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Vaccinating Algeria:
Colonial Medicine and Social Pathology

By

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THESIS

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In 1858, Dr. Roche began an abortive vaccination campaign in Mili-
ana:

A considerable number of Arabs, four hundred at least, all armed with guns and swords, rushed on my tent to assassinate me at the hour set for vaccinating the children. Luckily for me, I was not there. I was a few hundred steps away; an Arab came to warn me, and I was able to save myself sometimes by hiding, sometimes by jumping over rocks, always running as fast as I could over the mountains during the next four hours.¹

Colonial doctors presented a highly dramatic image of their work in Algeria; they portrayed a professional project fraught with danger and frustration, yet also capable of producing enormous rewards. Smallpox vaccination, like many other medical tasks, found a new role in the colonial setting. As often as doctors bemoaned the open, sustained, and at times even violent resistance to this procedure, they insisted on its tremendous potential to improve Algerian society. This simple medical technique would not only eliminate a serious disease, but would also change the indigenous culture. Vaccination promised to further the goals of colonial power by impressing native Algerians with French technology and benevolence; by making natives patients, doctors would draw them into French society.

During the first few decades after the French conquest, colonial doctors filled their medical journals and official reports with accounts

¹ Yvonne Turin, Affrontements culturels dans l'Algérie coloniale, Paris: Maspéro, 1971, p. 142.

of a valiant struggle. These doctors described their "civilizing" mission with all the hyperbole of an expanding empire; in the course of routine medical practice, they hoped to change their native patients in some far-reaching and fundamental way. This cultural transformation, lavishly praised but rarely defined, eventually gave way to more commonplace goals. By 1900, doctors began to limit themselves to diagnosis, cure, and prophylaxis of disease. As the scale of their goals diminished, so, they insisted, did the natives' resistance to French medicine.

This dramatic change in medical discourse accompanied a shift in the scope and direction of doctors' perceptions. Early colonial doctors examined natives globally. These physicians described broad social patterns; by defining a universal and permanent complex of traits, they would come to know their subject fully in preparation for future transformations. Their more modern followers, on the other hand, examined natives with a sharper, narrower focus, more fully confined to patients' bodies. Using this penetrating form of scrutiny, doctors isolated and measured natives' collective biological flaws. During both periods, doctors observed natives mainly in order to define and condemn their fundamental inferiority, and thus to justify the division between colonists and colonized. However, the second group of doctors, whose analysis seems more precise and objective, condoned a more violent social program. By locating the source of social pathology in biology rather than culture, doctors converted the political divisions of colonialism into a natural hierarchy.

The word "native" itself had several stages and levels of meaning.

Initially a strictly historical category, "native" simply distinguished those born in Algeria from their foreign conquerers. Once the latter produced a new generation of colonists native to Algeria, "native" denoted both historical precedence in a chronology of possession, and the subordinate political position of the dispossessed. This historical/political category included Arabs, Berbers, and Jews, a group diverse in language, culture, and religion. Although some doctors respected this diversity and took care to define the characteristics of each group, most considered the natives a single medical entity. The more modern physicians sought to define the natives' uniform biological essence; these doctors transformed "native" from an historical category to a natural one.

Throughout the colonial period, there was a strange discrepancy between doctors' words and deeds. Doctors wrote voluminously about their vaccination campaigns, but actually succeeded in vaccinating a surprisingly small number of people. This situation may simply represent one example of a widespread state of "under-administration"; perhaps doctors, like other colonial officials, shirked their work in native villages whenever possible.² This lack of success may also be a crude measure of native patients' resistance. While early doctors attributed their failure to the natives' rejection of vaccination, this explanation had become unacceptable by the turn of the century; nevertheless, doctors probably continued to vaccinate only a small minority of Algerian natives even as late as 1930. Whether or not doctors' changing observa-

² Jacques Berque, French North Africa: The Maghrib Between Two World Wars, trans, Jean Stewart, London: Faber and Faber, 1967, p. 129.

tions accurately reflected their patients' attitudes, the portrayal itself followed an internal logic of possession. The later doctors, who considered natives their "natural" subjects, could not allow any opposition.

Within the French medical community, colonial doctors were marginal figures, usually trained in Europe, yet confronted with a unique set of problems. Even those who treated an exclusively European clientele concentrated on symptoms specific to these new surroundings. Algerian medical journals magnified this specificity. Because most doctors preferred to display their work in other, more widely read publications, Algerian journals emphasized uniquely local concerns. However, this internal discourse also included a distorted reflection of mainstream French medicine. The conditions that distanced colonial doctors from their colleagues rendered them more self-conscious. As they struggled to maintain the physician's exalted posture in a foreign environment, many of their unspoken assumptions emerged more clearly; their historical position, political impact, and even their therapeutic methods became compelling topics for discussion. In a colony across the Mediterranean, among people with unsettlingly foreign practices and ideas, doctors attempted to extend France, or even to recreate it. By examining doctors' accounts of their work in Algeria, I intend to explore medicine's role in the cultural project of colonization.

A few years after the conquest, two military doctors began to advocate medical services for natives. Pouzin argued in the mid-1830s that medical services should precede every advance of the army, "in order not only to maintain the native populations by the force of arms, but to

attach them to us with the benefits of civilization."³ These doctors saw themselves as less forceful agents of conquest, parallel to, but distinct from their non-medical counterparts. While soldiers subdued the natives with violence, expropriation of land, and enforced isolation in cantons, doctors spoke of using their techniques to "attract" and "attach" natives to the French. Conquest thus became a cultural enterprise.

In Algeria, routine medical practice had new implications. Doctors who worked with native patients found themselves positioned as intermediaries between the dominant society and the newly colonized masses. In order to treat these new patients, doctors had to confront foreign perceptions of illness. Their specific response to these differences varied according to time, place, and individual, but always seemed to require an initial evaluation of prospective patients, a group portrait which might help forecast doctors' difficulties by delineating native character. Thus early colonial doctors filled medical journals with presentations of natives' customs, habits, and traits. "Ethnography" became a medical pursuit, a standard section in the Journal de Médecine et de Pharmacie de l'Algérie. Doctors soon developed an accepted lexicon for cultural description, which seemed less an attempt to portray reality than a means of reinforcing a unified response to difference.

To express the challenge of colonial medicine, doctors employed one guiding metaphor: penetration. Used to parallel military advance, this image sometimes simply recalled the French soldiers who "penetrate... the most barbaric and remote Gourbi."⁴ More often, however, penetration

³ Yvonne Turin, op. cit., p. 348.

represented a gentler, more delicate task, the first step in a process of cultural transformation. Emile-Louis Bertherand, a prominent nineteenth century colonial doctor, summarized this process by emphasizing medicine's special position among colonial institutions: "Who better than the Doctor can easily penetrate the mysterious existence of the Arab, sit in his home, spread new ideas, awaken sympathetic feelings?"⁵ Here, penetration involved both discovery of the natives' "mysteries" and implantation of more desirable French ideas. Doctors' intimate contact with their patients made them the ideal candidates for this task.

Visual discovery preceded the penetration of French culture. Before attempting to change natives, doctors meticulously inspected the Algerian landscape, dwellings, and inhabitants. Their visual inventories ranged far beyond the traditional limits of medical study. In a book published in 1909, Joseph Crespin praised these doctors' broad interests:

While riding over the barren dunes of the coast, the narrator does not neglect to interest us in the flora and geology of the ground he covers... Such interests indicate that these doctors had minds open to all aspects of intellectual activity, that, in a word, they had done "their humanities."⁶

⁴ Cabrol, De l'Algérie sous le rapport de l'hygiène et de colonisation, Strasbourg: G. Silverman, 1863, p. 20.

⁵ Emile-Louis Bertherand, Médecine et hygiène des Arabes, Paris: G. Ballière, 1855, p. 552.

⁶ Joseph C. Crespin, Les Origines de la médecine française en Algérie, Paris: A. Poinat, 1909, p. 14.

Although early doctors were more likely to write about plants, insects, and springs, Crespin's contemporaries described native villages with the same painstaking attention to detail:

The tent is composed of bands of wool and camel's hair, woven by women from a uniform pattern. These bands are eight meters long by seventy-five centimeters wide; they generally have two colors, brown and white, running their entire length. Brown usually dominates and gives the tent the somber quality which one notices from a distance.⁷

These surveys included people as well; doctors often combined assessments of native character with anatomical observations. "The Arab woman," wrote Cabrol in 1863, "is in a state of abasement which does not do honor to humanity; for her, there is neither physical well-being, nor recompense, nor moral guidance."⁸ Having described women's unfortunate position in native society, Cabrol shifted to their anatomy, offering a thorough evaluation from the skeleton ("whose bones are delicate and well-formed") to the face ("expressive in all its features"). His final comments on women's bodies suggest a specific use for this sort of physical inventory:

The abdomen and the breast are the defective parts of the native woman; but even in their impoverished state, art discovers within the ruins the very elements necessary for their

⁷ Henri Soulié, "Hygiène des Indigènes Algériens," in Hygiène et assistance en Algérie, ed. Ed. Bruch, Algiers: Giralt, 1900, p. 53.

⁸ Cabrol, op. cit., pp. 22-23.

restoration. The physical causes for the decline of these forgotten creatures are the absence of any rule of hygiene, stress on the organs due to work overtaxing their natural strength, and finally the diseases that result from these factors.⁹

Visual discovery served to identify both the flaws which required medical intervention and the signs which might lead doctors to a cure. To restore women's defective abdomens and breasts, doctors must alter native hygiene and economy. Cabrol saw disease not as the primary cause of physical deformity, but rather as a result of underlying disorders in native society; disease was merely the force which marked bodies with visible signs of a flawed culture.

Once they had penetrated indigenous society, doctors intended to change it. A successful medical encounter would "push our hygiene and our medicine into the heart of native populations."¹⁰ As doctors taught natives to use new remedies and follow new hygienic precepts, they would also "strengthen the bond with our new subjects" and further "the development of the race";¹¹ doctors were "missionaries of civilization."¹² Compared to their reports on scenery, doctors' descriptions of their cultural project seem vague; their goals were at once grand and

⁹ Cabrol, op. cit., pp. 24-25.

¹⁰ "Les médecins de colonisation en Algérie," Gazette Médicale de l'Algérie, vol. 19 (1874), p. 129.

¹¹ Ministère de la Guerre, Direction du Service de Santé, L'Oeuvre du Service de Santé Militaire en Algérie, 1830-1930, Paris: Charles-Lavauzelle, 1931, p. 28.

¹² E. Bertherand, Médecine et hygiène des Arabes, op. cit., p. 554.

overly general, ambitious and imprecise. Medical journals contained many articles encouraging doctors to spread French values, thought, and civilization, but there were few success stories, and even fewer specific recommendations for the methods and content of this cultural transformation. This project was so huge, so all-encompassing, that it remained impossible to achieve.

Doctors wrote extensively on the obstacles which made their work so difficult; these were the same barriers which made penetration a meaningful metaphor for medical practice. Actors in a noble struggle toward an unreachable goal, doctors saw problems everywhere. It was difficult for them to enter a native household. According to Henri Soulié, even native healers "seldom make their way to their clients' residences because of the jealous, uncompromising Moslem customs concerning the protection of the family home."¹³ Soulié assumed that traditional healers shared not only doctors' need to enter their patients' world, but also their exclusion. The healers' failure both explained and justified doctors' difficulties. Soulié located the barrier at the level of "Moslem customs," an aspect of native life presumably so old, so firmly established, that it must be difficult even to reach. Even as he carefully defined his patients' resistance, the natives continued to elude him:

To understand, to explain, to penetrate, these were the accepted methods for taking possession of positive realities... The rational ardour of the French (colonists) was

¹³ Henri Soulié, "L'assistance publique chez les Indigènes," in Hygiène des Indigènes Algériens, op. cit., p. 111.

matched by the Maghribi enthusiasm for casuistry.¹⁴

In the face of the most careful analysis, the natives' "closed life" resisted change.

Many doctors considered Islam the most important obstacle to their influence. Foubert, who wrote optimistically about the natives' "great confidence" in French doctors, believed that only religion and Arab doctors prevented natives from fully accepting French medicine.

Faith makes (the native) see the hand of God in everything. Without reasoning about his belief, he puts himself at the mercy of anyone who knows how to exploit this lofty sentiment. Thus the interminable and successive pilgrimages to this or that venerated marabout, the little bags containing holy words or powerful relics, the drinks in which one dissolves, in order to assimilate them better, verses from the Koran... All these practices of faith generally precede the call for a French doctor.¹⁵

Another doctor described starker reticence:

It is not until the Arab is overcome by pain, struck down by illness, that he agrees to make the journey to see a doctor. If, during the trip from his tent to the office, he feels a bit better, he refrains from presenting himself for examination; on the contrary, he is ashamed to have been weak enough

¹⁴ Berque, French North Africa, op. cit., p. 68.

¹⁵ Foubert, Infirmerie indigène de Marnia, Algiers: Adolphe Jourdan, 1904, pp. 5-6.

to dream of being examined, and he turns back, glad that he did not need the help of a Christian.¹⁶

For both these doctors, the Moslem patient was a prisoner of his religion. As much as he might have wanted to seek their care, his religion forced him to endure a worsening illness without help from French medicine. Other doctors described natives who had no desire to ease their suffering, who simply endured their maladies without complaint. "Resignation," "apathy," "negligence," and "fatalism" appeared so often in medical journals that they became part of a standard vocabulary of description. Applied to the entire indigenous population, these words denoted fixed characteristics, permanent attributes at the very basis of native culture. Like the Arab's "closed life," these qualities presented doctors with a firm barrier to penetration.

In doctors' descriptions of their vaccination campaigns, the general themes of penetration and resistance emerge in sharper detail. Vaccination differed from other medical techniques in several ways. Distinct by virtue of its novelty, its ability to prevent (rather than cure) a disease, and its widespread application, vaccination was a singularly political measure, linked throughout its history to governmental regulation and institutional control. Vaccination involved the management of populations at risk rather than the treatment of sick individuals; it dispensed with the intimacy of examinations, diagnoses, and prolonged cures, and relied instead on the widespread repetition of a single operation. The operation itself - which required doctors to break the skin and inject a foreign fluid - was at once more invasive

¹⁶ Dr. de Rigny, quoted by Turin, op. cit., pp. 143-144.

and anonymous than most traditional cures, and thus uniquely appropriate for the colonial setting.

Vaccination began in Algeria as early as 1832, only two years after the beginning of the French conquest, and thirty years after Edward Jenner's report was first published in France. At this time, Jennerian cowpox vaccination was a new and experimental technique, controversial wherever it was practiced. The vaccine prevented smallpox by infecting people with cowpox, a milder viral infection similar enough to smallpox to confer immunity to this disease. To transfer the virus from an infected animal to humans, doctors dipped a needle or lancet in fluid collected from a cow's pustules, and then used this instrument to pierce the skin of a patient's arm. Within a few days, most patients would become feverish and develop pustules at the sites of inoculation. By the time the symptoms passed, these people would be immune to smallpox.

From its beginning, Jennerian vaccination presented many problems. Vaccine sent from England to France often had lost its effectiveness by the time it arrived; preserving vaccine was even more difficult in Algeria, where doctors could not keep it cold enough to prevent its deterioration. Doctors in France and Algeria relied on preserved vaccine because they could not easily find cows infected with cowpox. To stretch their limited supply, they infected a few people (vaccinifères) with fluid taken from the animal, waited for pustules to develop, and then used fluid from these lesions to vaccinate others. Unlike the transfer of cowpox from cows to humans, vaccination from arm to arm carried the risk of transmitting serious diseases from one person to

¹⁶ Turin, op. cit., p. 318.

another. In the early 1800s, there were a few cases of post-vaccination encephalitis (inflammation of the brain). This complication was poorly publicized; but there were also more widespread and better-known cases in which erysipelas, a skin infection of the vaccinifère, provoked serious abscesses or septicemias in those vaccinated. In 1863, doctors inoculated forty young girls at a religious boarding school with cowpox vaccine taken from a retired soldier; all forty girls contracted syphilis. The Congress of Lyon then condemned vaccination from arm to arm.¹⁷

However, French doctors soon formed vaccination committees to spread the technique. They performed the first vaccinations in children and old people's homes, prisons, schools, and public institutions for the blind and deaf-mute. The committees soon began to concentrate their efforts on peasants as well as urban indigents; but in rural France, as in Algeria, the peasants considered vaccination a "diabolic invention... a threat to life itself."¹⁸ By 1820, doctors no longer spoke of eliminating smallpox in France. Although French doctors did not face the organized, elite opposition which plagued their English counterparts, peasants resisted doctors passively.¹⁹

In 1847, Dr. Agnely left the Departmental Direction of Vaccination in Dijon and came to Algiers to organize a free vaccination service, which he hoped would "vanquish the incurable apathy of a people with

¹⁷ Jean-Noel Biraben, "La diffusion de la vaccination en France au XIXe siècle," Annales de Bretagne, vol. 86 (1979), pp. 265-276.

¹⁸ Eugen Weber, Peasants into Frenchmen, Stanford: Stanford University Press, 1976, p. 153.

¹⁹ Biraben, op. cit.

regard to its health."²⁰ An 1848 decree instituted Algerian vaccination committees and authorized fifty centimes to doctors for each successful vaccination. As Dr. Duponchelle described them, vaccination campaigns in this period were quite unsuccessful:

From the outset, vaccination encountered insurmountable obstacles; the Arabs' submission was immediate and their inner life impenetrable for the doctor... Despite the terrible effects of smallpox, despite the deformities that it leaves behind, despite the already ancient practice of inoculating children, from 1845 to 1848 we could not practice more than twelve vaccinations.²¹

Doctors agreed on the importance of penetrating native communities, but argued for decades about the best way to proceed. Agnely advocated force; Bertherand insisted that natives' unsympathetic ideas would change "with time and the numerous examples which attest to the superiority of (our) practices."²²

Duponchelle and Bertherand insisted (as did many others) that in order to institute vaccination, they must supplant native methods of combatting smallpox. Algerians had immunized themselves against smallpox for centuries. Instead of using the cowpox vaccine, they used the smallpox virus itself; by inoculating their children with fluid taken from a person suffering with the disease, they usually produced a mild case of smallpox which would protect children from future

²⁰ Turin, op. cit., p. 337.

²¹ Ibid., pp. 317-318.

²² Ibid., p. 340.

epidemics. The French called this procedure variolization. One eighteenth century traveller wrote that variolization "is in no great repute in those parts of Barbary or the Levant where I have been";²³ however, an ambassador to England claimed it was "generally practised" both in cities and rural areas.²⁴ Whatever the extent of this practice, it became extremely important for those who wanted to replace it with vaccination.

Variolization was not a new phenomenon for French doctors. It had been practiced for centuries by peasants in Greece, Turkey, and China as well as North Africa; a few sources claim that it was also practiced in several parts of France.²⁵ In the early eighteenth century, a few French doctors and intellectuals began to advocate this form of inoculation. Voltaire launched an unsuccessful campaign for this technique after an epidemic in France in which he had lost a close friend; he accused the French of cowardice for failing to inoculate their children.²⁶ Dissent within the medical profession continued for decades, but eventually inoculation was forbidden by the Parliament.²⁷ Thus nineteenth century doctors saw variolization as a peasant practice unsanctioned by medical authorities. Although Jennerian vaccination also began among peasants,

²³ Crookshank, History and Pathology of Vaccination, Philadelphia: P. Blakiston, Son, and Co., 1889, vol. 1, p. 11.

²⁴ Ibid., p. 10. See also: Léonce Lamarque, Recherches Historiques sur la Médecine dans la Régence d'Alger, Algiers: Imprimerie Baconnier, 1951, p. 104.

²⁵ Crookshank, op. cit., p. 15; and Jean-Pierre Peter, "Les médecins français face au problème de l'inoculation variolique et de sa diffusion (1750-1790)," Annales de Bretagne, vol. 86 (1979), pp. 251-264.

²⁶ Voltaire, "On Inoculation," in Voltaire's England, ed. Desmond Flower, London: Folio Society, 1950.

²⁷ Peter, op. cit.

originally known only to English dairymaids, it had been successfully appropriated and transformed by the medical profession; in contrast to variolization, vaccination appeared to be a modern and scientific technique.

Bertherand wrote in 1855 that natives showed "extreme reluctance to exchange their method of inoculation" despite all the efforts "to convince Moslems of the superiority of the French method."²⁸ To explain the failure of their vaccination campaigns, doctors reported many rumors circulating among the natives. Some rumors involved purely physical threats: "Their marabouts had persuaded them that these vaccinations could be deadly, and that the least damage produced would be loss of vision."²⁹ Most rumors, however, involved political threats which operated through the physical procedure. Several doctors abruptly stopped campaigns when natives began to resist vaccination as "a mark made on children in order to recover them later and make them soldiers in France."³⁰ Stories about such marks - which would enable doctors to make children French soldiers, workers, or students - appeared throughout Algeria. Natives feared that vaccination would make them French; by transforming future generations, vaccination would carry French domination far beyond the current occupation of their country. These rumors disturbed doctors not only because they disrupted vaccination campaigns, but also because they implied rejection of French assis-

²⁸ E. Bertherand, Médecine et hygiène des Arabes, op. cit., p. 441.

²⁹ Destival, "De la vaccination obligatoire et gratuite chez les indigènes en Algérie," Gazette Médicale de l'Algérie, vol. 26 (1881), p. 41.

³⁰ Turin, op. cit., p. 360.

tance. If natives so intensely feared assimilation, they clearly did not seek the "benefits of civilization."

To rationalize natives' resistance, doctors favored explanations which asserted natives' inability to comply with medical demands; such theories defused natives' implied disdain for French practices. Dr. Mouillac wrote in 1855:

I have encountered fanatics who do not deny the preservative virtue of vaccination, but who do not want it for themselves, their wives, or their children even in the worst epidemic; they say that smallpox was a disease sent by God, and that avoiding His protection by using the vaccine is to sin against Him.³¹

Others insisted that natives rejected vaccination to avoid contamination with Christian blood.³² One doctor asked himself if natives' resistance to vaccination could be surprising "when one sees in France that the peasants prefer to run the risk of smallpox rather than submit to such an innocent operation."³³ In France, too, doctors blamed peasants' resistance on religion and primitive superstitions. Jacques Léonard, a twentieth century French historian, observed that public health journals contained articles on Arabs' poor hygiene next to similar articles denouncing French workers and peasants. Such authors often called for the "regeneration of the French race."³⁴ These appeals encompassed more

³¹ Ibid., p. 358.

³² E. Bertherand, Médecine et hygiène des Arabes, op. cit., p. 441.

³³ Turin, op. cit., p. 309.

³⁴ Jacques Léonard, "Médecine et colonisation en Algérie au XIXe

than new medical practices:

The same population which the teacher finds indifferent to the benefits of instruction, ignorance makes rebellious to the application of new methods; the industrialist finds them resistant to the use of perfected machines, the doctor to the observation of the rules of hygiene.³⁵

These doctors contrasted their commitment to a rapidly advancing technology with the peasants' blind adherence to tradition. This simple opposition between old and new, ancient and modern, obscured social and political divisions, and thus shifted doctors' struggle to a less threatening domain. The natives' ignorance was an acceptable, and perhaps even necessary obstacle.

Doctors seldom mentioned political resistance among the obstacles to modern medicine. Instead, they directed their attention to ostensibly ahistorical categories, fixed aspects of native life which did not change in response to political events. As often as they bemoaned natives' "fanaticism," doctors never seemed to consider this problem a sign of conscious opposition to colonial rule. Natives did not choose to remain different; on the contrary, their foreign religion and flawed character entrapped them, impeding their advance toward French culture. One writer warned that the natives' assimilation "depends on precisely those sentiments of unity and nationality which, according to the lessons of History, the Arabs are unable to acquire."³⁶

siècle," Annales de Bretagne, vol. 84 (1977), pp. 481-494.

³⁵ Jacques Léonard, La France médicale au XIXe siècle, Paris: Gallimard, 1978, p. 57.

³⁶ Camille Brunel, La Question indigène en Algérie: L'Affaire

If the natives revolted, "they would soon fall under another foreign rule which might well be less equitable and less paternal than ours."³⁷ The same fixed traits which blocked the penetration of French culture explained natives' inability to oppose domination. Incapable of feeling nationalism, natives could respond to their historical situation neither by approaching the French nor by resisting them; doctors could deny both possibilities by placing natives outside history.

Colonists often contrasted natives' immobility or decline with the continuous advance of European civilization. One writer opposed the "ossified" Arab society to Europeans' "divisions, social struggles, and constant alterations in ideas and even in customs."³⁸ By condemning natives' uniform stability, doctors brought into focus a crucial ideological assumption: the temporal hierarchy of progress. Doctors regarded their own past with a mixture of respect and condescension; even as they glowingly described previous achievements, they anticipated the future discoveries which would supersede all that had come earlier. Natives occupied an uncertain position in this continuous, ever-advancing flow of history. Whether they were inherently static or merely locked into an era several centuries behind, natives defied the universal law of progress. "The Semitic race... likes this sort of fatalistic resignation, image of a certain worldly bliss, which permits it to accept the present without its sorrows and struggles, to disdain the future and live only in the past."³⁹ The natives' position demanded

de Margueritte devant la cour d'assises de l'Hérault, Paris: Augustin Challamel, 1906, pp. 62-63.

³⁷ Ernest Mercier, L'Algérie en 1880, Paris: Challamel Aîné, 1880, p. 159.

³⁸ Brunel, op. cit., p. 45.

³⁹ Ibid.

European intervention; colonization promised liberation from their amoral and unproductive condition.

Progress depended on scholarly pursuits which, doctors insisted, had no equivalent in indigenous culture. Arab society "rests incapable of intellectual cultivation; one should not consider this a result of degeneration, but rather a constitutional vice."⁴⁰ Doctors thus had the opportunity to bring the benefits of high culture which Algeria lacked. Merely by practicing medicine, they introduced Western science to the colony. They intended to replace traditional healers, who not only lacked training in anatomy and physiology, but, even worse, "possess no philosophical idea on medicine."⁴¹ Doctors distinguished their medicine from native practices according to its philosophical basis. Their years spent at universities linked them firmly to an intellectual tradition, a specific way of thinking and approaching problems which was ultimately more important to them than the success of their techniques. Faced with Algerian popular medicine, doctors self-consciously defended their philosophy more often than their remedies. "Sterile empirical recipes, barbaric customs, and old practices passed on with fanatical credulity, will progressively give way to logical and effective methods, to true therapeutics."⁴² Doctors rejected remedies based on belief, tradition, or simple observation, and planned to substitute techniques developed through scientific scrutiny.

⁴⁰ A. Pomel, Des Races indigènes de l'Algérie et du rôle que leur réservent leurs aptitudes, Oran: Veuve Dagorn, 1871, p. 6.

⁴¹ Soulié, "L'Assistance publique chez les Indigènes," op. cit., p. 112.

⁴² Robert Lejeune, La Médecine de colonisation et l'assistance médicale indigène en Algérie, Algiers: Charry, 1941, p. 41.

Doctors' attempt to supplant traditional medicine never fully succeeded; indeed, they often borrowed its prestige in their effort to win native support. During one of his many vaccination campaigns, Destival enhanced his authority by befriending three local religious leaders: "Wherever I went, I took care to have at my side one of these three priests, showing them the greatest respect even though I considered them vile imposters and frightful scoundrels."⁴³ This strident disclaimer failed to conceal Destival's seduction by native power. He admired these leaders; he basked in their flattery, and hoped to achieve for himself some of their exotic status:

I had the honor of knowing intimately one of the most respected people of this religious sect... They addressed prayers to Mohammed in my honor, and I don't know if after a while I was not myself almost a Marabout; the fact is that from time to time I heard natives give me this title.

While Destival scorned the marabouts' methods, he respected their obvious prestige. Through his identification with these powerful figures, he equated his function and theirs; they occupied an exalted position which he hoped eventually to win for himself.

For decades, colonial doctors had altered their practices to conform to local customs. They distributed appointment tickets to simulate the marabouts' amulets, provided special hospitals with acceptable food, and even tried to accommodate sexual taboos by using female midwives and nurses for female patients.⁴⁴ These compromises were ambivalent

⁴³ Destival, op. cit., p. 44.

⁴⁴ E. Bertherand, Les ambulances communales au double point de

gestures. Doctors usually presented such practices as pragmatic aids, as means to outwit natives through the careful use of indigenous traditions; however, by appropriating native customs, doctors changed the meaning of their enterprise. Rather than simply extend French medicine to a people utterly bereft of all hygiene and morality, doctors like Destival hoped to insert their practices into a preexisting social network. Algeria was simultaneously a barren, desolate landscape in need of French cultivation, and a fertile field ready for new growth; both a blank page and a fully prepared blueprint. While either vision justified French control, the latter established an unexpected equivalence between indigenous and colonial power. French doctors would merely replace traditional healers, insert themselves into an identical position of authority.

Bertherand's changing ideas about vaccination illustrate the tension between two approaches to indigenous culture. In 1855, Bertherand argued that doctors should eliminate variolization; he admonished them to monitor vaccinations scrupulously in order to avoid failures which might discourage natives' compliance. However, by 1879, he had changed his mind about the superiority of vaccination, and had begun to advise doctors to adopt the local method of immunization. To support this position, he reinterpreted his earlier experiences:

When I practiced medicine among Arabs and Berbers (1847-1854),

I was so strongly rebuffed from the start of my vaccination

vue des intérêts sanitaires des populations et des dépenses de l'assistance publique, Algiers: A. Bouyer, 1876, p. 9; Lucien Raynaud, Hygiène et pathologie Nord-Africaines, Paris: Masson, 1932, vol. 2, p. 493; and Turin, op. cit., p. 334.

attempts, that I adopted the native custom and practiced innumerable variolizations. As a result, I never had accidents, and I always watched this practice stop epidemics and capture the absolute confidence of Moslem populations.⁴⁵

Bertherand asserted that the traditional smallpox vaccine offered longer protection, could be preserved more easily, and would be more readily available during epidemics than the Jennerian cowpox vaccine.⁴⁶ However, these technical advantages could not fully explain Bertherand's vehement defense of variolization. Implicit in his pragmatic arguments was the promise of a new role for doctors, a respected position in both European and indigenous hierarchies.

Bertherand intended to adopt variolization with few technical alterations. While doctors vaccinated children with one to three incisions on each arm, the native healer "makes an incision on the back of the hand between the thumb and the forefinger";⁴⁷ but when doctors chose to use the traditional method, they switched from the arm to the hand.⁴⁸ Doctors assumed that these technical details (the number and anatomical location of incisions) constituted the key to the marabouts' power. The intricacies of indigenous social relations - such as the rituals of exchange which traditionally accompanied variolizations⁴⁹ - were merely incidental, and certainly irrelevant to the doctors' project. Isolated

⁴⁵ Delamotte, "Inoculations vaccinale et variolique," Journal de Médecine et de Pharmacie de l'Algérie, vol. 4 (1879), p. 154.

⁴⁶ M. Delamotte, op. cit., p. 188.

⁴⁷ M. Delamotte, "Inoculations vaccinale et variolique," Journal de Médecine et de Pharmacie de l'Algérie, vol. 4 (1879), p. 154.

⁴⁸ Ibid., p. 188.

⁴⁹ Crookshank, op. cit., pp. 10-11.

from their social context, medical techniques became essential elements of control, signs which embodied the healers' prestige and thus could be transferred from one group to another. While appropriating native practices and winning native patients, doctors would also create a new economy of signs. Those who adopted variolization would transform this technique into a fully abstracted unit of social exchange; only then could they lead natives to "cast aside the marabouts,"⁵⁰ and to accept doctors in an equivalent role.

In 1882, the Paris Academy of Medicine held a meeting on variolization, which they rejected in favor of vaccination. The Academy members accused colonial doctors of "experimenting on the Arabs"; medical authorities in Paris believed that, far from preventing smallpox, variolization would actually spread the disease.⁵¹ By opposing this practice, they intended to protect natives from doctors' unscrupulous attempt to perfect a dangerous technique. Bertherand responded to these charges with an article in the Journal de Médecine et de Pharmacie de l'Algérie. To the Academy's objection that no one had the right "to inoculate Arabs with smallpox," Bertherand answered that no one had the right to impose vaccination, "which violates their beliefs and their traditional customs." He also presented a short history of variolization, emphasizing its long use among Arabs and its successful appropriation by colonial doctors. He continued his argument by adding, "Is it not more politic, more liberal, to let them follow their age-old prac-

⁵⁰ E. Bertherand, "A propos de la variolisation des Arabes," Journal de Médecine et de Pharmacie de l'Algérie, vol. 7 (1882), p. 299.

⁵¹ Ibid., p. 297.

tice?"⁵²

This debate thus found Paris authorities and a prominent colonist competing to protect Algerian natives. Citing the increasing numbers of vaccinations reported to the central government, Academy members concluded that the natives now accepted this technique. Bertherand argued that these statistics were misleading. Although colonial doctors struggled unceasingly to promote vaccination, they could report only "a few thousand vaccinated out of seventy thousand native births."⁵³ The natives' resistance was so strong, Bertherand added, that many doctors proposed legislation making vaccination compulsory. "Would this proposal be expressed so vehemently if vaccination were, as one claims at the Academy, accepted with such enthusiasm by the Arabs?"⁵⁴ While Academy members hoped above all to protect natives' health, Bertherand intended to preserve their culture:

The Arabs have noticed that during epidemics, their co-religionists vaccinated by the French method are much more likely to get smallpox than those inoculated by the indigenous method. By refusing to face these unfortunate facts, are we not making the worst assault on "our reputation and our superiority" in the eyes of the Arabs, who reflect more than we think, who discuss constantly with much intelligence and subtlety that which we want to reform in their traditional customs?⁵⁵

⁵² Ibid., p. 295.

⁵³ Ibid., p. 297.

⁵⁴ Ibid., p. 296.

⁵⁵ Ibid., p. 300.

This defense of indigenous culture won Bertherand few adherents; he eventually lost his battle with the Academy of Medicine.

Twenty years later, the variolization debate reemerged in a different form at a meeting of the Algiers Society of Medicine.⁵⁶ This discussion focused on scientific questions rather than social or political concerns. Bouley, the sole proponent of variolization, opened his argument by mentioning the natives' "repugnance" for the cowpox vaccine, only to be immediately overwhelmed by his colleagues' objections. Several doctors insisted that the natives no longer resisted vaccination. Two decades after a similar assertion at the Paris Academy of Medicine, this position seemed to carry more weight; whether or not doctors actually encountered less resistance, the politics of implementing new methods had given way in importance to more compelling technical issues. Bouley's opponents considered variolization a thoroughly "unscientific" technique. They assumed that one could not safely use the smallpox virus for immunizations without first reducing its virulence; and although it might be possible to attenuate the virus either by diluting its suspension or by choosing to take fluid from "discrete" rather than "confluent" lesions, such manipulations seemed unpredictable and difficult to quantify. As a measure which prevented smallpox through the transfer of the offending agent, variolization challenged doctors' belief in a unique, transmissible organism responsible for each contagious disease. To sustain this new theory, doctors had to conclude that variolization would spread smallpox in all its forms, from the mildest to the most lethal.

⁵⁶ Trolard, "La variolisation chez les indigènes," Le Bulletin Médical de l'Algérie, vol. 10-11 (1900), pp. 257-265.

Soon after this meeting, the Algiers Society of Medicine formally recommended that the government suppress variolization and institute compulsory vaccination. This new legislation took effect in 1907, five years after vaccinations had become mandatory in France. While colonial doctors now proclaimed the end of overt resistance to vaccination, they envisioned numerous coercive measures to ensure the natives' compliance. Parrot suggested several "indirect" measures to encourage vaccination, including restrictions on travel and commercial exchange.⁵⁷ Natives' identity cards would include records of mandatory vaccinations and revaccinations, and colonists would be required to employ only those natives who could demonstrate that they had been properly immunized. Unvaccinated natives would not be allowed to make a pilgrimage to Mecca. Such measures "would have the advantage of not directly attacking personal freedom, which the natives of certain countries prize all the more because their ancestors, if not they themselves, may have grieved long ago at its loss."⁵⁸ If Parrot hoped to protect natives' "freedom" even as he restricted their ability to work and travel, he seemed unaware of any contradiction.

Parrot's position is paradigmatic for a complex shift in medical policy. While colonial doctors had once called for compulsory vaccination to force an end to natives' intransigence, the advent of mandatory immunization coincided with a new view of natives' opposition. In a hygiene pamphlet intended for Algerian natives, Charles Dercle wrote that Arabs no longer openly resisted vaccination as "a mark of

⁵⁷ Louis-Michel Parrot, De la prophylaxie de la variole aux colonies, Paris: Henri Jouve, 1908, pp. 35-36.

⁵⁸ Ibid, p. 36.

conquest." Like the many other announcements of victory which appeared during this period, Dercle's assertions seem weak and formulaic. At one point, his optimistic passage on smallpox prevention struck an unintentionally ironic note: In spite of natives' disputed civil status, vaccination "no longer encounters difficulties in receiving its letters of naturalization."⁵⁹ Now that the natives' hostility had faded into apathy, vaccination did not require a struggle; the remaining obstacles were merely technical and administrative. By 1925, the natives' "indifference" and "ignorance" warranted only a footnote, in which Parrot assured his readers that these problems would "quickly give way to the contagion of example or to a minimum of persuasive authority."⁶⁰ Here, Parrot suggested a possible resolution to his previous, more obviously contradictory statements. Although his coercive measures might appear to imply a conflict of will between colonial doctors and patients, he directed these proposals to a passive population of colonial subjects, a group already rendered docile by a violent struggle of conquest. These quiet natives could now be guided rather than forced; it is this passivity which made Parrot's restrictions inoffensive.

Parrot's articles on smallpox prevention had a strikingly pragmatic tone; along with his contemporaries, he emphasized technical and economic details largely ignored by his more idealistic predecessors. Trolard, who directed the vaccination service at the Pasteur Institute, wrote that large-scale immunization campaigns would have been impossible

⁵⁹ Charles Ursmar Dercle, Précis d'hygiène pratique à l'usage des indigènes d'Algérie, Algiers: Adolphe Jourdan, 1908.

⁶⁰ Louis-Michel Parrot, "La vaccination antivariolique en milieu indigène rural," Archives de l'Institut Pasteur d'Algérie, vol. 3 (1925), p. 440.

before 1896; only in the next twenty years would his institute find the means to produce enough vaccine for all natives. However, even with sufficient quantities of vaccine, there were too few doctors to reach everyone. Trolard estimated a current level of one doctor for every eight to ten thousand patients.⁶¹ Another physician questioned the value of medical services "given by one practitioner, no matter how zealous he might be, to a rural population of 50,000 spread over a very wide area."⁶² To solve this personnel problem, Trolard suggested the recruitment of auxiliary vaccinators among natives or schoolteachers. Although he noted that the Paris Academy of Medicine had rejected the idea of native auxiliaries, the program began in 1906. By 1922, this corps of paramedics counted only eighty-eight members, certainly not enough people to bring about a dramatic increase in the number of vaccinations.⁶³

Nearly twenty years after smallpox vaccination had become mandatory, Parrot decried the law's negligible impact.⁶⁴ Instead of systematically vaccinating every newborn child, doctors proceeded with their campaigns as they had in the past, merely visiting each village annually and inoculating children brought to a central location. Delinquent subjects could avoid vaccination by keeping their children at home on the appointed day. Parrot painted a grim picture of superficial compliance:

⁶¹ Trolard, "Des mesures à prendre pour propager la vaccine en territoire indigène," Le Bulletin Médical de l'Algérie, vol. 10-11 (1900), pp. 118 and 152-153.

⁶² Soulié, Henri, "L'assistance publique chez les Indigènes," op. cit., p. 122.

⁶³ Gouvernement général de l'Algérie, Quelques aspects de la vie sociale et de l'administration des indigènes en Algérie, Algiers: Imprimerie Orientale Fontana Frères, 1922.

⁶⁴ Louis-Michel Parrot, "La vaccination antivariolique en milieu indigène rural," op. cit., pp. 440-442.

At each vaccination session, many young natives, always the same ones (generally those closest to the site of vaccinations, children of the humblest, most submissive peasants), are brought to the doctors "to make a crowd" ("pour faire nombre")... Thus on the one hand, the vaccinators' effort fails to reach the right subjects; and on the other hand, although this activity may allow for the construction of beautiful statistics, it is too often useless with regard to the rational prophylaxis of smallpox.

To emphasize the danger of this situation, Parrot cited the example of a baby stricken with smallpox only one month after the most recent vaccinations in his village. The threat of this disease would persist unless doctors compiled lists of every native in need of immunization.

In their struggle to compile favorable statistics, Parrot's colleagues probably performed many more vaccinations than their nineteenth century counterparts; however, this new quest for numbers pales in comparison to the highly ambitious, even grandiose goals of an earlier period. The first doctors to inoculate native Algerians expected their vaccinations to "guide down the road of civilization a notable part of the human race, still lost in the shadows of barbarity."⁶⁵ Compulsory vaccination coincided with a dramatic shift away from such lofty expectations. Doctors now concened themselves with drier, more matter-of-fact issues, such as the quality and quantity of locally produced vaccine. At best, these doctors hoped to use vaccination to instruct natives in the principles of modern medicine. In the condescending

⁶⁵ Agnely, quoted in Turin, op. cit., p. 307.

style peculiar to health pamphlets, Parrot warned his native reader (addressed with the familiar tu) that smallpox strikes only "the careless, the unbelieving, and the unwilling... Shame on them!"⁶⁶ In another chapter, Parrot admonished tribal chiefs to "preach" the cause of immunization and the "preservation of Public Health."⁶⁷ Acceptance of vaccination would require a quasi-religious form of conversion; in an article written for doctors, Parrot sarcastically referred to native proponents of vaccination as African "apostles of Jenner."⁶⁸ No longer a civilizing tool, a tangible conduit for the higher, more sophisticated realms of French thought, medicine now constituted an end in itself: Parrot hoped to "convert" natives to the tenets of modern hygiene, but not to transmit any essential element of French civilization.

Contagious diseases occupied an important place in the health pamphlets of the 1920s. Parrot, who had worried for years about the difficulties of imposing quarantine and disinfection among natives,⁶⁹ devoted an entire chapter to this issue in his instructinal booklet.⁷⁰ Along with a presentation of the obligatory procedures used to prevent epidemics, this chapter included a description of the "specific, infinitely small germs" responsible for such diseases. This simple presentation of

⁶⁶ Louis-Michel Parrot, Le livre de la bonne santé dédié aux Musulmans de l'Afrique du Nord, Paris: Imprimerie Nationale, 1922, p. 49.

⁶⁷ Ibid., p. 84.

⁶⁸ Parrot, De la prophylaxie de la variole aux colonies, op. cit., p. 36.

⁶⁹ Louis-Michel Parrot, "L'isolement des contagieux en pays arabe," reprinted from Revue de Médecine et d'Hygiène Tropicales, Paris: Vigot Frères, 1911.

⁷⁰ Parrot, "Sache to protéger contre les maladies contagieuses," Le livre de la bonne santé, op. cit., pp. 22-27.

the germ theory helped to justify the mandatory isolation of smallpox patients, a measure difficult to achieve without the natives' cooperation. However, this medical instruction served another purpose as well. In a health pamphlet written for sub-Saharan African colonies, Spire scorned natives' naive faith in nature: "This water, which you fail to suspect, transmits all the intestinal diseases... that kill so many adults and children." The same lesson applied to smallpox: "Instead of trembling, instead of awaiting death beseechingly, wouldn't it be better to fight?... We brought you a vaccine which works better against smallpox than the rifle against the panther, and you hesitate to use it."⁷¹ The germ theory would reveal all the invisible dangers that surrounded natives, and would thus weaken their connection with a falsely benevolent environment.

The natives' dangerous proximity to nature allowed for a special relationship with infectious microbes. From the beginning of the colonial period, doctors had worried greatly about Algeria's contagious diseases, which claimed the lives of so many soldiers and colonists that they seemed somehow stronger than the diseases of Europe. In the midst of such threatening surroundings, the indigenous population remained strangely indifferent; doctors described their "stoic" attitude with utter incomprehension. Physicians attributed Algeria's distinctive infections both to the country's extraordinarily virulent microbes, and to the natives themselves, whom doctors considered insensitive to many forms of suffering. Vaccination would forcibly separate natives from one of Algeria's pathogenic viruses. Without this form of control,

⁷¹ Spire, Pour vivre vieux en Afrique: Conseils d'hygiène aux indigènes, Paris: Union Coloniale Française, 1922, pp. 16-19.

natives would "fall back into the old bad ways, to plants, to medicinal herbs, and even to variolization."⁷² These traditional cures, nearly as close to nature as the diseases that they were meant to prevent, posed the same grave threat to colonists. Variolization was "a preventive remedy which Mother Nature supplied with and through the illness"; as such, it must be replaced with a technique capable of fighting the disease. While variolization depended on natural immunity, an inherent quality of smallpox, vaccination erected an artificial barrier against infection.

Colonization depended on an attempt to control nature. The Algerian landscape would continue to threaten colonists only as long as it remained untouched; once they rearranged its many elements to serve their needs, it would become nearly as safe as their European homes. The first Europeans to stray away from their "domesticated" territory discovered "the mysterious powers of a nature exuberant in evil as in good, intolerant of the man, black or yellow, who did not know how to subjugate it." However, medicine would now enable colonists to engineer a more hospitable environment:

Modern science, born of Pasteur's discoveries, has seen through the secret of subtle contagions... Thus the hygienist can strip the native, the soil, the air, and the water of their noxious qualities, and can finally fashion a new nature.⁷³

⁷² Parrot, De la prophylaxie de la variole aux colonies, op. cit., p. 42.

⁷³ Edmond Sergent and Louis-Michel Parrot, "L'acclimatement," La Revue de France, 1926, pp. 9-12.

Having failed to "subjugate" nature, the natives simply remained a part of it, as threatening as any germ-filled tropical pond, and in equal need of the hygienist's control.

From Bertherand, who hoped to improve indigenous culture; to Parrot, who attempted merely to disinfect natives' bodies, the scope and design of colonial medicine altered considerably. This change hinged on the question of race. Between 1850 and 1930, the period spanned by the vaccination story above, race came to occupy an increasingly important position in medical writing. In part, this development simply reflected a similar trend in France. There, the pressures of rapid industrialization provoked a sudden concern with social pathology. French doctors attributed such problems as alcoholism, criminality, and the decreasing birth rate to collective biological flaws; doctors considered these disturbing changes symptomatic of the decline of the French race. In Algeria, too, doctors worried about the condition of their race; here, however, the threat to the French race did not come from within. Social pathology among colonists resulted from external factors.

Colonial doctors' increasing anxiety about their own race paralleled a declining interest in the improvement of natives. As physicians came to consider the "native" a biological entity, they abandoned earlier plans for cultural manipulation; moral uplift ceded to a more strictly medical type of cleansing. Colonial doctors' new concept of race, a biological essence subject to external influences, created a corresponding danger of decline through contact with natives. This new view of social pathology thus decreed the separation and purification of Algeria's races.

The earliest colonial doctors discussed race in the context of their debate on acclimation. In 1859, Adolphe Armand could swiftly refute the idea that a foreign climate might harm colonists by citing the example of Algerian Jews, who retained the basic elements of their race even in the Sahara.⁷⁴ Other doctors, equally confident in the permanence of their fine attributes, hoped to promote acclimation through racial fusion. These physicians would combine the best qualities of the European and indigenous races through selective breeding. Future generations would retain all the advantages of French character, but would also benefit from the natives' ability to live comfortably in the North African climate. Only doctors could successfully direct this plan. Medical research would "mark the dominant illnesses in this or that race, and the corrective interventions to make in the choice of factors to cross."⁷⁵ Cabrol argued that fusion had already occurred "in our own history of the Gauls and Romans, represented in the current epoch by the Arabs and French in Africa";⁷⁶ Bertherand hoped "to create not only a healthy race, but a Franco-Algerian nationality."⁷⁷ By merging two distinct biological and national groups, these doctors would eliminate the division between colonists and colonized. This radical proposal found little support among colonial doctors; it continued to provoke vociferous refutations for several decades.

⁷⁴ Adolphe Armand, Médecine et hygiène des pays chauds et spécialement de l'Algérie et des colonies, topographie, climatologie, pathogénie, pathologie, prophylaxie, acclimatement et colonisation, Paris: Challamel, 1859, p. 515.

⁷⁵ Emile-Louis Bertherand, review of L'acclimatement des Français en Algérie, by R. Ricoux, Gazette Médicale de l'Algérie, vol. 19 (1874), p. 129.

⁷⁶ Cabrol, op. cit., p. 14.

⁷⁷ E. Bertherand, review of L'acclimatement, op. cit., p. 128.

While Armand and Bertherand advocated an attempt to improve the Algerian population through racial fusion, most of their contemporaries (presumably unwilling to experiment on their own race) relied on strictly cultural techniques. However, in the 1870s and 1880s, physicians began to devote more attention to the biological implications of their civilizing mission. The spiritual realm of ideas, values, and religion no longer sufficed; doctors now attempted to explain social transformations in physical terms. These explanations followed a Lamarckian view of biological change.⁷⁸ Physicians believed that changing external influences could effect permanent biological transformations. A. Bertherand insisted that colonists could successfully alter their physical environment, and thus control its effect on them; as they improved the climate through construction and cultivation, "the immigrants, eventually submitting to this influence of surroundings on races, are modified in a parallel manner."⁷⁹ By the same principle, the French diet, language, and institutions would fundamentally change natives. Colonial domination thus operated through natives' bodies, where its complex assortment of influences would somehow be synthesized, biologically imprinted, and then transmitted from one generation to the next.

In an 1879 article, a colonial doctor named Faure fleshed out this connection between spiritual influence and physical transformation.

⁷⁸ On the prominence of this theory in France and the delay in acceptance of Darwinian evolution, see Yvette Conry, L'introduction du darwinisme en France au XIXe siècle, Paris: J. Vrin, 1974.

⁷⁹ A. Bertherand, De l'acclimatement en Algérie, Paris: Baillière, 1881, p. 24.

Faure considered the brain merely a material instrument of intelligence. Children's brains were identical at birth regardless of race, but grew differently depending on education. Cognitive racial distinctions among adults ultimately depended on language. Because, Faure insisted, there existed no precursors to language, humans could have acquired the verbal expression necessary for conscious thought only "from a Being that thought before them";⁸⁰ thus speech represented the power of a religious spirit. This gift from God affected each race according to the complexity of the particular language it received. A language deficient in certain prepositions, conjunctions, and tenses denied its speakers the privilege of abstract thought; such were the languages of "truly uncivilized peoples."⁸¹

Because Faure's model included a concrete interaction between predetermined idioms and the organs through which they operated, it allowed for racial change. Colonists could civilize natives merely by teaching them a European language. Faure cited the example of American slaves, whose contact with their owners led to dramatic physical transformations: As the frontal lobes of their cerebral hemispheres, the brain's language centers, grew in response to their owners' civilizing influence, their noses became less flat and their temples became less depressed. Education altered their physiognomy in the course of only three generations. Faure described the progression of civilized man with images appropriately drawn from the vocabulary of colonialism:

⁸⁰ L. Faure, "Au point de vue philosophique, il n'existe pas, en anthropologie, de races supérieures et de races inférieures," Gazette Médicale de l'Algérie, vol. 24 (1879), p. 29.

⁸¹ Ibid., p. 6.

"his brow projects and expands, his face becomes beautiful, under the empire of the sweet promptings of morality or science."⁸²

Faure argued for a type of spiritual influence which most doctors rejected during the next few decades. While they continued to link moral and psychological characteristics to physical appearance, they reversed the earlier order of cause and effect. Anatomy now both determined and revealed natives' social pathology. This relationship enabled doctors to evaluate new populations for potential colonial expansion. In an article on the Foullah, a sub-Saharan African tribe, a doctor corrected the observations of Lieutenant Moreau, an earlier visitor to the region. Having seen that the Foullah were not Moslem, Moreau had concluded that they were a hard-working, docile race with little fanaticism. "Profound error," wrote the doctor, "the Foullah, whose height and coarse features indicate interbreeding with the mandigue and sousou races, are lazy, cheating, chattering, and fanatical Moslems, at least by appearance."⁸³ This conclusion followed several pages of cranial measurements and facial description. Behavioral observations merely confirmed these anatomical data; whether or not the Foullah actually practiced Islam, an observant doctor could determine their affinity for this religion by carefully examining their bodies.

Natives' biology determined their physical ailments as well as their moral attributes. In his inaugural lecture to medical students, Georges Aubry, an eminent pathologist, traced the origins of the

⁸² Ibid., p. 41.

⁸³ Miquel, "Notes d'histoire naturelle sur le Fouta-Djallon," Annales d'Hygiène et de Médecine Coloniales, vol. 1 (1898), no. 3, p. 402.

Algerian pathology which they would soon diagnose and treat. First he described the natives' mind: "made of simplicity, credulity, limited to the satisfaction of elementary instincts, without any culture but a flame of religious passion." Placed in a hot climate, where all varieties of infective organisms can flourish, this population suffered "the obligatory result: a rich infectious pathology... organic and visceral lesions which, through carelessness, inertia, and resignation, reach a state that we find described only in old medical texts."⁸⁴ Algeria's "Medieval" pathology resulted from its specific combination of racial and climatic elements.

Once doctors considered both physical and mental pathology fully biological in origin, they became more anxious about the fate of their race. A. Bertherand's new version of racial fusion demonstrates this transition. In 1881, Bertherand advocated intermarriage among French, Spanish, Italian, and Maltese inhabitants, a biological union of Algeria's diverse group of colonists. Perhaps because he excluded natives from this list, he foresaw no dangerous dilution of French attributes; for the new race resulting from this mixture, "the blood, the name, and the language of France will prevail for evermore."⁸⁵ Although fusion with natives would have eliminated the crucial biological division between colonists and colonized, Bertherand implied that European blood alone would neither alter French character nor threaten French colonial rule. However, fifteen years later, the presence of a

⁸⁴ Aubry, La pathologie Nord-Africaine considérée du point de vue de la pathologie médicale et de la pathologie générale, Algiers: Fontana Frères, p. 17.

⁸⁵ A. Bertherand, op. cit., p. 27.

large non-French population constituted a serious threat, a danger which precluded any experimentation on the "French race." In a short article entitled "Demography 1896," one Algerian medical journal presented the number of French and Spanish births for the colony. The unnamed author, presumably speaking for the journal itself, wrote, "We see that the difference (in number of births) is less than one-third. Does this not support those who fear an invasion of Algeria by the foreign element?"⁸⁶

Between 1881 and 1896, the idea of racial improvement gave way to that of racial preservation. Sergent and Parrot, two colonial doctors who wrote several articles on acclimation, insisted that the more optimistic doctors who preceded them had defined this process unscientifically. Acclimation meant not merely a form of healthy adaptation to a new environment, but the ability to reproduce "without interbreeding... and with conservation of all the characteristics of physical and moral energy of the original stock."⁸⁷ Earlier doctors had accepted change more easily because they had trusted in the enduring qualities of the French spirit, predetermined attributes which would survive both intermarriage and surroundings drastically different from their native environment. Parrot, however, located even French moral energy in the physical realm, a domain dangerously subject to external physical influences. To protect the newly vulnerable essence of French character, colonial doctors advised immigrants to choose a climate as similar as possible to that of their original home. The coastal area of Algeria,

⁸⁶ "Démographie 1896," La Revue Médicale et Pharmaceutique de l'Afrique du Nord, vol. 1 (1898), no. 7, pp. 204-205.

⁸⁷ Edmond Sergent and Louis Parrot, "L'Acclimatement en Algérie," Comptes rendus de l'Académie des Sciences Coloniales, Communications, vol. 8 (1926-1927), p. 3.

for example, enjoyed warm summers appropriate for French settlers, but unfortunately had excessively mild winters, which "weaken little by little the Europeans' descendance." Algeria's mountains, however, provided temperature variations suitable for colonists, and thus distinguished Algeria from more dangerous tropical colonies.⁸⁸

Humid tropical heat threatened potential settlers with indolence, languor, and even insanity. According to Parrot, all colonial powers suffered from the laziness and apathy induced by the tropical climate, a syndrome which ultimately could lead to loss of control and debilitation of the brain.⁸⁹ Language was a sensitive index of this weakness. French colonists born in the tropics "cease to pronounce the letter R, whose articulation demands particular effort."⁹⁰ The children of French immigrants to Louisiana, deranged by the infiltration of Yankee blood as well as by Southern heat, had abandoned "the language of their mother country."⁹¹ This pathology of language betrayed a profound fear of loss. Now that doctors traced mental processes to a specific organ, their brains, no longer merely passive conduits for human creativity, represented its origin as well; bodies had become both the source and the instrument of all human expression. If French character depended on the brain, then civilization itself could give way to the tropical climate as easily as this delicate, vulnerable organ.

⁸⁸ Sergent and Parrot, "L'Acclimatement en Algérie," op. cit., p. 5.

⁸⁹ Sergent and Parrot, "L'Acclimatement," op. cit., p. 5.

⁹⁰ Bérillon, quoted by Sergent and Parrot, "L'Acclimatement," op. cit., p. 5.

⁹¹ Sergent and Parrot, "L'Acclimatement," op. cit., p. 7.

Powerless against the insidious effects of heat and cold, humidity and drought, colonial doctors of the 1920s and 1930s considered themselves well armed against infectious diseases. They often scoffed at earlier notions of "bad air" or "miasmas," and revelled in their detection of transmissible agents of disease. Although the discovery of specific pathogenic organisms allowed doctors a certain amount of control over their environment, vaguer, and perhaps more frightening notions of contagion persisted. Parrot, who wrote so extensively on the irremediable effects of dangerous climates, also referred to the barbaric "human milieu" which "surrounds" colonists. Forced to live frighteningly close to natives, "the colonist shares... in their pathology."⁹² Natives' pathology included more than a group of bacteria and parasites. Doctors could now approach the possible spread of natives' microbial infections with the same direct, confident description employed for any other type of transmission. The tone of this passage linked the human milieu to the threatening, uncontrollable physical environment; as the tropical climate could render colonists languid and apathetic, perhaps the natives could "infect" colonists with their peculiar social pathology.

Colonial doctors responded to this fear of contagion by inspecting, measuring, and thus mastering difference. Almost any clinical observation provided an opportunity to distinguish natives from colonists. One doctor noticed more neurological complications of syphilis, another noticed fewer; each described a new disease, "Arab syphilis," based on

⁹² Edmond Sergent and Louis-Michel Parrot, "La santé publique et la colonisation," in Travaux scientifiques, Louis Parrot, B4 216 (Archives d'Outre-Mer, Aix-en-Provence), p. 158.

his clinical observations.⁹³ During the long struggle to vaccinate natives against smallpox, doctors wrote many conflicting articles about natives' peculiar response to immunization; some reported a stronger reaction, with larger, more clearly circumscribed pustules at the site of vaccination, while others reported a less intense response. One doctor argued that natives' inadequate response to vaccination constituted evidence for their less sensitive nervous system.⁹⁴ Although this tendency to quantify racial differences began with the earliest colonial doctors, it intensified so dramatically with the advent of scientific medicine, that it could characterize a break between two periods. By 1930, colonial doctors were no longer eager explorers, recording elaborate case histories, highly detailed visual impressions, and botanical discoveries with equal enthusiasm. Qualitative distinctions among the customs, habits, moeurs, and diseases of various Algerian peoples gave way to precise, narrowly focused, quantitative comparisons. Doctors could no longer reach their native subject in the old way; the descriptive code had changed.

Quantitative comparison simultaneously distanced and joined the two races. Doctors expressed each qualitative difference in terms of a single, linear continuum, with each race closer to one of the two poles; for example, instead of contrasting two fundamental types of nervous systems, doctors determined each race's location on a bipolar scale of sensitivity. This mode of abstraction required doctors to isolate

⁹³ Aubry, op. cit., p. 15; and Jules Brault, Pathologie et Hygiène des indigènes musulmans d'Algérie, Algiers: A. Jourdan, 1905, p. 105.

⁹⁴ E. Bertherand, "De l'insensibilité physiologique de l'Arabe," Gazette Médicale de l'Algérie, vol. 19 (1874), p. 140.

observable qualities, to examine every racial distinction separately. While emphasizing the essential divisions of biology which accounted for these clinical differences, doctors also united colonists and natives by comparing them on the same scale; quantitative measurements of each symptom or trait reduced natives' frightening, utterly foreign specificity to a series of numerical deviations. Comparative pathology controlled differences by incorporating them into a familiar and uniform set of standards.

This strategy of perception paralleled the political thrust of colonization, the effort to force natives into the French economy. Successful colonization of Algeria required natives' labor as well as their land. Parrot linked the biological and political divisions between races in an optimistic description of natives' ever-improving health; French exploitation of Algerian resources would cause the decline of "diseases of poverty":

In contact with the colonist, the native learns to live well; in his service, he procures the necessary means. Benefiting from the examples received, he soon finds within himself the initiative, the courage to work - in a word, the creative forces which permit him to free himself from his misery. And thus better nourished, dressed, and housed, he opposes the invasion of pathogenic viruses with a new resistance, from which his ancestors never benefited.⁹⁵

⁹⁵ Sergent and Parrot, "La santé publique et la colonisation," op. cit., p. 158.

Algeria's political transformation required biological distinctions between colonists and natives. Native physiology could deviate in either direction; some doctors saw more vaccination pustules, others saw fewer. Each observation might inspire some interesting theoretical speculations - rich in all the metaphorical splendor of biological thought - but these conclusions themselves were ultimately less significant than the comparative process which initiated them. Thus natives could be simultaneously promiscuous and puritanical; whether they suffered from a sexuality deranged by excess or by deficiency, the threat of their perversity diminished as a doctor quantified it. Described within the limits of a linear scale, even the most radical difference became almost harmless. Indeed, controlled difference could be not only benign, but even useful. One-dimensional distinctions between colonizers and colonized permitted easy justifications for many forms of political oppression. By rejecting the utopian vision of racial fusion, doctors eliminated the only apparent possibility for a social "cure," and thus reestablished the permanence of biological divisions.

Colonial doctors examined indigenous populations as a clinician approaches an individual patient, with the same attention to subtle deviations from a healthy norm. These diagnostic methods applied to a group seem strangely displaced, somehow so skewed, so far removed from their proper context, that they can provide only a distorted image of Algerian natives. As doctors describe cultural pathology, a group portrait collapses into an individual case study. However, this numerical distortion, along with its denial of all diversity, cannot fully explain the strangeness of natives' "defective" breasts and "insensitive" nervous systems. The pathological principles themselves distort their

subject.

Pathology blinds itself to history. As doctors examine a particular patient, they can refer only to timeless principles of health and disease. Thus colonial doctors explained a distinctly medical effect of colonization, the importation of the tubercle bacillus, in terms of a predetermined racial attribute, a quality neither random nor historical: the natives' innate susceptibility to these new bacteria. Such explanations relegate human misery to a safely apolitical realm. To diagnose illness, doctors examine each patient in relation to a biological norm, a timeless and universal model of humanity. This collective figure of human health occupies every clinical encounter. Pathology appears when the individual patient, stripped of all associations with social class, occupation, or any other historical category, exposes his essential idiosyncrasies. This highly personal process dissolves both individual and collective identity; measured against a universal physiological standard, the patient is an isolated, passive, yet somehow guilty subject of disease.

As Georges Canguilhem has demonstrated,⁹⁶ modern medicine relies on vague, contradictory notions of normality. The standard of health continually shifts between a statistical mean and a physiological ideal. When these concepts are applied to populations rather than individuals, medicine suddenly loses its ideological transparency. In the colonial setting, among physicians so keenly attentive to the biological deviations of their native patients, any evaluation of health or normality

⁹⁶ Georges Canguilhem, On the Normal and the Pathological, trans. Carolyn Fawcett, Boston: D. Reidel Pub. Co., 1978.

resonates politically. Ironically, the modern colonial doctors, with their superior arsenal of remedies and their refined analytical approach, hoped not to improve natives, but only to render them less dangerous. By locating the origin of social pathology in the natives' predetermined biological make-up, physicians ushered in a new, more insidious form of racism, a medical doctrine which affirmed the social order of colonialism and excluded any possibility for change.

Social pathology in Algeria followed the development of general pathology, but differed in response to political processes which doctors usually preferred to ignore. Although colonial doctors might justify their work by extolling its political impact, the clinical process itself remained pristine, immune to the transient and subjective pressures of historical events. This medical objectivity nevertheless facilitated the social transformations necessary for colonization. Whether or not doctors succeeded as cultural missionaries, their ideology of race, progress, and social pathology provided a "scientific" basis for social and economic oppression; armed with medical imagery, colonial power could appear benevolent - or even therapeutic.

Appendix: Quotations in French

Page 1:

Un nombre considérable d'Arabes, 400 au moins, tous armés de fusils et de sabres, se sont précipités dans ma tente pour m'assassiner à l'heure indiquée pour la vaccination des enfants. Heureusement pour moi, je ne m'y trouvais pas. J'étais à quelques centaines de pas; un Arabe est venu me prévenir, et j'ai pu me sauver tantôt en me cachant, tantôt en sautant les rochers, toujours courant à toutes jambes à travers les montagnes, pendant quatre heures de suite.

Page 6:

En chevauchant au travers des maigres dunes de la côte, le narrateur ne manque pas de nous intéresser à la flore, à la géologie du terrain traversé... Pareille préoccupation indique que ces médecins avaient l'esprit ouvert à toutes les manifestations de l'activité intellectuelle, qu'en un mot ils avaient fait "leurs humanités."

Page 7:

La tente se compose de bandes de laine et de poil de chameau, tissées par les femmes, d'après un modèle uniforme. Ces bandes ont huit mètres de long sur 75 centimètres de large; elles affectent généralement deux couleurs, brune et blanche, courant sur toute la longueur de la bande. Le brun domine la plupart du temps et donne à la tente cet aspect sombre que l'on remarque à distance.

Le ventre et le sein sont les parties défectueuses de la femme indigène; néanmoins sous cet état d'appauvrissement l'art découvre dans ces ruines même les éléments précieux à leur restauration. Les causes physiques de la décadence de ces êtres oubliés sont l'absence de toute règle d'hygiène, l'exagération des organes par un travail supérieur à leur force naturelle et enfin les maladies qui dépendent de ces causes.

Page 10:

La foi lui fait voir en tout la main de Dieu et sans raisonner sa croyance, il se met à la merci de tous ceux qui savent exploiter ce haut sentiment. De là les pèlerinages interminables et successifs auprès de tel ou tel marabout vénéré, les sachets contenant de saintes paroles ou de puissantes reliques, les boissons dans lesquelles on a fait dissou-

dre, pour les mieux assimiler, les versets du koran... Toutes ces pratiques de foi précèdent habituellement le recours auprès du médecin français.

Ce n'est que lorsque l'Arabe est vaincu par la douleur, abattu par la maladie, qu'il consent à se mettre en route pour venir se faire visiter. Si pendant le trajet de sa tente au bureau, il se sent un peu mieux, il se garde bien de s'y présenter pour demander la visite, il est, au contraire, honteux de la faiblesse qu'il a eue de songer à se faire visiter, il rebrousse chemin, bienheureux de n'avoir pas eu besoin de l'assistance chrétien.

Page 14:

La vaccination a rencontré d'abord des obstacles insurmontables, la soumission des Arabes était récente et leur vie intérieure impénétrable pour le médecin... Malgré les terribles effets de la variole, malgré les difformités qu'elle laisse à sa suite, malgré l'habitude déjà ancienne d'inoculer les enfants, on ne put, en 1845-1846-1847 et 1848, pratiquer au-delà de 12 vaccinations.

Page 17:

J'ai rencontré dans mes courses de ces fanatiques qui ne niaient pas la vertu préservatrice du vaccin, mais qui n'en voulaient ni pour eux, ni pour leurs femmes ou leurs enfants, au milieu des dangers de la plus grave épidémie, disant que la petite vérole était une maladie envoyée par Dieu, et que c'était pécher contre Dieu que de chercher à empêcher Sa protection par la vaccine.

Page 18:

La même population que l'instituteur trouve indifférente aux bienfaits de l'instruction, l'ignorance la trouve rebelle à l'application des méthodes nouvelles, l'industriel à l'emploi des machines perfectionnées, le médecin à l'observation des règles de l'hygiène.

Page 21:

J'avais l'honneur de connaître assez intimement un des plus honorés de cette secte religieuse... Des prières furent adressées à Mahomet par eux en mon honneur et je ne sais si depuis ce temps je ne suis pas moi-même en peu Marabout; le fait est que je m'entends de temps à autre donner cette qualification par des indigènes qui me rencontrent.

Page 22:

Alors que je faisais de la médecine chez les Arabes et les Kabyles

(1847-1854) j'ai été tellement rebuté dès l'origine de mes tentatives vaccinales, que j'ai adopté la coutume indigène, et pratiqué d'innombrables inoculations varioliques. Je n'ai jamais eu d'accidents consécutifs et j'ai toujours vu cette pratique arrêter les épidémies et me capter la confiance absolue des populations musulmanes.

Page 25:

Les Arabes ont parfaitement remarqué que dans les épidémies, leurs coreligionnaires vaccinés à la mode française sont bien plus sujets à être atteints que les inoculés à la façon indigène. S'obstiner à ne pas tenir compte de ces faits malheureusement trop exacts, n'est-ce pas précisément porter la plus grave atteinte "à notre réputation et à notre supériorité" aux yeux des Arabes qui réfléchissent plus qu'on ne croit, qui discutent constamment avec beaucoup d'intelligence et de finesse ce que nous avons la prétension de vouloir reformer dans leurs coutumes traditionnelles?

Page 30:

A chaque séance vaccinale, quantité de jeunes indigènes, toujours les mêmes, (en général les plus proches du lieu où se font les opérations vaccinales, les fils des fellahin les plus humbles, c'est-à-dire les plus soumis), sont conduits au médecin "pour faire nombre"... Ainsi et d'une part, l'activité des vaccinateurs n'atteint pas tous les vrais assujettis; d'autre part, elle se disperse en efforts profitables peut-être à l'édification de belles statistiques, mais trop souvent inutiles pour ce qui regarde la prophylaxie rationnelle de la variole.

Page 33:

La science moderne, née des découvertes pastoriennes, a percé à jour le secret des contagions subtiles... (L'hygiéniste) dépouille ainsi l'indigène, le sol, l'air et les eaux de leurs qualités nocives; il façonne en définitive une nature nouvelle.

Page 44:

Au contact du colon, l'indigène apprend à bien vivre; à son service, il s'en procure les moyens. Profitant des exemples reçus, il trouve bientôt en lui-même l'initiative, le courage au travail, en un mot les forces créatrices qui lui permettent de se tirer seul de sa misère. Et ainsi mieux nourri, vêtu, logé, il oppose à l'invasion des virus pathogènes une résistance organique accrue, dont ses ancêtres n'avaient jamais bénéficié.

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