

Madeleine Colani and the Deprat Scandal at the Geological Survey of Indochina

Lia Genovese

ABSTRACT—Madeleine Colani (1866–1943) worked at the Geological Survey of Indochina in Hanoi from 1914 to 1928, assisting Henri Mansuy, a self-taught palaeontologist. A scandal erupted in 1917, when Jacques Deprat, a brilliant young geologist and head of the Survey, was accused of scientific fraud. Two years later, he was drummed out of the institution and repatriated to his native France for a life of penury. Though the accusation was launched by Mansuy, it is Colani's involvement which is frequently called into question, particularly her role in the aftermath of the scandal. The voluminous critique she published in 1924, a revision of Deprat's work on fusulinids, is still being debated. This article recounts the events of the scandal, with particular reference to Colani's legacy.

The Geological Survey of Indochina, Hanoi

The far-reaching reforms set in motion by Paul Doumer (1857–1932), Governor-general of Indochina from 1897 to 1902 and future president of France, required capable administrators for the French colonies of Southeast Asia. Honoré Lantenois (1863–1940) was one such individual. Born into a military family in Cherbourg, France, he was a career officer shaped and moulded by the engineering *corps* from which he graduated as a young man. In 1896 he crowned his schoolboy interest in geology by joining the Geological Society of France.

Lantenois was posted to Vietnam in 1903, to assume control of the Department of Natural Resources. One of his first assignments entailed survey work in Yunnan as part of the French government's plans to build a rail link between Hanoi and Yunnan-fou (present-day Kunming).¹

By contrast, Henri Mansuy (1857–1937), who joined the colonial service in Vietnam in 1901, had worked as a labourer in his youth but attended night classes to study palaeontology. Between 1903 and 1904, Lantenois surveyed areas of Yunnan with Mansuy, whose diligence impressed him. Lantenois allowed him the possibility to return to France in 1904–1905, 1907–1908 and 1910–1911 to further his knowledge of palaeontology under the supervision of Henri Douvillé (1846–1937), professor of palaeontology at the School of Natural Resources (École des Mines), one of France's *grandes écoles*. Mansuy's humble beginnings in his native Paris were but a distant memory when he forged a new life for himself as a respected professional in a far-away colony.

¹ The rail service linking Hanoi (Haiphong) to Yunnan-fou was inaugurated on 1 April 1910.

By 1908 the Department of Natural Resources was reorganised and Lantenois was seeking a technical chief for the newly-created Geological Survey of Indochina (GSI). The candidate would be required to conduct an ambitious programme of mapping the geology of Indochina and neighbouring areas. Jacques Deprat (1880–1935) was an eminently suitable candidate.

Born in Fontenay-aux-Roses, a Paris suburb, Deprat came from a proper middle-class background; his ancestors's fortunes had taken them from peasant and artisan (paternal grandfather) to school teacher (father). He studied geology in France under the supervision of such renowned academics as Pierre Termier (1859–1930), professor at the School of Natural Resources in Paris.

By his early twenties, Deprat had developed an impressive catalogue of research projects documenting the geology of Sardinia (Italy) and Corsica (France). Aged 24, he successfully defended his doctoral thesis at the Sorbonne University in Paris, with a project mapping Evia (Euboea), the second largest island in Greece. The slight physical appearance (he was 1.60m tall) inherited from his father's side, belied a strong constitution, ideal for extended periods of fieldwork in rugged areas. The fiery temper and intransigent approach came from his mother's side – offspring of Protestants from Alsace² and Catholics from the Netherlands.

Negotiations between Lantenois and Deprat were already underway in January 1908 but Deprat stalled, fearing the effects of the tropical climate on his two daughters, the youngest of whom was just two years old in 1908. He also reflected on his aspirations to become a university professor one day and, perhaps with a hint of foreboding, how those aspirations might be affected by a posting to a distant colony. He decided to rise to the challenge and set sail from Marseille on 23 May 1909 with his young family. On arrival in Hanoi on 25 June, the family was greeted by Lantenois and settled in a large villa in the capital's West Lake area.

From the outset, the working relationship between Deprat and Lantenois was outwardly cordial but tense. Lantenois felt entitled to suggest editorial changes to Deprat's publications, which the young geologist resisted, citing the guarantees of academic autonomy underpinning his employment contract. If Lantenois saw in Deprat a young, abrasive and disrespectful upstart, fresh from university, Deprat saw in him a crusty career officer whose record in colonial administration was blemished by rumours that he consorted with local men.³ Deprat dismissed Lantenois

² Alsace, in northeast France, has been variously under the control of France (1697–1870, 1919–1940 and 1945–present) or Germany (1871–1918 and 1941–1944). On Colani's fourth birthday, 13 August 1870, a war erupted between France and Prussia and when the latter annexed Alsace shortly after the May 1871 Treaty of Frankfurt, Colani and her family left the province to preserve their French identity.

³ It is believed that Deprat was the source of rumours about Lantenois's alleged homosexual conduct in the colony.

as a *fonctionnaire* and *dilettante* – a bureaucrat who dabbled in geology – wasting no opportunity to disparage his modest scientific contributions.

Meeting Mansuy on arrival at the GSI, Deprat was disquieted by the penetrating gaze from his steely, grey-blue eyes “sunken into a bony head” and the “strange, almost frightening energy”⁴ he emanated. Mansuy, however, was said to be delighted at Deprat’s arrival and became a regular visitor at his weekly social gatherings, as was Lantenois but less frequently.

Deprat and Mansuy were responsible for documenting the biostratigraphy of the Tonkin, Annam and Yunnan. Deprat collected fossils from inhospitable areas and shipped them to the GSI in Hanoi, for Mansuy to identify and record. Impressed by the quality of their publications, in 1914 Emmanuel de Margerie (1862–1953), a renowned cartographer, was instrumental in ensuring recognition from the French Geographical Society. Two years earlier, Deprat and Mansuy had shared the Tchihatchef Prize of the French Academy of Sciences, for their project in documenting the biostratigraphy of Yunnan.

In March 1913, two years later than planned, Deprat became chief of the GSI but Lantenois remained his hierarchical superior. In August of that year, Lantenois’s self-esteem suffered another blow, when the organising committee of the XIIth World Congress of Geology, held in Canada, elected Deprat as vice-president for Indochina. Lantenois, 50 years old, felt entitled to this honour, since it might never again be within his grasp. However, he decided to conceal his disappointment and congratulated his young colleague on this much-coveted accolade.

Colani joins the GSI

The organisational structure at the GSI changed in 1914, when Lantenois returned to France to take up a new government post. The first new recruit was André Lochard (1880–1946), Lantenois’s successor. Like Deprat, whose year of birth he shared, Lochard was cast from a professional mould and understood the need for scholarly independence. The second new recruit was Madeleine Colani.

Born on 13 August 1866 in Strasbourg, Alsace, to Timothée, a Protestant theologian, and Josephe Maria Vincente (Pepita) Gauthey, a Spanish housewife from Seville, in August 1898 Colani joined the French colonial administration as a school teacher, a profession she had practiced in France since 1884, the year she qualified as a primary school teacher.

Aged 32, she was posted to Vietnam and arrived in Hanoi on 7 January 1899. After teaching for several years at the Lycée Albert Sarraut, one of Hanoi’s most prestigious schools, in 1913 Colani returned briefly to Paris to collect her first university degree.⁵ On her return to Indochina in 1914, she joined the GSI, initially

⁴ Wild 1926, 69. Deprat wrote this account seven years after he had been repatriated to France.

⁵ Her dissertation (Colani 1914) was published in Paris.

volunteering as Mansuy's assistant for a period of two years. There was a tenuous family connection with Deprat, in that Colani had been a pupil at the private school of Sainte-Barbe in Fontenay-aux-Roses, where Deprat senior taught humanities.

Mansuy was on excellent terms with Colani and Lantenois, but was despised for tyrannising young colleagues, particularly Umberto Margheriti (1882–?), the Italian-born office clerk whose jovial nature irritated Mansuy's mournful disposition. He valued Colani's scientific approach and saw in her the ideal candidate to inherit his mantle. She was obsequious and observed the strictures of colonial mores. Hierarchical considerations dictated that there was little interaction between Colani and Lantenois. The working environment at the GSI was populated by complex individuals, each with his or her own peculiar notion of self-importance.

In a rare image, Colani (figure 1) appears smiling but somewhat wary of the photographer, in contrast to Lantenois (figure 2), who shows no such complexity in his straight gaze, with pince-nez and military uniform. It is difficult not to discern a pure spirit and innocence in Deprat (figure 3), the crossed arms presaging the intransigence that would play a part in his fall from grace. Mansuy (figure 4) cuts a lonely figure, the shadowy background reminiscent of his disappearance to the safety of Lantenois's protection after launching the accusation against Deprat.

The Deprat scandal

In September 1916, Lochard left the GSI to serve in the First World War. Lantenois, who had just discharged his war duties by serving in Algeria, returned to France that December and was asked to return to the GSI as Lochard's replacement. Lantenois accepted the opportunity and arrived in Indochina on 27 February 1917, where he was greeted by Deprat and Margheriti.

Within days of Lantenois taking charge at the GSI for a second time, Mansuy approached him to report a scientific fraud, seemingly perpetrated by Deprat. The young geologist was accused of deliberately placing some European-sourced trilobites (figure 5) among his fossil collections from Indochina and Yunnan. Trilobites are a type of hard-shelled marine creatures that existed over 300 million years ago and became extinct before the appearance of dinosaurs. The accusation rested on the important distinction that the suspect trilobites were not just *similar* in nature to others found in Europe, but the matrix in which they were embedded may have originated from Europe.

It may be a measure of Lantenois's hesitation to convey Mansuy's accusation, or perhaps reluctance to pursue the matter, that Deprat was summoned to Lantenois's office only on 20 March, three weeks after Mansuy first voiced his accusation. Deprat's initial reaction was one of astonishment and betrayal. He had always seen a friend in Mansuy and could not understand why he did not voice his concerns to him directly.

In April, Deprat was called up to serve in the Tonkin uprising but was discharged early and hospitalised due to illness and exhaustion. Despite his illness, in the summer of 1917 Deprat wrote four papers, for presentation at the Geological Society of France.

At this stage, Deprat was still on good terms with Colani and supported her application for permanent employment. In a report (figures 6a-6c), Lantenois sang her praise to Louis Constantin (1865–?), Director of Public Works in Hanoi, citing her academic qualifications and volunteering at the GSI as the principal reasons that made her “the ideal candidate to succeed Mansuy as palaeontologist at the Survey”.⁶ On the strength of these qualities, Colani became a member of staff on 6 September 1917.

In the second half of 1917, Lantenois secretly shipped some trilobites to France for evaluation by experts, including Termier, Douvillé and Alfred Lacroix (1863–1948), Professor of Mineralogy at the National History Museum in Paris, a course of action that has undermined Lantenois’s credibility for two reasons. Firstly, Lantenois had given an undertaking that Deprat would be present in the event that suspect trilobites were shipped to France for evaluation. Secondly, Deprat was denied the opportunity to verify that the secret shipments contained the fossils at the base of the accusation. In 1918, a commission of inquiry criticised Lantenois and found in Deprat’s favour, giving rise to a counter-accusation that Lantenois had falsified the contents of the packages.

In an effort to resolve the impasse, Deprat was ordered to revisit the sites, under Lantenois’s escort, to collect new samples. Intended as an olive branch, Deprat felt humiliated and refused to comply, a course of action which resulted in insubordination towards his superior, Lantenois. A more pragmatic approach on Deprat’s part may have averted the chain of events that would soon bring his promising career to a premature end.

His refusal to collect new fossils, to challenge the fraud accusation, and failure to heed Lantenois’s warnings of impending disciplinary measures, meant that Deprat’s hand was weakened. Events had reached a point of no return. On 8 October 1917, the GSI relieved him of his duties, an outcome he never anticipated, according to his 1926 autobiographical novel. The family, however, would remain in Hanoi for a further 15 months.

Deprat is repatriated

On 4 March 1918, a report prepared by three French experts – Lacroix, Douvillé and Termier – reached Hanoi from Paris, a journey of several months delayed by German bombings which disrupted maritime services in the Mediterranean. The

⁶ Report of 12 July 1917 from Lantenois to Louis Constantin.

report confirmed that the matrix in which the spurious fossils were embedded had originated in Europe, thus substantiating Mansuy's allegation of scientific fraud. When Deprat was given a copy of the report, he discovered that Lantenois had secretly shipped trilobites to Paris in August 1917, in contravention of an earlier undertaking. He was powerless to voice his protestations, however, because he had been suspended from the GSI a few months earlier. On 15 November 1918, Deprat wrote to Lacroix, stating that he had been requested to appear before a commission of inquiry upon his return to France.

Deprat and his young family were repatriated on 2 February 1919 and arrived in France a month later. The commission of inquiry, set up by the Geological Society of France, was presided over by Emmanuel de Margerie and had disciplinary, rather than legal, weight. The commission met a number of times in May 1919, to deliberate on the case. Deprat faced Lantenois at the hearings but never confronted his accuser, because Lantenois had ordered Mansuy to remain in Hanoi.

The commission unanimously upheld the fraud accusation against Deprat. On 4 November 1919, Deprat was expelled from the Geological Society of France for bringing into disrepute the organisation he joined in 1899 at the age of 19. On 17 November 1919, Lacroix, Douvillé and Termier wrote a joint letter to the Governor-general of Indochina, informing him that Mansuy had been cleared of any wrongdoing and that Deprat was now discredited in the world of science, recommending that he should not be allowed to return to Indochina.

Throughout the scandal, Colani sided with Mansuy. Ever the dutiful assistant, on his death she penned an obituary that reflected her version of events:

After his enormous contribution, following some very distressing events, in 1921 Mansuy applied for his retirement severance and left for France. He had noticed a scientific deception, which he reported. The result was a complicated matter concerning some suspect trilobites. He emerged as the victor; but after much fighting and suffering, he believed that his publications, the thing he cherished the most, had been tarnished. A fervent believer, he had lost his ultimate religion; he had a blind faith in men of science. He had the highest regard for their studies and considered them priests of truth who were incapable of telling lies. This final disenchantment was cruelly bitter. His health faltered and he became extremely irritable.⁷

By the time Colani penned Mansuy's obituary in 1937, she was an established authority on the prehistory of Indochina. In August she was nominated Chevalier de la Légion d'Honneur. Despite the disparity in earnings between French and Asian

⁷ Colani 1937, 699.

scholars,⁸ advancement for French overseas workers was restricted by the limited opportunities in the colonies. However, they could aspire to honorary recognition like the Legion of Honour insignia, of which Lantenois (1931), Mansuy (1936) and Colani (1937) were all recipients.

According to Colani, Deprat's alleged scientific chicanery made Mansuy "irritable". This detail singularly depicts a strong working relationship between Colani and Mansuy – two self-taught people striving for higher education despite their advancing years. Other observers were not so magnanimous, however. Writing to Charles Jacob (1878–1962), Deprat's successor at the GSI, Margheriti believed he was experiencing a "nightmare"⁹ on hearing that Mansuy would end his self-imposed exile in France to return to Indochina in December 1922.

Colani's remarks, from a grateful pupil to a recently departed mentor, portray Mansuy as a betrayed believer in the priesthood of science. Her words are in stark contrast to Deprat's "admittedly one-sided"¹⁰ autobiographical account of the affair, where he pours scorn on his former friend and colleague, frequently reminding readers of Mansuy's humble beginnings.

Deprat and Colani: similarities and differences

Colani and Deprat shared many qualities but their differences were striking. Both had ancestral connections with Alsace, loved the outdoors, could write in lyrical terms about landscapes, were gifted with boundless energy and had made Indochina their adopted home. Their respective artistic tendencies were well developed, but whereas Colani was proud to have exhibited her paintings at Parisian art galleries, Deprat was reticent about his poetry, lest his artistic leanings should undermine his scientific standing. In the 1926 autobiographical account, Deprat's doppelgänger, Dorpat, claims: "[Success] leaves me cold. I love scientific research, and I don't care about anything else".¹¹

While Deprat courted criticism for his independent stance, Colani was compliant, striving for approval from her superiors. Despite her involvement in a number of disciplines – spanning teaching, geology, archaeology and anthropology – and over 100 publications to her name, including the two-volume monograph on the Plain of Jars of north Laos,¹² she spoke in measured terms of her work and achievements.

⁸ Clémentin-Ojha and Manguin 2007: 38, who report that at the École Française d'Extrême-Orient, Asian scholars's salaries were "ten-seventeenth" of those paid to "public servants at the same level who were of French origin".

⁹ Letter of 27 July 1922, quoted in Durand-Delga 1990, 170.

¹⁰ McBirney 2004, 77.

¹¹ McBirney and Janvier 2005, 39.

¹² Colani 1935.

Deprat, the most intellectually gifted among his colleagues at the GSI, fought a constant battle for academic autonomy. Shunning Hanoi's social circles to spend time with his wife and daughters, he disdained colonial mores and was made a social outcast by his acerbic wit. He lacked diplomacy, as when he wrote to Lacroix to lament Lantenois's return to Hanoi for a second term at the GSI, recalling with nostalgia the periods of work undisturbed by Lantenois's "ineptitude",¹³ when the latter left the GSI to return to France in April 1914.

A French microcosm

Analysis of the events surrounding the alleged deception soon reveals an airtight environment, riddled with jealousy, intrigue and suspicion, where individuals could play aristocratic "anywhere in the empire except at home".¹⁴ The struggle did not go unnoticed in France, however, as when Douvillé asked what drove French people in the colonies to "tear each other apart".¹⁵ Indochina was a French microcosm in a far-away land:

In each colony one found this grimly amusing *tableau vivant* [original emphasis]: the bourgeois gentilhomme speaking poetry against a backcloth of spacious mansions and gardens filled with mimosa and bougainvillea, and a large supporting cast of houseboys, grooms, gardeners, cooks, amahs, maids, washerwomen, and, above all, horses. Even those who did not manage to live in this style, such as young bachelors, nonetheless had the grandly equivocal status of a French nobleman on the eve of a jacquerie.¹⁶

The segregation was systematic and extended to religious worship, so that the French Protestant and Vietnamese Protestant congregations worshipped at different churches in Hanoi.¹⁷ Religious isolation was not a purely French Indochinese problem, however, as illustrated by George Orwell in this imaginary conversation in colonial Burma:

[...] two yellow-bellies, Francis and Samuel – they call themselves Christians too. Last time the padre was here they had the nerve to come up and sit on the front pews with the white men. Someone ought to speak

¹³ Durand-Delga 1990, 134. In the same letter of 7 June 1917, Deprat informed Lacroix of Mansuy's accusation.

¹⁴ Anderson 1991, 150.

¹⁵ Letter of 18 September 1917 from Douvillé to Lacroix, on the evaluation of suspect trilobites.

¹⁶ Anderson 1991, 150-51. The name 'jacquerie' originates from the French popular insurrection of 1358, when peasants were referred to as Jacques, or Jacques Bonhomme.

¹⁷ Personal communication of 19 July 2009 from Rev. Vinh Quang Aú. A small church in Hanoi's former European quarter was reserved for the French Protestant community but has now become a recording studio. The church to the west of the capital used by the Vietnamese Protestant congregation remains an active place of worship.

to the padre about that. What bloody fools we were ever to let those missionaries loose in this country! [original emphasis] Teaching bazaar sweepers they're as good as we are. "Please, sir, me Christian same like master". Damned cheek.¹⁸

The European and non-European orbits in Indochina were rigidly defined:

This separation of the French and Indo-Chinese populations, cultures and experiences was so complete as to be paradoxically almost invisible. In almost all accounts of French life the Vietnamese are absent, to the degree that any reminder of their presence comes as a shock. The rightful inhabitants of the country have been effectively written out of its history.¹⁹

Colani's role in the aftermath of the scandal

On 9 February 1919, a week after Deprat's repatriation, Lantenois left the GSI to return to France for a second time and Charles Jacob was already installed in Hanoi as Deprat's replacement. Colani had been awarded a sabbatical and she chose to return to Paris in the spring of 1920, to finalise and defend her doctoral thesis.²⁰

In March 1921 she returned to Hanoi and began searching for a new assignment, at the same time that the GSI sought to divest itself of Deprat's "tainted" reputation. Deprat's publications were sifted by Mansuy or Colani in order to assure the world of science that the disgraced geologist's "faulty" work had been expunged from the system. The programme of "revision" was prominently announced (figures 7a-7b) and Colani would be responsible for critically evaluating Deprat's collection of fusulinids – single-cell organisms whose complex shells are easily preserved as fossils:

Mr. Mansuy has already catalogued the genuine fossils from Indochina, from which have been carefully excluded the few samples [the suspect trilobites] now known to have originated from outside the Far East. To Miss Colani has been entrusted the task of revising the fusulinids from Indochina, for which, regrettably, it will be necessary to collect new samples from faraway places.²¹

Collecting new samples was the *modus operandi* to prove or negate scientific wrongdoing. In 1917 Deprat was ordered to collect new trilobites to refute Mansuy's accusation and in 1921 Colani required new samples to revise Deprat's work on fusulinids. This seemingly pragmatic and logical expedient lacks practicality,

¹⁸ Orwell 1986, 24.

¹⁹ Osborne 1999, 38.

²⁰ Colani 1920.

²¹ Jacob and Bourret 1920, 1-3.

however, because, though fusulinids abound at a specific stratum and are easy to collect once their level is located, the layer for trilobites is often difficult to pinpoint.²²

By the end of 1921, Mansuy completed his revisions, published his findings²³ and collected his severance pay to return to France. Mansuy, the mentor, left Hanoi and handed the baton to Colani, his pupil, who had just returned to the colony with a doctorate from a French university. As an acknowledgment for her support in the scandal, Mansuy may have forced Jacob's hand in enlisting Colani to "revise" Deprat's work.

Some French geologists claim that Colani rendered a disservice to science by publishing a book criticising Deprat's work on fusulinids. Since Mansuy possessed no specialist knowledge to assist or supervise Colani in this task, Durand-Delga suggests that what she committed to paper were "her own thoughts" and she was "unusually eager to rubbish Deprat's work".²⁴ Colani's critique was a weighty *opus* of 183 pages plus plates.²⁵

We may ask ourselves why Colani was invited to critique Deprat's work on fusulinids, a separate topic from the trilobites at the base of the fraud accusation. Fusulinids were not one of her expert fields, since none of the six papers she published between 1915 and 1919 contain references to Deprat's work,²⁶ an omission due to Deprat and Colani operating in different branches of geology rather than to academic snobbery. It therefore begs the question why, in 1921, Colani was asked to critique Deprat's work on fusulinids, over which neither she, nor Mansuy, possessed any specialist knowledge. There may be some validity, therefore, in the claim that the assignment may have been Mansuy's reward to Colani for her support in the scandal.

Notwithstanding the uncertainty of Deprat's guilt, Colani's scientific objectivity may have been compromised by three factors. Firstly, her devotion to Mansuy, secondly, a wish to contribute to the purge instigated by the GSI and fuelled by Mansuy, and thirdly, a desire for gainful employment as she neared the statutory retirement age of 60.

Deprat's research and documentation on fusulinids had never been in question and therefore Colani's harsh critique may have overstepped the boundaries of critical evaluation, particularly in view of the praise expressed by more suitably qualified experts in subsequent years and under different circumstances. For example, in 1994 the late Maurice Lys, an international authority on fusulinids, concluded that Deprat was a "pioneer" on the topic.²⁷

²² The author is grateful to Prof. Michel Durand-Delga, President of the Geological Society of France 1975-78, for assistance with this technical concept.

²³ Mansuy 1919.

²⁴ Personal communications of 22 February 2010 and 13 March 2010 respectively.

²⁵ Colani 1924.

²⁶ Colani 1915, 1916 and 1919a-d.

²⁷ Lys 1994, 52.

If Colani's review lacked objectivity, years earlier Deprat had also challenged the results of tests conducted by Douvillé on some of the suspect trilobites Lantenois secretly shipped to Paris in 1917, by declaring that Douvillé was "not competent"²⁸ to evaluate the trilobites, because his unique expertise lay in Mesozoic rather than Palaeozoic fossils.²⁹

The scandal – motives and consequences

More than 90 years after the events, the alleged fraud is still shrouded in mystery. Both accused and accuser may have harboured a motive and we may never know, beyond reasonable doubt, whether Deprat was wrongly accused or guilty of a deliberate deception. No single scenario can be unconditionally accepted or rejected, as lingering doubts and unexplained sub-plots remain.

Deprat's frayed relationship with Lantenois did not help, especially in the early stages of the investigation, when a simple reprimand could have been his punishment. Administrative considerations took precedence over scientific probity and the GSI dismissed Deprat in October 1917 not because of his alleged scientific deception but for the insubordination created by his refusal to collect new samples under Lantenois's watchful gaze. His defensive stance set him on a collision course with his hierarchical superior, when flexibility on his part could have averted the professional meltdown that destroyed the brilliant career he seemed destined for.

Mansuy could have introduced the trilobites into Deprat's collection when they were still on good terms, to boost his own contribution to the fossil identification and joint publications. However, McBirney discounts that possibility because at the time that the Yunnan specimen [suspect trilobite] turned up, "Deprat proudly displayed it to friends, and it was he who took the photograph used to illustrate it in Mansuy's paper".³⁰

Professional rivalry may have played a part. For instance, it has been suggested³¹ that, as early as 1916, Mansuy harboured ambitions to replace Deprat, by using language more appropriate to a departmental head than to an employee, when detailing efforts to turn the GSI into "one of the most beautiful jewels"³² in the whole of France. Mansuy, who was 60 when he launched the accusation, may have felt that his young, brilliant colleague stood in the way of a promotion to head of the GSI.

Another scenario involves Deprat planting the spurious fossils to corroborate his theory that Europe and Asia were at one time connected by the Tethys Sea, a body of salt water between "two large continental plates that collided to form the orogenic

²⁸ McBirney 2004, 98.

²⁹ Personal communication of 18 June 2011 from Michel Durand-Delga.

³⁰ McBirney 2004, 103. The Yunnan specimen appeared in Deprat and Mansuy 1912.

³¹ Durand-Delga 1990, 119, 129.

³² Letter of 21 August 1916 from Mansuy to Lacroix, quoted in Durand-Delga 1990, 129.

belt of the Alps and Himalayas”,³³ an interpretation which has since been proved correct. Deprat used this theory as supporting evidence *after* the fraud accusation, with a long and detailed paper presented on his behalf at the French Geological Society on 5 November 1917. It would be Deprat’s “scientific swan song”.³⁴

The question has often been raised whether the scandal could have happened had Lantenois remained in France, instead of returning to Indochina to replace Lochard in February 1917. Such a scenario seems improbable because, unlike the tense relationship between Lochard and Mansuy, Deprat and Lochard worked very well together. Durand-Delga believes that if Lantenois had not returned to Hanoi, “Mansuy would not have dared to launch an attack against Deprat”.³⁵

Suzette Gillet: female pioneer of French geology

If Colani lacks recognition in the annals of French geology, Suzette Gillet (1893–1988) is saluted as one of its pioneers. Precocious and single-minded, at age 32 she successfully defended her doctoral thesis, an academic title Colani achieved at 54. For some geologists, the distinction is important, because it allowed Gillet to garner international recognition at an early age, unlike Colani who stumbled upon geology in the autumn of her life.

Colani and Gillet share more traits than is acknowledged. Colani was born in Strasbourg, the city where Gillet became Professor of Palaeontology. Colani was the only female geologist at the GSI from 1914 to 1928, while Gillet is cherished as the first female professor of geology in France. However, with overtones of geographical determinism, as late as 1935, after establishing herself as an authority on the prehistory of Southeast Asia and six years spent as a correspondent for the École Française d’Extrême-Orient (EFEO), Colani remained an “Assistant at the Geological Survey of Indochina, Retired”.³⁶

Though Colani benefited from being geographically close to the sites of her research, she may have been disadvantaged by the intellectual framework in her working environment, surrounded by other largely self-taught geologists, with the exception of Deprat, whose conventional training and linear career path could not prevent his forced repatriation in 1919. This is in contrast to Gillet, who operated and thrived in an academic environment, including a spell of teaching at the French Institute for Higher Education in Bucharest, Romania, from 1928 to 1931.³⁷

³³ McBirney 2004, 102. The Tethys Sea – named after the mythological consort of Oceanus, the ancient Greek god of the ocean – began forming in the Mesozoic Era (251 to 65.5 million years ago). The Ordovician period extended from 504 to 438 million years ago, when trilobites and other creatures – primitive fish and corals – began to emerge on Earth.

³⁴ Durand-Delga 1990, 138.

³⁵ Personal communication of 22 April 2010.

³⁶ Bulletin de l’EFEO 1935, 407.

³⁷ In 1974, Gillet became the first foreign woman to be awarded the *Prix de l’Académie de Roumanie*.

Colani displayed her own pioneering traits, as when she waged war on the colonial machinery that threatened to discriminate against her on the grounds of age and sex. For example, on approaching the retirement age of 60, she sought parity in treatment with Mansuy and Léon Dussault (1866–1934), respectively seven years older and the same age as her.³⁸ Colani resented the GSI for offering them contract work years into their retirement and fought for the same privilege. Aged 70, Gillet, too, postponed retirement to continue with her chosen profession.

Their energy levels were legendary. Aged 74, in 1940 Colani undertook her last field trip to the Plain of Jars, digging for several months at Song Méng, in the remote south of Xieng Khouang province. Similarly, Gillet pursued research until the age of 80: “When one has been collecting fossils from the age of seven, one still continues [to look] at the age of 80. A scientific vocation dies with death itself”.³⁹

Epilogue

Under the pseudonym Herbert Wild, in 1926 Deprat published *Les chiens aboient* [The dogs bark], a thinly-disguised novel based on the scandal that seven years earlier had brought his career to an ignominious end.

After retiring to their native France, Lantenois and Mansuy remained on good terms.⁴⁰ The friendship has been a source of puzzlement for some contemporary scholars, given the marked differences in background and social standing, an uneasy alliance cemented “by their [common] hatred for Deprat”.⁴¹

If Mansuy did launch the fraud accusation because of his ambition to replace Deprat as head of the GSI, it appears he decided to forego this opportunity, preferring instead to collect his severance pay and return to France at the end of 1921.

In life as in death, Deprat divides opinions. Since the 1990s, French geologists, spearheaded by Michel Durand-Delga, have sought to rehabilitate his memory.⁴² Some recognition was bestowed on Deprat in 1941, six years after his tragic death, when Jacques Fromaget (1886–1956), who took over as Chief of the GSI in 1933, mentioned him as one of the few intrepid researchers to make a significant contribution to our knowledge of Indochina’s geology.⁴³

Other writers could not commit themselves to fully exonerating Deprat and harboured residual doubts. For Roger Osborne, “the uncertainty of Deprat’s guilt” was the fascination but also the belief that from his other actions it cannot be

³⁸ Letter of 26 January 1926 from Colani to Lochard.

³⁹ Gall 2010.

⁴⁰ Colani 1937, 701.

⁴¹ Durand-Delga 1990, 177.

⁴² See also: Durand-Delga 1990 and 1995; Osborne 1999; McBirney 2004, 77–104; McBirney and Janvier 2005; Béhue Gueteville 2005.

⁴³ Fromaget 1941, quoted in Durand-Delga 1990, 182.

determined “whether he was guilty or not” because “humans often act in entirely unpredictable ways”.⁴⁴

As for Colani, she was proud of her work on the fusulinids. In 2009, Philippe Janvier discovered a copy of her 1924 book, containing her letter to Marcellin Boule (1861–1942), head of palaeontology at the Museum of Natural History in Paris. She averred she had been charged with “a particularly difficult and thankless task”, that her efforts were “extremely valuable from a scientific standpoint” and that Deprat lacked “concern for the truth”.⁴⁵

Why Mansuy felt unable, or unwilling, to approach Deprat with his doubts on the source of the trilobites, is a matter for speculation. One possible explanation is that Mansuy, who had provided the initial identification of these fossils, did not wish to implicate himself. If it were ever discovered that he had erroneously identified the fossils as sourced from Asia, the accusation of scientific incompetence could be averted by pinning the blame wholly on Deprat.

Some aspects of the alleged scientific fraud remain unexplained, such as Lantenois’s secret shipments of suspect trilobites to France. Therefore, Deprat deserves the benefit of the doubt because the incriminating report from the experts, which led to his expulsion from the GSI, could have been based on different fossils from those at the root of the alleged fraud. Charged with responsibility for the palaeontological evaluation, Henri Douvillé was asked to adjudicate between two of his former students. As mentioned earlier, Douvillé had trained Mansuy in Palaeozoic fauna, but he also played a role in Deprat’s academic success by identifying fossils the young geologist had collected in Greece as part of his doctoral fieldwork. It may therefore be a matter of speculation whether Douvillé, faced with a complex case of alleged scientific fraud involving two of his former pupils, opted to incriminate Deprat because of divided loyalties.

On 10 June 1991, the French Geological Society revoked its edict of 1919, which had removed Deprat from the institution’s roll of members. Since later workers had found other European species in the same region, a case was made that Deprat should be formally rehabilitated. At a later date, an apology was offered to Alice Deprat-Tissier, Deprat’s surviving daughter.

Conclusion

The scandal episode encapsulates the intellectual world of Indochina. It afforded Colani unusual prominence in the male-dominated world of Indochinese geology, with its complex interplay of colonial policy and the worlds of “pure” science and archaeology.

⁴⁴ Personal communication of 4 May 2010.

⁴⁵ Letter dated 19 March 1925. The author is grateful to Dr. Janvier for a copy of this letter.

Mansuy's reputation has survived relatively unscathed because his knowledge has earned him some respect among palaeontologists in France. After launching the fraud accusation in February 1917, Mansuy had the "wisdom"⁴⁶ to remain in the background, taking cover behind Lantenois. No researcher has yet tried to delve into the background of this difficult, complex and elusive character. Mansuy's working relationship with Colani is interesting for its intensity which, predictably some say, could only have resulted in a show of support from his apprentice.

Colani's relationship with Deprat, cordial at first, was irreparably damaged when she sided with Mansuy. Madeleine, the petite, frail daughter of a Protestant theologian from Alsace, dressed in her customary long black coat, fought to carve a niche for herself in the largely male-dominated world of Indochinese geology at the turn of the twentieth century.

Her role in the aftermath of the scandal is still a matter of debate. She was not afforded Mansuy's level of protection for two important reasons. Firstly, she was an assistant at the GSI and therefore her knowledge was deemed to derive almost entirely from Mansuy. Secondly, she dared to write a punitive critique on Deprat's fusulinids analysis, a topic she was scarcely qualified to handle.

Colani may have been "not overwhelmed with gratitude towards her benefactor, the geologist Deprat".⁴⁷ In his 1926 fictionalised account, Deprat compared Colani to *La cousine Bette*, Honoré de Balzac's unmarried⁴⁸ and vengeful woman who plots to destroy her extended family. The fact remains, however, that Deprat was dismissed from the GSI seven years before Colani's 1924 critique, for refusing to collect new samples that would contest Mansuy's accusation.

Setting sail from Indochina on 2 February 1919 aboard the "Sphinx", a crest-fallen Deprat could not have imagined that this sad chapter in his life would trigger interest in generations to come, with the key to its secret entombed with the protagonists, long dead. Returning to France to an uncertain future, his career shattered by the scandal, in the month-long voyage the "Sphinx" became his sanctuary and has not given up whatever secrets Deprat may have committed to its cabin walls.

On 7 March 1935, Deprat died in a mountaineering accident and was buried at Ansó, in the Spanish Pyrénées, among his beloved mountains. Lantenois and Mansuy were living in retirement in France at the time and we may never know their reaction to the premature death of the brilliant young geologist whose promising career they had helped to bring to an end 18 years earlier.

Jacques Deprat—victim or architect of an elaborate scientific deception: the enigma remains.

⁴⁶ Personal communication of 6 January 2011 from Michel Durand-Delga.

⁴⁷ Coudart 1998, 68.

⁴⁸ Colani and her younger sister, Eléonore, her companion on all her field trips, never married.



Figure 1. Madeleine Colani, in a rare image

SOURCE: Fonds Cambodge, réf. CAM 20001, Courtesy of EFEO photography – archives, Paris

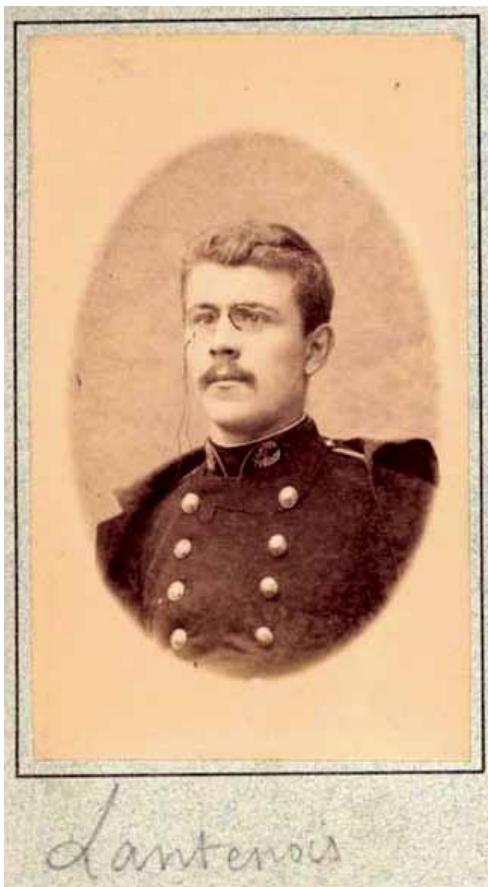


Figure 2. Honoré Lantenois, aged 19

SOURCE: <http://annales.org/archives/x/lantenois.html>

©: École nationale supérieure des mines de Paris



Figure 3. Jacques Deprat as a young man

SOURCE: after Osborne 1999



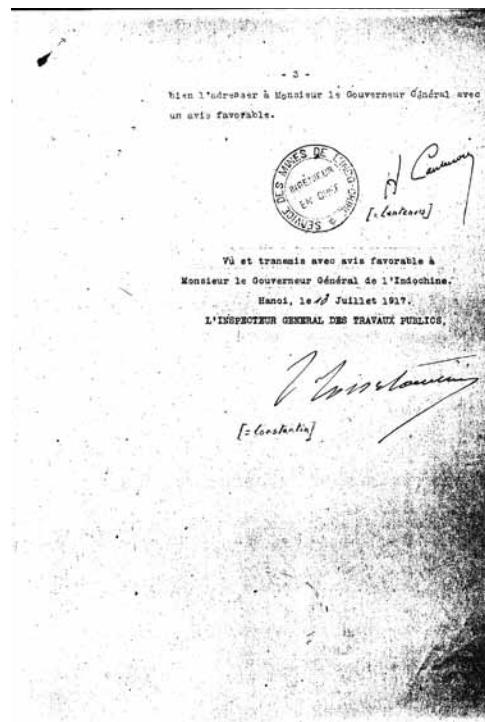
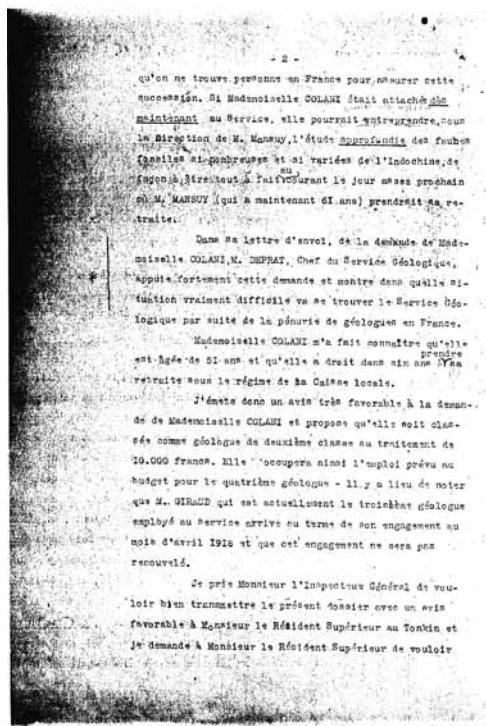
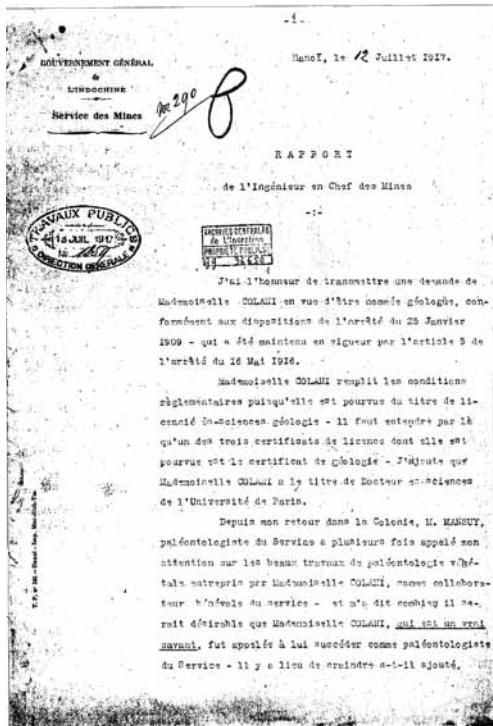
Figure 4. A rare image of Henri Mansuy

SOURCE: after Osborne 1999

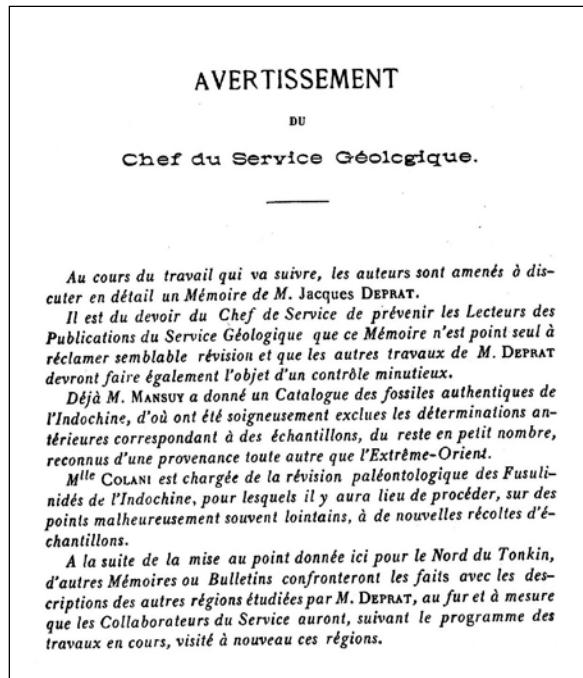
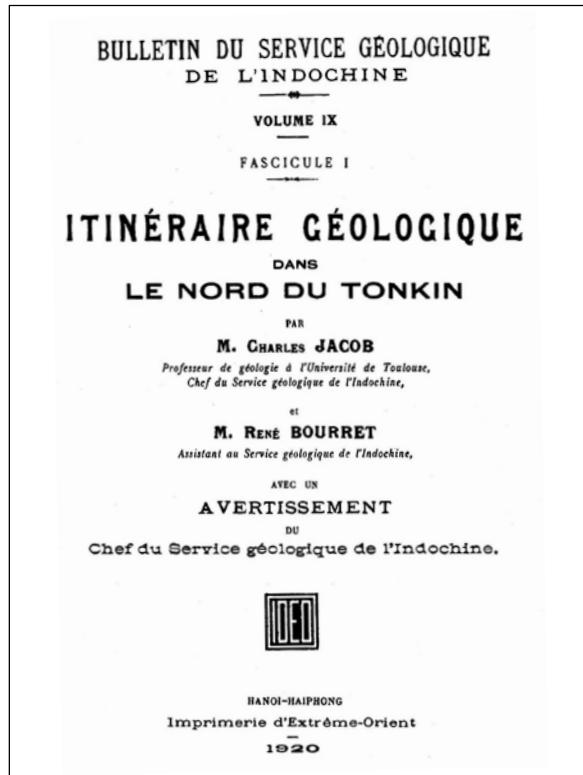


Figure 5. *Dionide formosa* Barrande, one of the suspect trilobites

SOURCE: Deprat and Mansuy 1912, pl. VI 2a



Figures 6a, 6b and 6c. On 6 September 1917, on the strength of a glowing three-page report from Lantenois to Constantin, dated 12 July 1917, Colani became a member of staff at the GSI



Figures 7a and 7b. Frontispiece and announcement, informing readers that the revision of Deprat's publications had been entrusted to Mansuy and Colani

SOURCE: Jacob & Bourret 1920

ACKNOWLEDGEMENTS

The author would like to thank Dr. Elizabeth Moore, Prof. Alex Mc Birney and Prof. Michel Durand-Delga for commenting on early drafts of this article. Thanks also go to Dr. Ian Glover, Dr. Anick Coudart, Dr. Philippe Janvier, Prof. Tran Van Tri, Prof. Vu Khuc, Mr. Jean Ollivier, the Rev. Vinh Quang Aú, Dr. Vittorio Roveda and Mr. Roger Osborne for providing useful background material. The author is solely responsible for any errors of interpretation.

REFERENCES

BEFEO: Bulletin de l'École Française d'Extrême-Orient

BSGI: Bulletin du Service Géologique de l'Indochine

MSGI: Mémoire du Service Géologique de l'Indochine

Anderson, Benedict. 1991. *Imagined Communities – Reflections on the Origin and Spread of Nationalism*. London and New York: Verso.

Béhue Gueteville, Jean. 2005. *Les questions posées par la fraude scientifique: le cas Deprat*. École des Hautes Études en Sciences Sociales. Doctoral thesis. Paris: DEA Histoire et Civilisation.

Bulletin de l'École Française d'Extrême-Orient. 1935. Vol. 35/35: 407.

Clémentin-Ojha, Catherine and Pierre-Yves Manguin. 2007. *A Century in Asia: The History of the École Française d'Extrême-Orient 1898-2006* (Helen Reid tr.). Singapore: Editions Didier Millet.

Colani, Madeleine. 1914. *Recherches sur les premières phases du développement de quelques Combrétacées et Barringtoniées*. Dissertation. Paris: MARETHEUX.

_____. 1915. Sur un araucarioxylon du Rhétien de Hongay. *BSGI*, III/1.

_____. 1916. Essai sur les flores tertiaires du Tonkin. *BSGI*, VI/1.

_____. 1919a. Sur quelques végétaux paléozoïques. *BSGI*, VI/1.

_____. 1919b. Sur quelques araucarioxylon indochinois. *BSGI*, VI/2.

_____. 1919c. Sur un dipteroxylon annamense: nov. sp. du Tertiaire supposé de l'Annam. *BSGI*, VI/3.

_____. 1919d. Sur quelques fossiles ouralo-permiens de Hongay. *BSGI*, VI/5.

_____. 1920. Étude sur les flores tertiaires de quelques gisements de lignite de l'Indochine et du Yunnan. Doctoral thesis. *BSGI*, VIII/1.

_____. 1924. Nouvelle contribution à l'étude des Fusulinidés de l'Extrême-Orient. *MSGI*, XI/1.

_____. 1935. *Mégalithes du Haut-Laos (Hua Pan, Tran Ninh)*. EFEO, XXXV. Paris: Van Oest.

_____. 1937. Henri Mansuy, Nécrologie. *BEFEO*, XXXVII/1: 695-704.

Coudart, Anick. 1998. Archaeology of French women and French women in archaeology. In *Excavating women*, ed. M. Díaz-Andreu and M.L. Stig Sørensen, 61-85, London: Routledge.

Deprat, Jacques. See Wild, Herbert.

Deprat, Jacques and Henri Mansuy. 1912. Étude géologique du Yun-nan Oriental. *MSGI*, I/II.

Durand-Delga, Michel. 1990. L’Affaire Deprat. *Extrait des Travaux du Comité Français d’Histoire de la Géologie*, 3/4: 117-212.

_____. 1995. L’Affaire Deprat, Plaidoyer pour la réhabilitation d’un géologue proscrit, *Mémoires de la Société Géologique de France*, 168: 87-95.

Fromaget, Jacques. 1941. L’Indochine française, sa structure géologique, ses roches, ses mines, et leurs relations possibles avec la tectonique. *BSGI*, 26/2.

Gall, Jean-Claude. 2010. *Suzette Gillet 1893-1988*. Strasbourg: Library of the Institute of Geology.

Jacob, Charles and René Bourret. 1920. Itinéraire Géologique dans le Nord du Tonkin. *BSGI*, IX/1: 1-3.

Lys, Maurice. 1994. Les Fusulinida d’Asie Orientale décrits par J. Deprat - Révision et mise en valeur de la collection-type, *Cahiers de Micropaléontologie*, N.S., 9/1. Paris: CNRS Editions 52.

Mansuy, Henri. 1919. Catalogue général des fossiles recueillis en Indochine et au Yunnan au cours des années 1903-1918. *BSGI*, VI/VI.

McBirney, Alex. 2004. Peripatetic fossils II - The Deprat affair. Chap. IV in *Faulty Geology: Frauds, Hoaxes and Delusions*. Eugene, Oregon (USA): Bostok Press.

_____. and Philippe Janvier, trs. 2005. *The Trilobite Affair*. Eugene, Oregon (USA): Bostok Press.

Orwell, George (Eric Blair). 1986. *Burmese Days*. London: Penguin Books.

Osborne, Roger. 1999. *The Deprat Affair: Ambition, Revenge and Deceit in French Indo-China*. London: Jonathan Cape.

Wild, Herbert [Jacques Deprat]. 1926. *Les Chiens aboient*. Paris: Albin Michel.

Online sources

<http://www.annales.org/archives/x/lantenois> (accessed February 2011).