisciplinarity. These structures stand alongside other scientific groupings such as the GDR on "Climate-related risks", the GIP - public interest grouping - ECOFOR on forests or the risk management unit of the IRSN (Institute for Radiological Protection and Nuclear Safety).

[3] Ulrich Beck, *La Société du risque. Sur la voie d'une autre modernité*, original pub. 1986, translated from the German by Laure Bernardi, Paris, Aubier, 2001.

[4] Élisabeth Carpentier, Michel Le Mené, *La France du XIe au XVe siècle. Population, société, économie*, Paris, Presses universitaires de France, 1996, p. 54-60. In this period, life expectancy is estimated to have been around thirty years!

[5] Alain Guerreau, "L'Europe médiévale: une civilisation sans la notion de risque", *Risques*, 31, 1997, p. 11-18.

[6] See, in particular: François Walter, "Pour une histoire culturelle des risques naturels", in *Les Cultures du risque (XVIe-XXIe siècle)*, dir. François Walter, Bernardino Fantini and Pascal Delvaux, Genève, Presses d'histoire suisse, 2006, p. 1-28.

[7] To this end, we can supplement the sociological approaches and compare them with the work of the philosopher Michel Foucault: *Naissance de la biopolitique*, Paris, Gallimard, 1979; *Sécurité, territoire, population. Cours au Collège de France, 1977-1978*, Paris, Gallimard, 1980.

[8] Beck, *op. cit.*, p. 26-27, 35-36. Also see: J.-F. Cauchie and H.-O. Hubert, ""La Société du risque" de Beck: balises", *La Revue Nouvelle*, vol. 115, 2002, p. 86-97; Alain Bourdin, "La Modernité du risque", *Cahiers internationaux de sociologie*, vol. 114, 2003, p. 5-26.

[9] *Tempêtes sur la forêt française (XVIe-XXe siècle)*, dir. and intro Andrée Corvol, Paris, l'Harmattan, 2005, p. 4.

[10] Peter M. Wiedemann, "Tabu, Sünde, Risiko: Veränderungen der gesellschaftliden Wahrnehmung von Gefährdungen", in *Risiko ist ein Konstrukt: Wahrnehmungen zur Risikowahrnehmung*, Munich, Knesebeck, 1993, p. 43-67. We have borrowed the summary of this work from F. Walter, *op. cit.*, p. 16-18.

[11] *Naissance de la biopolitique*, Paris, 1979; *Sécurité, territoire, population. Cours au Collège de France, 1977-1978*, Paris, 1980.

[12] Some summarised works do however endeavour to draw on interdisciplinarity: Denis Duclos, *L'Homme face au risque technique*, Paris, l'Harmattan, 1991; Peter L. Bernstein, *Plus forts que les dieux. La remarquable histoire du risque*, éd. Française, Paris, Flammarion, 1998; *Risques naturels*, dir. Pierre Gabert and Jean Vaudour, Paris, CTHS, 1999; *Pour une histoire culturelle du risque. Genèse, évolution, actualité du concept dans les sociétés occidentales*, Strasbourg, Histoire et anthropologie, 2004; *Peurs et risques contemporains. Une approche pluridisciplinaire*, dir. Emmanuel Gleyse, Paris, l'Harmattan, 2005; Patrik Pigeon, *Géographie critique des risques*, Paris, Économica, 2005; *Les Cultures du risque (XVIe-XXIe siècle)*, dir. François Walter, Bernardino Fantini and Pascal Delvaux, Genève, Presses d'histoire suisse, 2006.

[13] Jean Halpérin, " La Notion de sécurité dans l.'histoire économique et sociale", *Revue d'histoire économique et sociale*, XXX, no. 1, 1952, p. 7-25; Lucien Febvre, "Pour l.'histoire d'un sentiment: le besoin de sécurité", *Annales E.S.C.*, XI, 1956, p. 244-247.

[14] L. Febvre, *op. cit.*, p. 244.

[15] Emmanuel Le Roy Ladurie, "L.'Historien face à l.'histoire climatique et à l.'attitude des autorités en cas de conjoncture climatico-périlleuse", in *Les Pouvoirs publics face aux risques naturels dans l.histoire*, Grenoble, CNRS - MSH-Alpes, 2002, p. 13-29.

[16] Emmanuel Le Roy Ladurie, *Histoire du climat depuis l'an Mil*, Paris, Flammarion, 1967; *Histoire humaine et comparée du climat. I: Canicule et glaciers, XIIIe-XVIIIe. II: Disettes et révolutions, 1740-1860*, Paris, Fayard, 2004. Pierre Alexandre, *Le Climat en Europe au Moyen Âge: contribution à l.'histoire des variations climatiques de 1000 à 1425, d'après les sources narratives*, Paris, E.H.E.S.S., 1987. Alain Foucault, *Climat: histoire et avenir du milieu terrestre*, Paris, Fayard, 1993. Pascal Acot, *Histoire du climat, du big bang aux catastrophes climatiques*, Paris, Perrin, 2004.

[17] René Favier and Anne-Marie Granet-Abisset, "Pour une histoire des catastrophes naturelles: une étape dans une recherche collective", dans *Histoire et mémoire des risques naturels*, dir. René Favier and A.-M. Granet-Abisset, Grenoble, MSH-Alpes, 2000, p. 271-276.

[18] For ten or so years, René Favier has actively contributed to the development of research into the history of natural risks. He is a specialist and expert involved in major national and European scientific programmes. He was behind the first international conferences organised in France on this question and his publications in the field have left their mark: *Histoire et mémoire des risques naturels*, Grenoble, MSH-Alpes, 2000; *Les Pouvoirs publics face aux risques naturels dans l.histoire*, dir., Grenoble, CNRS-MSH-Alpes, 2002; *Récits et représentations des catastrophes depuis l.Antiquité*, dir., with Anne-Marie Granet-Abisset, Grenoble, MSH-Alpes, 2005; "Sociétés urbaines et culture du risque. Les inondations dans la France d'Ancien Régime", in F. Walter, B. Fantini, P. Delvaux, *Les Cultures du risque (XVIe-XXIe siècle)*, Genève, Presses d'histoire suisse, 2006, p. 49-86; "Gérer la catastrophe en montagne (XVIIe-XIXe siècles)", in *Tempêtes sur la forêt française*, *op. cit.*, p. 119-131; with A.-M. Granet-Abisset, "Histoire et mémoire. Histoire du climat et des risques naturels en France", in *Les Risques climatiques*, dir. D. Lamarre, Paris, Belin, 2005, p. 9-34; "Dieu, l.'expert et les cataclysmes", *L.'Histoire*, no. 304, December 2005, p. 34-45.

[19] Among recent works and in addition to those already referred to, we can mention: Serge Briffaud, "Histoire des catastrophes naturelles", *Sources des travaux historiques*, no. 33, 1993. Christine Dourlens and Pierre A. Vidal-Naquet, *La Ville au risque de l.eau*, Paris, l'Harmattan, 1992. Paul Allard, "Éléments pour une problématique de l.'histoire du risque. Du risque accepté au risque maîtrisé. Représentations et gestion du risque d'inondation en Camargue, XVIIIe-XIXe siècles", *Ruralia* [on line], 2000-06-Varia, 25/01/2005, (ruralia.revues.org/document152.html). Grégory Quenet, *Les Tremblements de terre en France aux XVIIe et XVIIIe siècles. La naissance d'un risque*, Seyssel, Champ Vallon, 2005. L. Faugères, C. Villain-Gandossi, *Le Risque et la Crise*, Malte, Foundation for International studies, 1990. Cécile Allinne, *Les Villes antiques du Rhône et le risque fluvial. Gestion des inondations dans les villes romaines. L'exemple de la basse vallée du Rhône*, PhD dissertation defended in 2005 under the dir. of P. Leveau, University of Aix-en-Provence. We would also draw attention to the conference organised by the Casa de Velázquez in September 2003 on "Mediterranean societies faced with risk".

[20] Favier and Granet-Abisset, "Histoire et mémoire…", p. 14.

[21] See, in particular: Jean Delumeau, *La Peur en Occident XIVe-XVIIIe siècles*, Paris, Fayard, 1978; *ditto*, *Le péché et la peur. La culpabilisation en Occident (XIIIe-XVIIIe siècle)*, Paris, Fayard, 1983; *ditto*, *Les Malheurs des temps. Histoire des fléaux et des calamités en France*, Paris, Larousse, 1987; *ditto*, *Rassurer et protéger. Le sentiment de sécurité dans l'Occident d'autrefois*, Paris, Fayard, 1989.

[22] Incentive concerted action

[23] Jacques Berlioz, *Catastrophes naturelles et calamités au Moyen Âge*, Firenze, Sismel, 1998. Joëlle Burnouf, Nathalie Carcaud, Manuel Garcin, "Aléa et risques fluviaux dans la vallée de la Loire au Moyen Âge", *Medieval Europe Basel*, 2002; J.-P. Leguay, *Les Catastrophes au Moyen Âge*, Paris, J.-P. Gisserot, 2005; Élisabeth Carpentier, "Autour de la peste noire: famines et épidémies dans l.'histoire du XIVe siècle", *Annales, Économies, Sociétés, Civilisations*, 1962, p. 1062-1092; *ditto*, *Une ville devant la peste. Orvieto et la peste noire de 1348*, Paris, S.E.V.P.E.N., 1962, 2e ed. Brussels, De Boeck university, 1993.

[24] See, in particular, the work of Michel Mollat: *Études sur l'histoire de la pauvreté (Moyen Âge-XVIe siècle:)*, 2 vol., Paris, Publications de la Sorbonne, 1974; *Les Pauvres au Moyen Âge. Étude sociale*, Paris, Hachette, 1978. Also see the work of Bronislaw Geremek: *Les Marginaux parisiens au XIVe et au XVe siècle*, Paris, Flammarion, 1976; *La Potence et la pitié. L.Europe des pauvres, du Moyen Age à nos jours*, Paris, Galimmard, 1987; *Les fils de Caïn. L.image des pauvres et des vagabonds dans la littérature européenne*, Paris, Flammarion, 1991.

[25] *La Violence et la mer dans l'espace atlantique (XIIe-XIXe siècle)*, dir. Mickaël Augeron and Mathias Tranchant, Rennes, Presses universitaires de Rennes, 2004.

[26] Louis-Augustin Boiteux, *La Fortune de mer. Le besoin de sécurité et les débuts de l'assurance maritime*, Paris, S.E.V.P.E.N., 1968.

[27] Philippe Jansen, "Littérature hagiographique et catastrophe aux XIIIe-XIVe siècles: les raisons d'une réalité absente", in *Histoire des catastrophes naturelles*, Paris, Histoire au Présent, 1993, p. 25-27.

[28] Jacques Berlioz, "Les Récits exemplaires, sources imprévues de l.'histoire des catastrophes naturelles au Moyen Âge", in *Histoire des catastrophes naturelles*, *op cit.*, p. 7-8.

[29] René Favier, "Mémoires des catastrophes naturelles", dans *Les bleus de la Terre*, CNRS Thema, no. 8, 2005, p. 97.

[30] Gilles Chantraine, Jean-François Cauchie, "Risques et gouvernementalité", *Sociologos* [http://sociologos.revues.org], no. 1, 12 April 2006.

[31] Jacques Berlioz and Grégory Quenet, "Les Catastrophes: définitions, documentation", in *Histoire et mémoire*, *op. cit.*, p. 21-23.

[32] ean Rossiaud, "Sociologie et risque majeur", in *Les Risques climatiques*, *op. cit.*, p. 40-41; Anne-Marie Granet-Abisset, "La Connaissance des risques naturels: quand les sciences redécouvrent l.'histoire", in *Histoire et mémoire*. *op. cit.*, note 4. Additional definitions relating to the lexical field of the word "risk" feature in: S. Bonnefous, M.H. Massuelle and V. Richard, *Aspects sémantiques du risque: vocabulaire lié au risque à travers une analyse bibliographique*, [http://www.rdtrisques.org/biblio/semantique/aspects%20semantiques.pdf/download], December 1996, updated March 1997.

[33] Gilbert, *op. cit.*, p. 10-14; Rossiaud, *op. cit.*, p. 35-37. The latter refers to risk as a "socially constructed" notion. Albertina Oliverio, *Épistémologie de l.'action et théorie de la rationalité. Une étude du cas des comportements à risque face au VIH/sida*, Soveria Mannelli, Rubbettino, 2002, p. 12, 35-45.

[34] Stefano Maso, *Fondements philosophiques du risque*, Paris, l.'Harmattan, 2006, p. 11-19.

[35] Jean-Jacques Amyot, "Interdits de risque", in *Vieillesses interdites*, dir. J.-J. Amyot and Michel Billé, l.'Harmattan, Paris, 2004, p. 163-164; Jacques Berlioz and Grégory Quenet, "Les Catastrophes: définitions, documentation", in *Histoire et mémoire*, *op. cit.*, p. 21-23; *Dictionnaire international de la psychanalyse*, dir. Alain de Mijolla, Paris, Hachette, 2002.

[36] Rossiaud, *op. cit.*, p. 36-37.

[37] *Histoire et mémoire*, *op. cit.*, *Introduction*, p. 9.

[38] Mikel De Epalza, "Origines du concept de risque: de l.'Islam à l.'Occident", in *Le Risque et la Crise*, *op. cit., p.* 63-70; Christiane Villain-Gandossi, "*Risicum maris vel fortuna*: aux origines du concept de risque en Occident", in *Pour une histoire du "fait maritime"*, Paris, C.T.H.S., 2001, p. 51-66.

[39] This is the explanation favoured by the *Grand Robert.*

[40] Cécile Allinne and Philippe Leveau, "Les Villes antiques du Rhône et le risque fluvial", in *Les Pouvoirs publics face aux risques naturels*, *op. cit.*, p. 195-218.

[41] René Favier, "Grenoble 1219: l.'inondation et les pouvoirs", in *Les Pouvoirs publics face aux risques naturels*, *op. cit.*, p. 33-37.

[42] René Favier, "Sociétés urbaines et culture du risque. Les inondations dans la France d'Ancien Régime", in *Les Cultures du risque*, *op. cit.*, p. 52-58.

[43] Frédéric Godefroy, *Dictionnaire de l.ancienne langue française et de tous ses dialectes du IXe au XVe siècle*, Paris, F. Vieweg, 1881-1890, 10 vol.

[44] " Dieu, l.'expert et les cataclysmes", interview with René Favier.

[45] Berlioz, *Catastrophes naturelles…*, p. 24.

[46] Gilbert, *op. cit.*, p. 10.

[47] Boiteux, *op. cit.*, p. 152.

[48] According to Philippe Schoeneich and Mary-Claude Busset-Henchoz, "Risques naturels, espace vécu et représentations: le nécessaire décodage de la mémoire", in *Histoire et mémoire*, *op. cit.*, p. 254.

[49] Lucien Faugeres, "La Dimension des faits et de la théorie du risque", in *Le Risque et la Crise*, *op. cit., p.* 35.

[50] Denis Cœur, "Aux origines du concept moderne de risque naturel en France: le cas des inondations fluviales (XVIIIe-XIXe siècle)", in *Histoire et mémoire*, *op. cit.*, p. 120.

[51] Gilbert, *op. cit.*, p. 31-32.

[52] Earth platforms which surrounded salt farming areas

[53] Merchant who organised and supervised the commercial entity

[54] E. Goyheneche, *Bayonne et la région bayonnaise du XIIe au XVe siècle*, Leioa, Universidad del País Vasco, 1990, p. 313-322.

[55] Boiteux, *op. cit.*, p. 40-41.

[56] The work of L.-A. Boiteux is supplemented by Christiane Villain-Gandossi, "Origines du concept de risque en Occident. Les risques maritimes ou fortune de mer et leur compensation: les débuts de l.'assurance maritime", in *Le Risque et la Crise*, *op. cit., p.* 71-84; Jacques Bernard, *Navires et gens de mer à Bordeaux (vers 1400 - vers 1550)*, Paris, S.E.V.P.E.N., 1968, p. 687-702; Robert Favreau, "Un contrat d'assurance maritime à La Rochelle en 1490", *Revue de la Saintonge et de l'Aunis*, t. III, 1976, p. 79-92.

[57] Michel Balard, "Assurances et commerce maritime à Gênes, dans la seconde moitié du XIVe siècle", *Annales de Bretagne*, t. LXXXV, 1978, p. 273-282; Jacques Heers, "Le Prix de l.'assurance maritime au Moyen Âge", *Revue d'histoire économique et sociale*, tome XXXVII, 1959, p. 7-19; Alberto Tenenti, *Naufrages, corsaires et assurances maritimes à Venise*, Paris, S.E.V.P.E.N., 1959.

[58] Duty paid on berthing at a quay.

[59] Auguste Dumas, *Étude sur le jugement des prises maritimes en France jusqu'à la suppression de l.'office d'amiral (1627)*, Paris, s.n., 1908, p. 71-72. Also see the summary of M. Mollat du Jourdin in chapter XII of: *Histoire militaire de la France, t.1: Des origines à 1715*, dir. Philippe Contamine, Paris, Presses universitaires de France, 1992, p. 281-286.

[60] In particular see the recent work contained in: *Les constructions navales dans l.'histoire*, *Revue d'histoire maritime*, no. 7, 2007.

[61] Médiathèque La Rochelle, ms. 50, p. 181, 450; see: Mathias Tranchant, *Le Commerce maritime de La Rochelle à la fin du Moyen Âge*, Rennes: Presses universitaires de Rennes, 2003, p. 189.

[62] Philippe Dollinger, *La Hanse (XIIe-XVIIe siècles)*, Paris, Aubier, 1964.

[63] Michel Mollat du Jourdin, *L.Europe et la mer*, Paris, Seuil, 1993, p. 138. Jan Craeybeckx, *Un grand commerce d'importation: les vins de France aux anciens Pays-Bas (XIIIe-XVIe siècle:)*, Paris, S.E.V.P.E.N., 1958, p. 85-87.

[64] Bernard, *op. cit.*, p. 678.

[65] Jean-Marie Pardessus, *Collection de lois maritimes antérieures au XVIIIe siècle*, tome 1, Paris, 1828, p. 334. Also see: Margarita Serna Vallejo, *Los roles d'Oléron: el coutumier maritimo del atlantico y baltico de epoca medieval y moderna*, Madrid, Centro estudios montañeses, 2004.

[66] Dollinger, *op. cit.*, p. 184-185.

[67] Mollat du Jourdin, *op. cit.*, p. 139. At the present day, around 44 manuscripts originating from the compilation of the *Rôles d'Oléron* have been listed in Europe.

[68] Dollinger, *op. cit., p.* 185.

[69] Craeybeckx, *op. cit., p.* 88-89.

[70] P.-F. Feraud, "Les Jugements d'Oléron ou Rôles d'Oléron", *Neptunia*, no. 162, 1986, p. 4.

[71] Bernard, *op. cit.*, p. 679.

[72] Elisa Ferreira Priegue, "L.Incorporation du Nord-Ouest ibérique à la vie économique du golfe de Gascogne", dans *L.Aventure maritime, du golfe de Gascogne à Terre-Neuve*, Paris, C.T.H.S., 1995, p. 337.

[73] Florentino Perez-Embid, "Navigation et commerce dans le port de Séville au bas Moyen Âge", *Le Moyen Âge*, 1969, p. 483.

[74] Jean-Jacques Amyot, "Interdits de risque", in *Vieillesses interdites*, dir. J.-J. Amyot and Michel Billé, Paris, l.'Harmattan, 2004, p. 163-164.