

ADANSON

The Bicentennial of Michel Adanson's

«Familles des plantes»

Part One



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Adanson, the Man

Jean-Paul Nicolas

I FAMILY ORIGINS

Tracing a family name back through limited and ancient records is always difficult, but when to the facts has been added a legend, the difficulty is, of course, compounded. Such is the case with the name *Adanson*. According to family legend, *Adanson* was originally the name of a Scottish lord ennobled by King Robert of Bruce the VIIIth (1274-1329).¹ The last lord of this line is alleged to have been Jacques, the grandfather of Michel Adanson. It was this ancestor, says the legend, who left Scotland and came to France, following into exile James II because of his adherence to the Roman Catholic faith.

This fine family legend is not lacking in picturesque detail to lend authenticity to it. It was believed, for example, that Michel's grandfather and his father (who would have been five years old at the time) were both present at a dramatic performance in the home of Madame de Maintenon in 1689, when Louis XIV and James II were also present.

Is there any truth at all in this tale? Even a superficial examination of the relevant documents indicates that the Adanson family legend of Scottish ancestry has no basis in any fact.

The primary document is the marriage record of Léger Adanson, father of Michel. The record indicates that the wedding occurred in Aix-en-Provence in 1716 and that Léger was born in the diocese of Clermont.² From this record it has been relatively easy to locate all the other ancestral records and to reconstruct a nearly complete genealogy back to the beginning of the 17th century and a partial genealogy as far back as the 16th century.

The name handed down to us via the familiar legend is Adanson, and not Adamson, as it would have been were it an Anglo-Saxon name re-

¹ This legend of Scottish ancestry has been accepted by all former biographers without supporting evidence. Adanson himself indicated his support of it in his copy of Diderot's *Encyclopédie*, now at Dakar.

² Cf. Acte de Mariage de Ligier Adanson. Archives Départementales des Bouches du Rhône, Dépôt d'Aix-en-Provence, Registres paroissiaux d'Aix la Madeleine. No. 34, fol. 26 (verso). 1717

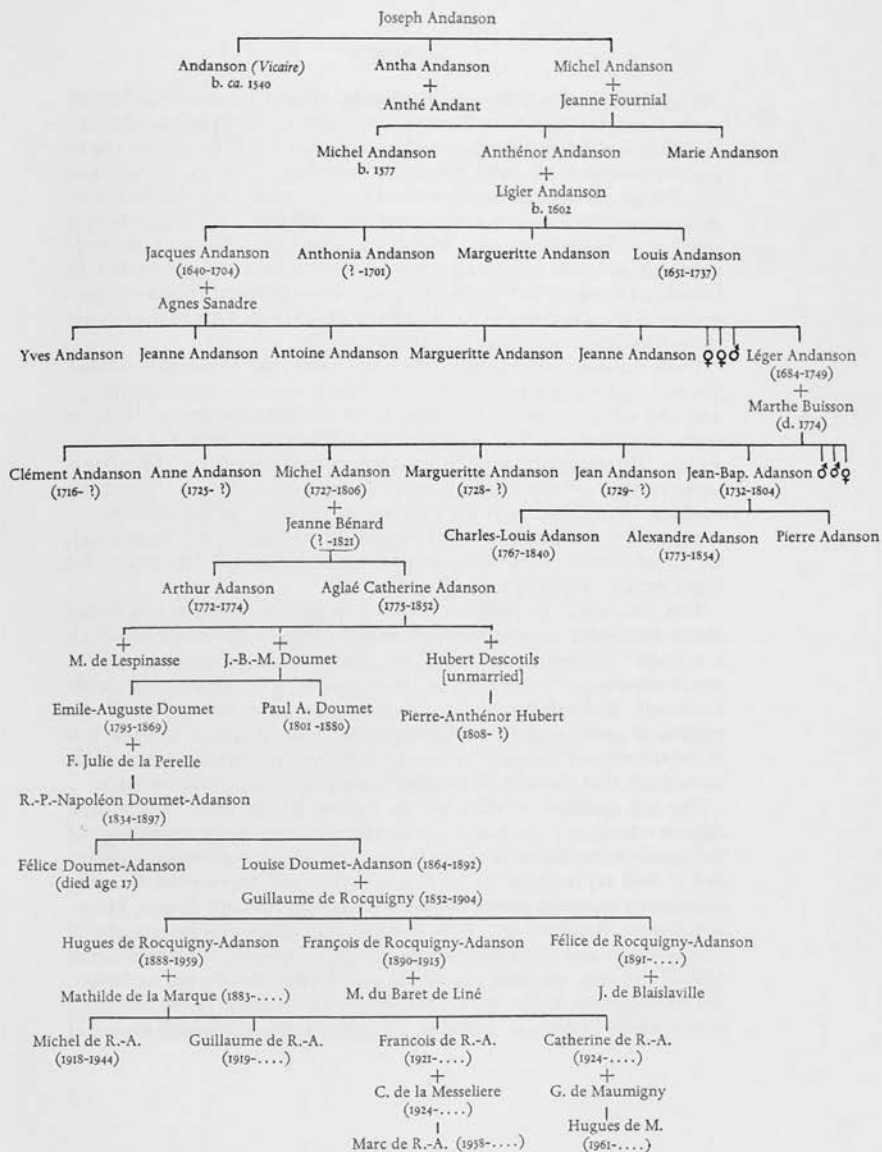
cently imported to France. A fact more significant than the form of the name, however, is the negative evidence of documents. Although the family is reputed to have been Scottish nobility, having served under James II perhaps having been close to the sovereign and to the events which led to his exile, there exists no chronicle, no published report, no manuscript, and no letter known to cite the existence of any Lord Adamson or Adanson. There never was any lord of this name according to a private communication received from the office of the Lord Lyons King of Arms, of Edinburgh. The only Adamsons known in that time were those in the counties of Banffshire and Angus. The designation "Adamson of Coresby" would have been the only title available, indicative of nobility but not of a lordship. It is possible to suppose that the legend arose from an Adamson having been referred to vernacularly as a laird, a Scottish lowlander having no tartan. There is no contemporary record, however, of any Adamson, noble or otherwise, having been associated with the court of James II.

There is reason to suppose that Léger Andanson, father of Michel, was responsible for the myth of Scottish origin for the family, since he was sufficiently well educated to have "created" and exploited such an ancestry to his advantage. He might possibly have had access to a 1714 manuscript in the municipal library at Aix-en-Provence, which refers abundantly to Scottish nobility having settled in Provence, although nowhere in it does the name Adamson or Lord Adamson appear (cf. Archives municipales d'Aix-en-Provence Mss 577 R. 88, 180 fol.)

Research in French records provides abundant evidence on the true ancestry of our Michel Adanson. Archives in the parishes of Auvergne, around Clermont-Ferrand, report the marriage of Léger Adanson.³ Of earlier vintage, the parish registers of the village of Saint-Pierre Roche show that the first Andanson known there was one named Joseph, the father of three children and grandfather of four grandsons, but no dates of birth or death are given for him. The vicar of that village, born about 1500, was an Andanson. From this stock—and thanks to the existence of a larger number of parish records—the genealogical tree develops (see Fig. 1). Although some of the older branches collapse rapidly, a later one—from which Michel Andanson is descended—brings us to Ligier, father of Jacques. At the beginning of the seventeenth century this branch of

³ For documentation on the Adanson alias Andanson family in Auvergne, cf. Archives Départementales du Puy-de-Dôme (Clermont-Ferrand), and Archives Municipales in Saint-Pierre Roche, Saint-Bonnet près Orcival, série E.

Fig. 1. Genealogical tree of the Andanson-Adanson family



the family moved to Villejacques, a hamlet of Saint-Bonnet near Orcival, about ten miles from Saint-Pierre Roche. Here was born Jacques Andanson, father of Léger (1684-1749) and grandfather of Michel. From 1520 to 1727 the sequence of parish records is complete, allowing no doubt in this lineage. In 1680 the family moved to Massagettes, and in the *Cahiers de Doléance* of the Revolution we count homes of four different Andanson families in Massagettes and twelve in Saint-Pierre Roche. One finds today these same villages peopled with Andansons, plus a few in Clermont-Ferrand, but the family name exists primarily in its old geographical areas and in Orcine, Massages, and Villars. One may estimate about fifty persons having this name at present.

There remains to be explained how the name *Andanson* became *Adanson*. The Aix-en-Provence records show the family surname in both spellings, with the Christian name retaining the Auvergnat spelling of Ligier in both combinations. The wedding record carefully uses the spelling *Adanson*. This transformation to *Adanson* occurred prior to 1717. The christening records for the children are less consistent in the spelling of the surname. For Anne (1725) the heading is correctly spelled *Adanson*, but the signature reads *Andanson*; for Margueritte the heading is *Endanson* (1728); for others there are the variants *Andanson* and *Adansson*. The record for Léger, in Saint-Bonnet, reads *Andanson*.

This older spelling, *Andanson*, occurs in papers as recent as one found about Adanson's *Histoire naturelle du Sénégal* (1759), on the cover of which is written "Andanson," and even on official letters as recent as 1763 (cf. mss. Bibliothèque Municipale du Havre 210 (A. 2), fol. 89 *et seq.*; ltr. to de Choiseuil, Archives Nationales Colonies série C/14, vol. 26.) In all the records of parish registers of Auvergne the name is always *Andanson*. It is in the records of Provence that one finds the variants arising, which leads us to think that the name is originally *auvergnat* and alien to Provence.

The last question to examine, in defense of the belief that Michel *Adanson* is truly of French and not Scottish ancestry, is the etymology of the family name. Its consonance is not strange to the *Auvergnat* language and is well represented in local patronymy and toponymy. We may quote such accepted names as Banson, Ranson, Andant, Anson, Vivanson, Bansat, Randane, etc. Four possible derivatives may be considered for the earlier and presumed original spelling *Andanson*: (1) a combination of *andel* and *ansa*, meaning the tripod and the handle of a pot or basket, the combination of the two words being a nickname; (2) *ande*, meaning lane, leading to Anson; (3) *andain*, a length of meadow-swath mown at

each swing of a scythe-blade; or (4) the combination of the patronymic and matronymic names *Andant* and *Anson*, early surnames found in the communities of Auvergne, where members of an Andanson branch are related to the Adants. Any one of these hypotheses is a possibility, but the last is believed to be the most plausible, even though it leaves unsolved the significance of the two family names *Andant* and *Anson*.

There are also other interesting etymological problems. *Enso* is the old Saxon name of the river Stoure, which flows between Essex and Suffolk in England. *Ad Ansam* has been mentioned by Antonin as a place around Haverill. The *Dictionnaire géographique de la Martinière* cites such names as *Andance*, the *Andi*, the *Ansa*, and *Anso*—the last being a family name which gave rise to such derivatives as *Ansoncourt*, *Ansonville*, *Ensonville*. And finally, the *Ande* is a French river, having its origin at Valvejols, emptying into the Truyère twenty miles below.

II YOUTH AND INTELLECTUAL DEVELOPMENT: 1727-1748

It is always tempting to regard one's subject—this man to whose destiny one seems bound—as a prodigy and a genius. Few biographers escape the temptation to emphasize that which is already exceptional. Adanson's commentators have given us the idea that he was a child abnormally endowed, able from a very early age to master an amazing array of Greek and Latin literature. For this period, our information is, of course, somewhat limited and comes almost entirely from personal manuscripts of Adanson, transmitted through the family.

At the foot of the Saint-Sauveur Cathedral and the archbishop's palace in Aix-en-Provence, in the little street formerly called *rue Esquito Mosco* and now *rue Adanson*, is a three-story stone house which now appears modest but which in the Regency period represented a fair standard of wealth. It is there that on 7 April 1727 was born Michel Adanson, the third child of Léger Adanson. Léger was an esquire of the Monseigneur Charles-Gaspar de Vintimille du Luc (1655-1746), then Archbishop of Aix, a position which provided the family with a minimum of financial freedom and social independence. With the help of the village vicar, Michel's father had earlier left his native Auvergne to continue his studies at the seminary in Clermont-Ferrand. Through a series of recommendations and a certain innate daring, he finally joined the little *auvergnate* colony, which was very lively in Aix. The parish records provide us with some idea of the kind of social activities of Adanson's parents. Their friends included such persons as Philippe Acard, another esquire of the Monseigneur;

Pierre Desmares, clerk of the court; Master François Van der Vynch, wig maker; and such lesser burghers as Jean Moulini, Anne Tiran, Jean Froment, Catherine Lessine, Jean Matthieu, Paul Antoine Secretain, Michel Savoy, Michel Marie. Nothing here suggests an exiled prince of noble Scottish ancestry, but rather a member of good provincial people, more concerned about the *Mistral* wind than about James II.

Michel had a brother, Clément, born out of wedlock on 23 November 1716, and a sister Anne, born 9 August 1725. When Michel was born, nearly two years later, his god-father was the above-mentioned Michel Savoy and his god-mother was Marie Michel. Two more children were born to his parents: Margueritte on 13 September 1728 and Jean-Léger on 29 December 1729. While life in Aix continued to be peaceful, the position of Jesuits in Versailles worsened, and Mgr. de Vintimille, the Archbishop of Aix, was called to Paris to replace the Cardinal de Noailles (1651-1729) as Archbishop of Paris. Adanson's family followed the archbishop in his baggage wagon. By 1730 the family was settled in Paris.

Léger devoted all of his leisure time to his children's education. Their favorite game was played with a series of stone and wood pieces of all

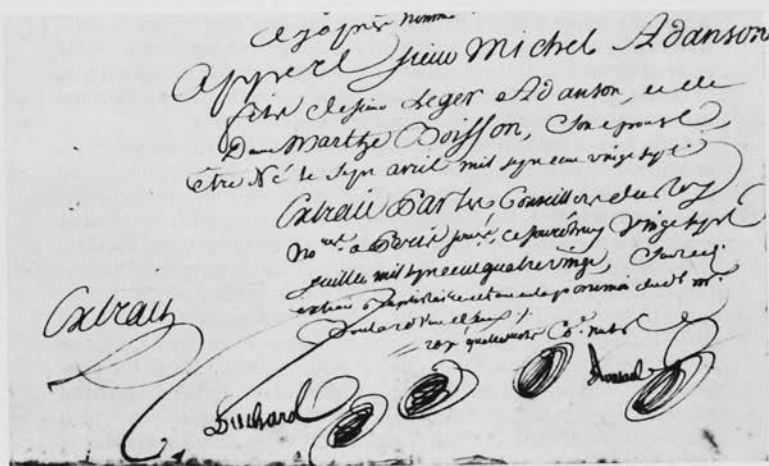


Fig. 2. Abstract of certification of christening of Michel Adanson.

Courtesy, Archives Nationales, Paris

kinds of geometrical shapes. Endowed with indefatigable patience, Léger taught the children how to draw lines, curves, and circles. They tended a garden where grew all kinds of plants and where each had his own corner. Despite Madame Adanson's objections, numerous animals were raised there, including poultry, turtles, cats, and dogs [cf. Diderot's *Encyclopédie*, Dakar⁴].

As early as 1732, at the age of five, young Michel began to attend the school known as Collège du Cardinal Lemoine. It was also this same year, on 3 July, that his brother Jean-Baptiste was born, the Adanson who was to become a Government interpreter in the Near East. Michel, rebelling against the severe school discipline, transferred to Collège Sainte-Barbe, or Plessis Sorbon, and repeated his first form in 1733-1734. Those first school years were most important for the boy's future. By putting Michel in one of the most expensive institutions of Paris, his father let him escape to the *Petites Ecoles* and enjoy a higher social level. Details about this period, given by Adanson, leave no doubt of their accuracy, although the available archives of the Plessis Sorbon do not confirm his enrollment there [Litt. 9 March 1960].

The exorbitant tuition fees charged at that time in Paris did not prevent a most strict discipline for every waking hour of the day. The class schedule was very heavy. Adanson tells us that he worked day and night, and this capacity for work he retained until his death. I think that here in his early schooling we find the source of the tremendous activity he demonstrated throughout his life. Those first years revealed his prodigious memory. He was not, however, a prodigy, but certainly he was a well-disciplined and hard-working boy. Moreover, he was supervised and guided by his father, who was most anxious not to lose money on this investment, nor to waste the Monseigneur's liberalities in making this education possible. In spite of the Cardinal's interest, however, Adanson developed a complete aversion to religious studies and participation while he was in school. Religious exercises occurred frequently during the day, even during the meals.

When Adanson began his second form in 1734, he knew Latin well, having heard too much of it in school and at home. The next year he began to study Greek, and at the age of nine, in fourth form, he was

⁴ Throughout this paper the designation "Diderot's *Encyclopédie*, Dakar" is used to designate Adanson's annotated copy of the first edition of Diderot, D. & d'Alembert, *Encyclopédie ou dictionnaire raisonné des sciences, des arts et des métiers, par une société de gens de lettres* 36 vol. Paris. 1750+. This copy is now at l'Institut Français d'Afrique Noire, Université de Dakar, Senegal.

reading Homer's *Illiad* and Pindare. In that day, we must remember, classical languages were taught with such intensity that after five or six years of daily work with them, one would nearly forget his own language. Taught at the same time were such subjects as philosophy, geometry, arithmetic, and rudiments of calculus.

In one of his later manuscripts [cf. Diderot's *Encyclopédie*, Dakar] he noted his personal reflections about teaching methods, affirming that in this early period he understood the ineptitudes of pedagogical methods and began to apply his own analytical method, which enabled him to examine critically the authors being studied. It is my feeling that this is a faulty recollection and that we must believe he was somewhat older when this analysis began. It is quite possible, however, that he did foresee at an early age the method which later did characterize his life and which he would apply to natural history studies when in Senegal.

Chevalier (1934) reports that Monseigneur de Vintimille, continuing his charitable interest, had given the child a small canonry at Champeaux en Brie, which had belonged in the chapter of Notre-Dame de Paris. This kindness was doubtless well appreciated, for by this time Léger had three children in school and two more daughters had been born—Marie-Françoise-Charlotte and Cécile (1737). A later son (unnamed) died in infancy. With these three births, Léger's children numbered ten, of which eight lived to maturity. The kindness of the Cardinal was recompensed when Michel, in 1737, won the first prize in Greek poetry and Latin composition. The ultra-classical curriculum continued for another three years when, being in *rhétorique* at the age of eleven, Adanson began to study and translate Quintus Curcius, Quintilian, and the poetry of Horace. All training was pointed toward making him an "*Homme d'Eglise*." The following year he began his studies of logic and metaphysics, both of which were to guide much of his life both in his work and in his recreations.

Whenever his school schedule permitted, he visited regularly the Jardin du Roi, where the fresh air and freedom of the grounds were in great contrast to the dark, dull classrooms and their rigid discipline. This contrast undoubtedly contributed to his later determination to attend regularly the lectures given at the Jardin du Roi, sometime after 1740,—that is, after having completed his Master of Arts. He also attended lectures in physics, anatomy, and chemistry given by Guillaume-François Rouelle (1703-1770) and other professors [cf. Diderot's *Encyclopédie*, Dakar]. At these lectures he made acquaintance with Louis Brancas (1733-1824), Comte de Lauraguais, who later played a secondary role in Adanson's life.

Three hundred years have produced no better place for dreaming and loving than this ancient royal garden, where the flower beds of Tournefort's design are so fragrant in springtime and where in its labyrinths one can contemplate a better world and a new science. Adanson did not escape this appeal, and in this garden he did dream of contributing to universal knowledge. Here, in this realm of the three natural kingdoms—plant, animal, and mineral—would he concentrate his thinking all his life.

In reaction against the theories learned in school, he proceeded, with his father's approval, to experiment with biological phenomena. He raised silkworms and studied the growth of plants placed on his window sill. This trend in his thinking was leading him closer every day to the spirit of the Jardin du Roi and the Collège Royal, and from 1741-1746 he frequented both establishments in pursuit of answers to his problems. At the latter he studied Greek assiduously, so that he might read the original works in natural science without recourse to intermediate Latin translations. During this time he perfected his cultural background and also attended the lectures in botany and the field trips given by Antoine (1686-1758) and Bernard (1699-1777) de Jussieu.

Adanson's professor of Greek at the Collège de France was the abbé Vatory, and having complete and formal studies available there, he began analytical studies of the Greek writings of Pliny and Aristotle, of the contemporary works of René Descartes (1596-1650) and Isaac Newton (1642-1727), and especially of the papers on mathematics by Degna and those on astronomy by Pierre-Charles Le Monnier (1715-1799). [cf. Diderot's *Encyclopédie*, Dakar.]

Once again, however, Adanson's most fruitful contacts, directly related to his future, were those made at the Jardin du Roi with Antoine and Bernard de Jussieu and René-Antoine Ferchault de Réaumur. He studied the works of de Jussieu, especially his *Discours sur les progrès de la botanique au Jardin Royal de Paris* and his *Introduction à la connaissances des plantes* (1718). Adanson had free access to the collections of de Réaumur, where he was in a position to examine, compare, and classify all kinds of specimens. He refrained from engaging in the professional disputes between de Réaumur on the one hand, and de Buffon and Daubenton on the other [cf. Torlais 1958]. Thanks to the indefatigable work of Daubenton the Cabinet du Roi had within a few years been put into excellent order.

Adanson undertook the large assignment to classify many thousands of species of plants, adding considerably to his knowledge, and at the same time began his personal herbarium with collections made during

his visits around Paris with the de Jussieus. He transcribed in his notebook the names of all the plants he found and studied, which he classified according to Tournefort's system. In 1744 he annotated his copy of Linneaus' *Genera plantarum* [cf. Margadant, AD 81]. In 1745 he attended the Collège Royal when l'abbé Needham (1713-1781) stopped there to lecture. We know certainly that Needham questioned the young man who talked with him so well, for, as a gift, Adanson received from Needham's hands a small microscope accompanied by the words "Vous qui êtes si avancé dans l'étude des ouvrages des hommes, vous êtes digne de connaître les oeuvres de la nature." (You who are so advanced in the study of men's works, you are worthy to know the works of nature.) [Chevalier 1934]. It is probable that this quotation has been modified by Adanson, but it recognizes Needham's sharp distinction between the old method of compilation and the new method of observation.

It is the harmonizing of those two methods, one not banishing the other, that characterizes all of Adanson's future work. Furthermore, one may see in this episode the spark which oriented the young man's future. While he was interested in the whole of human knowledge, he was basically a scholar, whose strength might easily be wasted in absurd exegetic effort. Bound to the church, he could examine nature only surreptitiously, for the old religious view of nature was far from dead. He therefore rejected his ecclesiastical future and resigned his canonry. If this is true, it shows a certain courage, because the financial situation of his family certainly was not bright. He voluntarily deprived himself of a revenue as a cleric which would have assured his material needs. His action is a proof of his great intellectual honesty.

In 1745 and 1746 his interest in botany increased, opening to him an inexhaustible field of investigation and a superabundance of species upon which to practice his talent for classification. Now aged nineteen, he already had completed an important manuscript which he called *Basileiophiton* [cf. Margadant, AD 258]. It was a catalogue of about 5,000 species of plants grown since 1740 in the Jardin du Roi. This list was a compilation based on such works as the *Catalogue des plantes du Jardin de MM les Apoticaire de Paris, classées selon Tournefort* (1761) [cf. Margadant, AD 47] and the *Aphorismi de cognoscendi et curandis morbis* of Boerhaave [cf. Margadant, AD 13]. These first classifications show a tendency Adanson developed during his life: to enumerate, to expand the scope, to evaluate the importance of works accomplished, and especially to seek those subjects awaiting investigation. He undertook to assemble all the diagnoses in a *Prodrome* of about

2,000 species, which he called somewhat pompously the *Parisibotanion* [cf. Margadant, AD 278]. Although he followed the Tournefort system of classification, he was not fully satisfied with it, in spite of his high regard for the revered master. He recognized the need for a comparative study and analysis of all possible classification systems. This recognition led eventually to the extraordinarily detailed documentation which constitutes the first volume of his *Familles des plantes*. Even allowing that his reminiscences about his early work have reached us in a somewhat exaggerated and embellished form, the amount of compilatory work accomplished during those first years is enormous, but not impossible when we recall the working habits he had acquired in his academic training.

It is possible that having reached the age of twenty, Adanson had caused his parents some anxiety about his future and had to make some important decisions. He had a very liberal father, who never crossed the wishes of his children. Charles-Gaspard was studying to be a vicar; Jean-Baptiste had just entered the Consular Service and was soon to leave for the Near East. Léger, the father, must have been anxious about Michel, his eldest son. He was not without connections with leading people, being frequently with Mgr. de Vintimille in Versailles and Paris, and he had certainly been in position to be of service to important persons, among them M. Pierre-Barthelemy David, a director of the *Compagnie des Indes* since 1744 [cf. Margry (1866) and Besson (1930)], and also Monseigneur le Duc d'Ayen, Louis de Noailles. Botany was by that time almost fashionable, and many at the court had a passion for the study of flowers. The duke had one of the leading botanical gardens of Europe, having engaged the services of the famous horticulturist Claude Richard. Michel had the opportunity to visit Saint-Germain and to be introduced to the Monseigneur. He was, however, still very young and inexperienced, and the *entrée* was not pursued. M. David on the other hand, showed some interest sending Adanson on a trip to the *Compagnie's* settlements in tropical countries, especially to Senegal, which David's son had visited.

This project had a happy ending and eventually important consequences for Adanson. Contrary to Cuvier's statement in his *Éloge*, it was not Bernard de Jussieu who initiated the negotiations for this *voyage*, although both he and de Réaumur endorsed and supported Adanson's appointment.

The general atmosphere in the *Compagnie des Indes* was such as to cause some surprise at seeing responsibility offered to so young a man

as Adanson. The directors knew full well that the applicant was not particularly interested in the chores usually assigned to the young clerks of the Compagnie such as bookkeeping or minor supervisory roles. But David, his son, and a few other members of the administration were convinced of the practical utility of Compagnie sponsorship of scientific research in the territories under their jurisdiction. With this attitude, they were open to the influence of de Réaumur and de Jussieu. [David published some meteorological observations on Senegal in the *Mémoires de l'Académie* for 1738 (1740)].

Cuvier believed that the real reasons for Adanson's decision to make this voyage were pride and a desire to surpass his predecessors. This seems unlikely. It is evident that Adanson has arrived at a turning point in his life, when several paths were open to him. The problem was complex, but Adanson's action was not in response to motivations of pride, for he had no basis for this as early as 1748. It is a fact that he shared with his contemporaries the common beliefs that there was nothing much new in nature to be observed in Western Europe and that the inventories of the plant, animal, and mineral kingdoms there were nearly complete. He felt that to produce a truly original work he needed new materials. The logical solution was to go to the tropics. It is my belief that Lacroix (1936) interpreted the situation incorrectly when, imitating Cuvier, he wrote: "L'indépendance des on caractère, une très haute idée de sa valeur professionnelle, un profond mépris de l'opinion publique, une volonté d'arriver vite et haut, n'étaient guère compatibles avec une carrière normale." ([Adanson's] independant character, his very high opinion of his professional importance, a profound contempt of public opinion, the desire to rise quickly to the top were scarcely compatible with a normal career.)

This picture of Adanson's character could have been partly true of him later during the Revolution, but it is certainly not true of the young man who at the age of twenty is preparing to leave for Africa. Unfortunately this aspect of Adanson's later personality is the only one which his commentators retained, and they erroneously attributed it to his personality as a youth. In 1748 he was looking for a two-fold field of interest: that of gathering new species of living things, and that of seeking new experiences associated with the philosophy of man. If he had envisioned a brilliant career for himself—one that would be easy, pleasing, and fashionable, that would lead him to the top within a short time—he would not have given up his ecclesiastical canonry, but would

have curried the favor of powerful personages, would have indulged in intrigue for some sinecure which the monseigneur would have been quite willing to have procured for a young and most fashionable vicar. Had he wished it, he could have gone from place to place, from salon to salon, from antechamber to antechamber, from one mistress to another. With a small amount of wit borrowed on credit from one of several powerful masters of the day he could have mounted to the peak of contemporary fame. But, had he done so, he certainly would be unknown to us! Happily, he did no such thing. Instead, like the many others who in the three centuries of its existence have also frequented the Jardin du Roi, he developed there an ideal of disinterested work as well as the strength to work with no hope of gain.

Adanson left for Africa, in 1748, not as an appointed King's Botanist, but simply as a bookkeeping clerk at a salary of 150 *livres* plus his travel expenses. He had no choice of destination, for Senegal was the only French territory possessing virgin lands to which one might sail "quickly." Unexplored and accessible lands, where pioneer work and exploration could be pursued, were not so numerous in that day as one might expect. There were other advantages worth considering. There was regular commerce between Senegal and France. Saint-Louis was then an important and relatively well organized port, in spite of its poverty and from it one could make short trips to the interior.

As for dangers of a sojourn in Senegal, we know that Adanson was fully aware of them. The African coast was known as the white man's grave, for none lived there very long. It was thought to be the most unhealthy place in the world because of its climate and the miasmas. Adanson's biographers took pleasure in repeatedly quoting his famous words spoken before his departure: "Senegal is of all white settlements the most difficult to penetrate, the hottest and most unhealthy to live in, the most dangerous in all respects, and so known the least to naturalists." They quoted this statement not to show his fearlessness but to create the image of a man of pride with the urge to achieve fame rapidly. In this they were grossly wrong, for they ignored the real dangers in the undertaking, where the chances to die on the spot were much more numerous than to finish one's life in Paris delicately, seated with one's feet warmed in an academic muff. Does the statement not show, instead, a young man embellishing the facts to give himself courage? Have we not all, in the ardor of youth, felt the desire to do the difficult and the dangerous for the single pleasure of self-satisfaction without thought of

glory or honor? However the statement is interpreted, one cannot, certainly, judge a man's life by one sentence—which, moreover, is perhaps apocryphal.

Early in 1747 Adanson began preparations for his departure the following year. While continuing to attend lectures, he studied all available documents and published papers. He prepared card indices and booklets of abstracts. He translated quotations of foreign works about Africa, and he borrowed travel reports from others. His organization of these bibliographical details—now available for study—is amazingly modern. He remembered the classification of Pliny, studied as a youth in school. He made notes on every animal and every plant quoted in the books available to him; he compared the descriptions and underlined the author's observations. He assembled these data and produced order where there had been none before. He established synonymies for each organism, knowing that once in Africa he would have only his memory and his notes. All of this information was copied on large sheets in his exceedingly minute handwriting found among various mss. of the Hunt collection.

In this work, preparatory to his Senegal *voyage*, is to be found the source of many of Adanson's nomenclatural concepts. Once he ascertained that different names had been applied to the same species, that authors had renamed genera or species which had been named by ancients or in barbaric native languages, Adanson concluded that there was no need in his generation to change them again and to create other names, as Tournefort and Linnaeus had done. On the contrary, he retained the original oldest name wherever possible.

In addition to assembling all he could about the fauna and flora of tropical Africa, he learned all he could about the native people he would visit: their habits, ways of living, languages. He had studied well, before boarding ship, all that had been written about this small part of Africa. In this preparatory work, he reveals that he planned an intensive study rather than merely a vast, hazardous, and unprofitable trip through unknown countries.

He knew that the great problem for him would be to get his collections safely back to Paris. M. David certainly confirmed the fact—that scientific work in the field, separated from the literature and reference materials, would be difficult. He would have to prepare his collections for shipment to his patrons in such a way that the pieces would not decay nor become insect-infested. He realized that it would be more efficient to

take full advantage of the network of trading posts, rather than to adventure independently through an unknown and often hostile country. For all of this he was prepared before his departure.

From a lecture at the Académie by de Reaumur (1746), Adanson learned the latest preservation techniques for animals in liquid. Gessner had suggested that fishes be treated like plants—that is, dried and pressed between two sheets of paper, which technique, however, did not permit a satisfactory examination of anatomical characters. Some groups were not suitable for the treatment. Hence, he prepared the best formula known of a preserving solution, taking into account the difficulties to be met in Senegal. Adanson was quite modern in his concepts of laboratory needs. His inventory shows that he took with him such essential instruments as forceps, a microscope, a hand magnifier, a spy glass, barometers, and thermometers—essentials that he would have to replace several times through friends, during his African sojourn.

He left Paris on 20 December 1748 for L'Orient, where he had to embark on the Compagnie vessel the *Chevalier Marin*. But it was not until two long months later that strong fresh winds came. This time was used studying the problem of teredoes in the ship's planking (later published in the *Mémoires de l'Académie*) and collecting marine life from shore. From here he made his first shipment of specimens for the Jardin du Roi.

The *Chevalier Marin*, having found a good wind, sailed at last from L'Orient on 3 March 1749 at 10 a.m. On board, Adanson wrote to de Jussieu his last impressions of France and his first as a traveler, concluding: "I have other thoughts on my mind than those about the Compagnie des Indes. You know that the illustrious Académie, of which you and your brother are members, has always had an attraction for me, and that it is with the thought of entering it one day that I work in studies of natural history, which will occupy the largest part of my time. . . . I have taken up again the study of astronomy, in which I am rather strong, and I have pointed out to M. D'Après how I might be useful during the trip."

It would be early in 1754 before Adanson returned to France. By that time many things had changed in the kingdom, but he had foreseen correctly his election to the Académie. He was going to realize his youthful dream.

III SENEGALESE VOYAGE: 1749-1754

The passage was long and painful for the young man, for he suffered from retching seasickness most of the time between departure from

France and arrival at Saint-Louis. So terrible was the experience that this is one of the reasons he gave later when refusing proposals for new sea voyages.

Life aboard ship was also unpleasant. Adanson was not on friendly terms with the captain, whom he thought was somewhat mad. Captain D'Après de Manneville, on his part, had shown Adanson an insufferable contempt since shipping. A letter of introduction by Duhamel de Monceau was of no influence. At Tenerife Adanson went ashore against the captain's orders. He wrote that all passengers were nearly dead with hunger during the fifty-five day passage [cf. Letter to B. de Jussieu in Archives de l'Académie des Sciences].

On Thursday 24 April 1749, the *Chevalier Marin* reached Senegal. Saint-Louis offered a warm welcome to the new arrivals.⁵ To Adanson, Monsieur Estoupan de la Brue, the director of the Compagnie in Senegal, appeared to be as kind as had been M. David, and voluntarily provided all that was asked of him.

Adanson found the fort garden to be in a very poor state of maintenance and wholly unsuited to the experiments he wanted to make with plants he had collected during a stopover in the Canary Islands. He laid out a smaller garden, at the northeast corner of Fort Saint-Louis. There he would conduct his breeding work with *Antieuphorbia* [*Kleinia*], grow his melons, indigo, and many other species.

These scientific endeavors created social problems with members of the small French colony. His colleagues in the Compagnie were not accustomed to discussing scientific and philosophical speculations, and Adanson was not one to find pleasure in their more mundane interests. Happily for him, he met on arrival one of his former school-mates from Sainte-Barbe, a Monsieur Andriot, who was in charge of the fortifications.

To escape from the boredom of the fort, rendered more painful by the rudeness of the colonists, Adanson left on 10 May to visit Sor Island, located about one mile from the fort, on the eastern bank of the river. In those times one did not leave the environs of the fort except as a member of an armed expedition, and always there were the natural dangers—such as mosquitoes, the miasmas, the crocodiles and hippopotami, not to mention sudden tornadoes. The island, moreover, was covered by dense, thorny vegetation. There were no tropical clothes

⁵ Supporting documentation concerning Adanson's voyage is taken largely from Adanson's *Histoire naturelle du Sénégal* (1757), from scattered notes in various archives, and from those in the Hunt Botanical Library's Adanson collection.

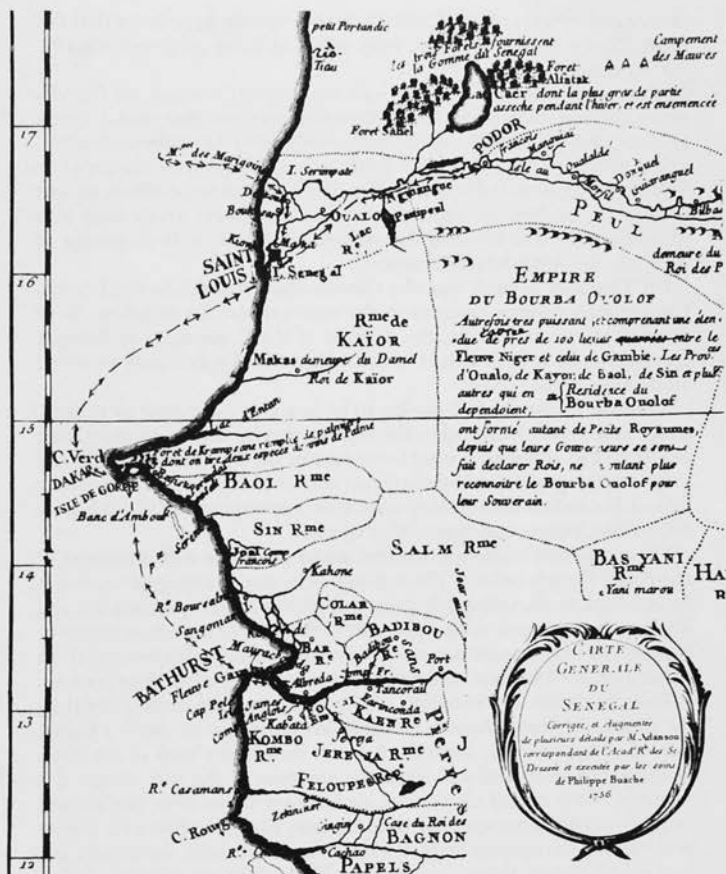


Fig. 4. Map of western Sénégal showing primary locations where Adanson worked and travelled between 1749 and 1753. [Adapted from Adanson *Histoire naturelle du Sénégal* (1757).]

suitable for such an expedition, and Adanson tells us that he wore large knickerbockers of light cloth, white stockings (often tattered and dirty), flat shoes with buckles, and a spacious shirt. His reddish hair was long, nearly to his waist, and he rolled it in a *filet* under his round hat.

On 16 June he undertook a more important trip, this time overland for an eight-day visit to the *Escale des Maringouins*. This was his first contact with the river delta, with its flat desolate land infested with mosquitoes, which one tried to control by burning herbs and gumwood. It was also his first contact with the *Maures* [the native white population of the western Sahara], so different from negro populations encountered on the island trading post. On the thirtieth he went by a small vessel to Podor. En route he sweltered in a cabin made insufferable by the odor of caulking melting in the heat of the tropical sun, and he found only a few hours of rest in the cool of the dawn. Two weeks later, when the rainy season began, he returned to Saint-Louis, bringing back with him an important collection of animals and plants and the correct latitude position of Podor. While the rains came, he worked to sort his collections, to classify them, and to preserve his preparations for their shipment to France. He also tended his garden. He did not wholly isolate himself, however, and was even provoked into a duel with the local heir-presumptive *du Brack*, the local negro king, after which he was known as "brave man."

Despite the favorable directives of Estoupan de la Brue, Adanson encountered some difficulties in his work, and on 15 August he wrote to Bernard de Jussieu that he was shipping his first packet of specimens, but complained that he had not been able to obtain a barrel in which to pack his birds. As a result, he was obliged to prepare them dry, as he did the fish, not having enough white wine as preservative. But his labor was wasted, since insects, especially ants and cockroaches, devoured most of the collections before he could ship them, and the high humidity caused others to decay before he could dry them. Far from receiving any help from his compatriots, he was dubbed *studium quid inutile quarris*.⁶

In addition to the eleven species of birds announced as comprising his first packet, Adanson expected to send de Réaumur live ostriches, or at least their skin, together with a crocodile and a peacock—then known as the *Damoiseau de Numidie* [Ltr. to de Réaumur, from Saint-Louis, dated

⁶ Adanson's accounts of difficulties encountered with other persons in Senegal are to be found in the ten letters he wrote to B. de Jussieu, now in the Archives de l'Académie des Sciences, Paris. Cf. also Remondet (1938).

"15 Aoust 1749" at Bibliothèque Nationale, Dépt. des Manuscrits, Mss. Fr., Nouv. Acq. 5, 151, fol. 44 *et seq.*].

M. de la Brue offered him the opportunity to visit an area called La Grande Terre, on the eastern bank of the river. But the river rise having been very early in 1749, the inundation prevented free access to the countryside and he had to cross flooded lands on the back of a negro. Camels hired to bring game from the forest were unable to return.

At this time Adanson became convinced of the importance of ecological observations, and while he did not use this expression, he conducted environmental studies, analyzing the milieu with the help of instruments at his disposal, especially de Réaumur's thermometers. He wrote to his patron asking for instructions about a thermometrical investigation, for which he developed methods later used by many other workers. The investigations undertaken by Adanson in 1749 were the first real attempts in the African tropics to recognize the nature of the environment.

It is from his letters to Bernard de Jussieu that we learn of the administrative difficulties which beset him and some of the details of his daily life. He was hurrying with his work, having in mind not to remain in Africa for more than one or two years. He did not deceive himself about the precariousness of his situation and was fully aware that he was indebted to M. de la Brue for all the help he received, even though this help often was handled by a subordinate—a situation that became increasingly annoying. Although his enthusiasm for his work lifted him above the shabbiness of associates and above the jealousy born from the privileges granted him, he understood perfectly the hostility of the less fortunate of the post, who live, he said, without truly knowing each other. Such a situation did not displease Adanson, for he was "more tranquil" and liked time to work. Every effort he made, however, was against opposition, and when he wrote to his patrons, he stressed this difficulty. His indefatigable activity in the midst of such difficulties demonstrates his true greatness.

Adanson very rapidly accustomed himself to the African way of life. He shared meals with the oulofs in their huts and chatted during long evenings with families whose members invited him to visit them. He was a promoter of anthropological investigation at a time when collections often consisted merely of curiosities completely separated from their human context. Very soon he learned to speak the *Ouolof*⁷ language and

⁷ The spelling *ouolof* is used here for the name and language of the negro population in the vicinity of Saint-Louis, Senegal. The later eighteenth-century spellings *oualof* and *oualov* also appear in the

was able to compile a dictionary, which unfortunately has up to now been lost.

On 27 August, after having observed the sun's passage at its zenith, he left by ship for the island of Gorée, as he had announced. Once more victim of retching seasickness, he gave up definitely all thoughts of other projects that might oblige him to travel overseas. He reached the island on 4 September and remained only a short time there, so that he might re-embark with M. de la Brue on the thirteenth for Portudal, a coastal spot south of Dakar. Returning to Gorée on 24 September, he visited the Madeleine Isles off Cap Vert where he looked for Thevet's inscriptions on baobab trunks, dated from the fifteenth century. He left on 20 October for Saint-Louis, arriving on the twelfth. On this trip Adanson showed again that he was really not an explorer, for he preferred to suffer ten days at sea rather than go by land along the coast with a caravan.

As soon as he returned, Adanson studied his collections, classified the organisms comprising them, and wrote letters and reports. He took the first opportunity to leave again on the twenty-third for Podor, traveling upstream on the river. Only one who has been there can comprehend what this second trip was like. It was the end of the rainy season, and the burning sky of October evaporated to dryness the gloomy and overheated plain, only recently inundated. The small ship stopped often. Comfort was only a memory. By 5 November it reached Dagana and by the tenth was at Podor, where he had a week free for collecting. On 21 December the flotilla was back in Saint-Louis. Adanson had spent a full month in the field and had visited the dunes on foot and the submerged areas by canoe.

On 11 January 1750 he went again to Gorée, where he made a full inventory of the human population, listing the families, the *signares* (free, mixed blood girls), the slaves, and the mixed breeds, and in the company of his friend Andriot, he sketched the topography. Then with M. de la Brue, he sailed southwards. Arriving in the Gambia River, he stood in ecstasy before a subequatorial vegetation that he had never seen before. It was a botanist's paradise. To de Jussieu he wrote, "I cannot repeat enough that Gambia is the most fruitful country in the world and the least known, and that no other place shows such a variety of plants and merits more of our observations. I hope to find there more than fifty new genera within one or two months, because one should not stay

literature, as does the nineteenth-century variant *wolof*. The older *euolof* is currently adopted in Senegal.

longer in such a bad atmosphere if one wants to escape from it [alive]" [cf. Letter to B. de Jussieu 1 August 1750].

Adanson left the Gambia River on 12 March and arrived in Gorée on the twenty-third. Now he directed his attention to Cap Vert, a part of the coast discovered long ago but still almost unknown. The island of Gorée, in the bay was safer, and no one landed on the continent except for firewood. The topography, however, was very suitable for a European settlement, although the surf and rocky shore made landing so difficult that when Adanson arrived at nearby "Cap Manuel," he nearly drowned when the canoe capsized. Desiring to study this area in more detail, he settled in a little village now disappeared but then called Benn, located north of Bel Air.

He crossed the dunes of the isthmus and drew a map, published by Chevalier (1934), on which he located two baobab trees, one of which was felled only a few years ago for the enlargement of the airport of Yoff. He lost part of a month's work due to an infection of his right hand, and on 7 May he was again at sea. He returned to Saint-Louis on 10 June, but heavy surf prevented the vessel's entry into the river for another ten days.

Adanson had now been in Senegal one year, during which he had worked almost without interruption. He took advantage of the rainy season to put his notes and collections in order, but made many local forays, on one of which, in September, he was caught in midstream in a sudden tornado and was nearly drowned. On 1 August he wrote to de Jussieu, announcing shipment of a packet containing samples to replace those which had been spoiled previously during transport. In the accompanying list he named 216 species of plants new to the Paris herbarium (cf. Margadant, AD 253).

The difficult working conditions demanded great patience and devotion to make possible the preparation and preservation of specimens. To prevent plants from drying too quickly in the dry season, during the trade-wind periods, it was desirable to keep them at a fairly constant temperature. Since the optimum temperature was that of the human body, Adanson's solution was to sleep on them as a mattress, thereby also maintaining the humidity at a good level. In this way he took care of the freshly prepared herbaceous specimens. During the rainy season, when drying was a problem, he followed the same procedure. Specimens prepared in liquid were watched vigilantly to protect them from predatory vermin and to maintain the pickling solution at its proper concentration. Again, we find little to defend Lacroix's contention that

Adanson chose this voyage as a quick and easy stepping-stone to success.

All his suffering and tedious work were recompensed, however, when he received a letter from Bernard de Jussieu, writing to tell him that he had recommended him for a position of botanist on the Isle de France (Mauritius), where Pierre Poivre was, with a salary of 220 *livres*. But Adanson had no desire to spend his life overseas, and any travel by ship was too painful. He therefore asked his patron for the creation of a post for him here in Senegal, a post that would include all necessary facilities for his work and carry with it the title of Counsellor, thus freeing him from the vexation of M. de Saint-Jean, the assistant to M. de la Brue. His letter, dated 1 August, included also a request for a vessel, with which he could more readily explore all parts of the country and make useful discoveries for the Compagnie.

His patron's delay in answering this proposal may have induced Adanson to postpone his return to France for one year. It is difficult to believe that anything else would have caused him to endure the indignities he suffered from a handful of boorish men, who were far more troublesome to him than all of the mosquitoes, vermin, and rain combined.

In the same letter Adanson had given de Jussieu the first outline of what he called his universal method of natural history classification.

J'ai trouvé une façon de décrire bien différente de celle que j'utilisais le temps de mon premier envoi, et c'est la seule je crois bonne et utile, parceque non seulement elle comprend absolument toutes les parties des différents corps naturels, mais encore parcequ'elle décrit ces parties dans toutes les qualités qui lui sont propres. . . . Je me sers de la même façon pour décrire les pierres, les quadrupèdes, les poissons, les insectes et les vers. Il n'est suivant moi que cette méthode qui puisse conduire à la découverte des classes naturelles, des diverses familles et genres naturels et à trouver les véritables différences spécifiques. Il est vrai messieurs, je suis jeune, mais il n'est que la différente façon de travailler des uns ou des autres qui fasse faire de plus grands progrès à ceux-ci et de moindres à ceux-là. Si je fais quelques progrès dans votre science, je ne le dois qu'aux bons principes que vous avez bien voulu me donner . . . [Letter to B. de Jussieu, 1 August 1750.]

(I found a descriptive method quite different from that used during the time of my first preparations sent to you, and it is the only one that I believe is good and useful, not only [because] it includes absolutely all the parts of the various natural bodies, but [because] it describes those parts in all the qualities which are particular to them too . . . I use the same technique to describe stones, quadrupeds, birds, fishes, insects, and worms. According to my feelings it is the only method which can lead us to discover the natural classes, the various families, and natural genera, and to find the true specific differences. It is true, Sir, that I am young, but it is only the difference of one's method of work from another's that leads to the greater success for one and

less for the other. If I make some progress in your science, I owe it only to the good principles you have been kind enough to give me.)

From this letter we learn when his *méthode de l'ensemble* was first proposed, a method making use of all characteristics of an individual so as to arrive at a more accurate judgement of the whole.

Shortly after writing to de Jussieu he announced his intention to remain in Senegal: "I am staying in Senegal, it being the most favorable place for my observations, although this area around the post is the least fertile spot."

He seems to have experienced at this time the first symptoms of tropical neurasthenia, a common malady among Europeans after a sojourn in tropical regions.

Nevertheless, during his stay in Saint-Louis he prepared maps of the river and the islands [Muséum National d'Histoire Naturelle Mss. no. 2,311] and surveyed Saint-Louis itself, which, he said, was the first survey there since that by François Froger in 1702. He took advantage of his short side trips to continue his visits to natives and his studies of their life. He made friends with new families around the city, and while we do not know how much he was tempted to consort with them, he did write short eloquent notes about the Senegalese beauties and kept in touch with these families long after his return to France. This he did through his friend Andriot, with whom he corresponded for many years, partly in the Ouolof language. He wrote in his travel report that he used to charm the children with his long hair and that he spent long evenings with their families listening to their stories and songs and watching their dances.

Among his colleagues there was little friendship. Daily life under the leadership of irascible Monsieur de Saint-Jean made many seek consolation in the pharmacist's concoction of a quinquina-alcohol infusion. They dulled their sorrow and shortened their joyless life. Every year they increased the cemetery population at the south end of the island.

So many trials were not without effect on the vigor and vitality of Adanson. He described himself to de Jussieu as a man whom everyone looks down on as an inconsequential person, who always walks last after the others, and who is exposed to thousands of indignities [Ltr. to B. de Jussieu, Dossier Adanson Archiv. Acad. Sci]. One cannot doubt the sincerity of this letter sent to Bernard de Jussieu. Adanson called himself a "sweet and quiet and shy man, polite with everyone." Delcourt, who made a very sound study of the settlement's societies, described this

European community as one where one's wig, one's bed, and one's waistcoat were gambled; where the crudest brutality, the most shameless libertinism, and the most vulgar superstition were common. Prevarication and corruption were rendered worse by incompetence, intrigue, and lack of discipline. The decadence of Adanson's companions became the more poignant to the sensitive young naturalist when he contrasted such difficulties, sorrows, suffering, and obtuseness with the bright future he hoped for himself, provided he would be able to resist the decadence and maintain courage. My own feeling is that this is the key period of Adanson's self-examination and that it determined his strange destiny, so fascinating and dramatic.

From this time onward Adanson did not make long excursions, using his time instead for researches in the Compagnie garden, or in his own nearby. Because his journals are not very informative and most data are scattered and poor, we cannot reconstruct his daily life. He reported on 7 May 1751 that he was in the bottom of Marigot de Del. On 4 July he began compiling, with his faithful friend Andriot, a series of climatological records on the large area at the rear of the fort then called the Savane and known later as the Place Faidherbe. His objective was to obtain a series of temperature readings with a de Réaumur thermometer to correlate them with evaporation measurements determined by use of two vessels, one with a large and one with a small evaporating surface, and then to correlate the two series of data with atmospheric pressure. It is unfortunate that his original records have not been found.

On 8 September he began a systematic study of dye-plants, particularly indigo [cf. Margadant, AD 254]. He used seventeen samples of different varieties or selections and devised a new method of liquor preparation. The Compagnie administration had a special interest in this subject, and Adanson's studies included the economics of establishing an indigo industry, reporting that the operation would require an investment of 158,000 livres, including labor costs. His experiments were repeated the following year in satisfaction of the director's demands [cf. Margadant, AD 182]. Meanwhile, on 2 October he went to Griel Island, and on 8 December to the *marigot* [a small river-branch in a delta] which then divided the Sor Island into two parts (a passage now filled in).

De Réaumur, in Paris, did not forget his correspondent and presented to the Académie Adanson's observations of 26 March 1751 on a new species of raven. Adanson did not know until long afterwards that de Réaumur had submitted his name in nomination on 24 July as a *Membre Correspondant*

of the Académie. The young naturalist was provided one foot in the door of the venerable house, and a path to immortality was opening. The way would be long, barren, and lonely, but he had confidence in himself and in the correctness of his concepts—self assurances that would be powerful helps.

On 15 August Adanson shipped a barrel containing sixty-five collections, including fifty-two species of birds, many new to science, to which he gave such Ouolof names as Uett-Uett, Kakaldeum, Boude, and Tibilank. Included also were three species of fish. A second shipment included a note about the Uett-Uett, which he described as a new genus of birds related to the Brazilian Jacara-bird. A third list accounted for forty-six specimens, of which seven were quadrupeds. Each of these lists gives the Linnaean generic name, when known, the habitat, and the place of collection.

Early in 1751 he had established a planting of melons in the Compagnie garden, where he studied their development until October. He repeated these studies in 1752, but encountered difficulties with insects and diseases. In spite of these efforts, time passed slowly in the settlement, and Adanson, not quite inhibited by tropical torpidity, initiated with help of his friend Andriot a treatise on optics. This work, which included tables for lens calculations, is known only by the first two parts: those on dioptrics and on catoptrics. Andriot made the calculations; Adanson wrote the text and drew the figures. The presence of this manuscript in the Académie des Sciences at Paris enables us to know also of the two microscopes that he used in Senegal. [cf. list of Adanson mss. p. 115].

The visit of Poivre in 1751 may be considered as the first real Pan-African botanical conference held on the western coast of Africa. Poivre was en route to the Isle de France (Mauritius) and offered to send back to his colleague species of plants, as well as spices, from Moluca and India, together with Moka coffee, cloves, nutmeg, and black and white pepper.

Adanson's primary concerns at this time were the development of his analytical method and the recording of his encyclopedic knowledge—interests which he followed all his life without interruption. He also composed a memoir in which he recommended culture of crops to be undertaken with the help of free negroes, and in which he objected clearly to the practice of slavery. He proposed to "replace slaves by deported criminals, who would bear a welded plate indicating [the nature of] their crimes; they would be in chains and would work in this torrid zone in the place of negro slaves" [fide Adanson in Diderot's *Encyclopédie*,

Fig. 5. Adanson's map of the lower Senegal, showing the small Ile Sénégal [Saint-Louis] in the river, the large Ile de Sor at its right, and the narrow Langue de Barbarie separating the two from the Atlantic Ocean on the left.

Courtesy, Muséum National d'Histoire Naturelle, Paris

ATLANTIC OCEAN

LANGUE DE BARBARIE

ISLE DE GRIEL
VILLAGE DE ROUS

THOUX

(27)

MARIGOT DES FOURS
LA CHAUX

ISLE DE SOR

ISLE DE SAINT-LOUIS

TERRE

GRANDE

ISLE DE SOR

ISLE DE SAINT-LOUIS

ISLE DE SOR

ISLE DE SAINT-LOUIS

ISLE DE SOR

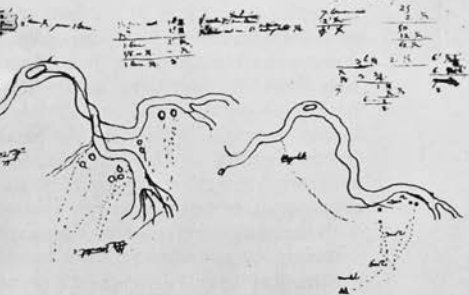
ISLE DE SAINT-LOUIS

ISLE DE SOR

ISLE DE SAINT-LOUIS

ISLE DE SOR

GUEBEN



Le Port de Guelon est situé à l'embouchure de la rivière de la Grande, qui se jette dans la mer par un bras qui se nomme le Port de Guelon. Ce port est très bon pour le commerce et pour la pêche. Il y a une grande quantité de poissons dans ce port. Le Port de Guelon est très bon pour le commerce et pour la pêche. Il y a une grande quantité de poissons dans ce port.



ASIE, continent de l'orient
L'Asie est le plus grand continent du monde.
Elle est située à l'orient de l'Europe.
Elle est limitée à l'ouest par l'Europe, à l'est par l'Océan Pacifique, et au sud par l'Océan Indien.

AMERIQUE, continent de l'occident
L'Amérique est le deuxième plus grand continent du monde.
Elle est située à l'occident de l'Europe.
Elle est limitée à l'ouest par l'Océan Pacifique, et à l'est par l'Océan Atlantique.

AFRIQUE, continent de l'occident
L'Afrique est le troisième plus grand continent du monde.
Elle est située à l'occident de l'Europe.
Elle est limitée à l'ouest par l'Océan Atlantique, à l'est par l'Océan Indien, et au sud par l'Océan Indien.

EUROPE, continent de l'occident
L'Europe est le quatrième plus grand continent du monde.
Elle est située à l'occident de l'Europe.
Elle est limitée à l'ouest par l'Océan Atlantique, à l'est par l'Océan Méditerranéen, et au sud par l'Océan Méditerranéen.

Dakar]. Reasonable humanity, he wrote, induces us to suppress slavery. This public position was a most courageous one for Adanson to assume, in a century when slavery was widespread, especially since he himself belonged to a company that depended on slavery.

Several times during the second half of the year 1752 he made trips outside the compound of Saint-Louis. On 20 August he went to the Marigot des Fours à Chaux, on 12 October to the isles Au Bois and Thionk, and on 4 November he returned again by land to Marigot des Fours à Chaux, from whose banks clay was being removed for brick-making in the nearby ovens.

It was not until 15 June 1753 that he went to the salt works in Gandiole, where he drew a map of the pans of salt deposits and became the first to wonder how those pans were continuing to be formed from sea water coming in from under the ground, even though situated more than a mile from the ocean. He returned to Saint-Louis through Gueben, having crossed the river and followed the inner bank of the peninsula known as Languede Barbarie, the paradise of pelicans and eagles. On 10 July he set forth on a longer trip, this time to Galam, his first important excursion for nearly two years. He had scarcely begun this journey when, on 2 August, he was flattened by a severe illness, which coincided exactly with the annual arrival of the Compagnie's ship at Saint-Louis.

During the period of 2 August to 6 September he had returned from Galam, had wrapped carefully his collections, and had prepared the identifying labels. In all of this, Andriot assisted him. Among other things they remembered to include a dozen ostrich eggs, preserved in gum bdellium [an exudate of *Balsamodendron*]. The preparations involved labelling, classifying, and grouping the specimens in cases, as well as the packing of about 200 live plants for the Jardin de Roi. This frantic activity terminated nearly four years of hard work under tropical conditions, the last two of which were endured despite poor health and the aggravations of isolation. For even a completely healthy man, the activity maintained by Adanson would have been rare; for a sick man, it approached the incredible. If we may trust his report of his illness it is probable that he used his health as an excuse to terminate his stay in Senegal, which had lasted long enough to suit him. News that de Jussieu had sent him concerning a position at the Trianon Garden and the word he had received about his nomination to the Académie certainly must have been responsible for his decision to leave Africa and return to his academic life. On 6 September 1753, in company with two other passengers,

he shipped on the *Astrée*,⁸ and on 4 January 1754 landed at Le Conquet, France. One dream had ended; another began.

On 18 February 1754, after a four-month journey, he walked the Paris pavements. He soon learned that three-quarters of the plants he had shipped alive had died from the freezing cold. It was a first disillusionment; many others would follow. He had gone to Senegal as a sub-clerk, with an annual salary of 150 *livres*; he returned as a second-class clerk, whose salary was 600 *livres* but at the age of twenty-six he had no intention of pursuing a career in the *Compagnie*. Ahead of him, glory seemed to open her arms. More than 5,000 species of the three natural kingdoms were his riches. Some of the zoological ones, *e.g.*, the Guib and Corinne antelopes, would be described by de Buffon, a few of the plants by Linnaeus and himself, but the larger part would never be studied. He had endured a hazardous life during the four years in Senegal, but he was not an explorer. He had followed the relatively well-known paths established by *Compagnie* men on their visits around the settlements and along the trade points on the river. He had conducted the first real scientific expedition in black Africa. He told us that in 1750 he had planned a project to cross Africa from Niger (Senegal) to Tunis, but he never thought seriously about making this long crossing which would have far exceeded his own capacities as an explorer.

All this reluctance to become an explorer did not prevent Adanson from collecting an extraordinary cabinet, including a marvelous assemblage of Senegalese plant and animal life. There were 100 bird specimens complete with feathers, 100 sets of birds' bills and feet, forty quadrupeds stuffed or preserved, or represented by skeletons. There were 150 birds pressed and dried, 600 insects in glass vials, 100 crustacea and crabs, spiders in glass vials, and thirty snakes and amphibians, some dried and some stuffed. Lesser marine life included 700 shells, 200 corals, corallines, lithophytes, sponges, polypes, and worms, and 400 fossil snails. Geology was represented by 500 samples of minerals, ores, gold, iron, stones, ground. His herbarium contained 600 dried plants, seeds of 1,000 species, and a large number of specimens of resins, gums, and exotic woods [Manuscript, Muséum National d'Histoire Naturelle no. 2311, and Bibliothèque Nationale, Dépt. des Manuscrits: collection Moreau 308 (24), folio 233-246].

⁸ Cf. letter dated 2 janvier 1754, for reference to the ship "L'Astrée" returning from Senegal, in which Adanson is listed as a passenger. Dépôt d'Archives de Brest 2ème Région Maritime, I. E. Cf. also, Lettres de l'Intendant à la Cour and Relevé de la liste des passagers au rôle d'Armement de l'Astrée. Article 1, p. 143, 3, pièce 6, Etat des Passagers de l'Astrée Article 2, p. 36-39, Pièce 2, 5 février 1754. Archives de Lorient.

What would happen with so many riches, so many promises for the future?

In addition to the riches of his cabinet, in addition to his knowledge of Senegal, Adanson had also learned much about man. He had met people unknown until then except through the slave traders or through theoretical and sentimental works like those of Jean-Jacques Rousseau. Adanson had come to recognize in Man the profound unity of the species—the ability to think. This unity he placed ahead of all others in his philosophical concepts, and when later his historians rejected his system of nomenclature because he had adopted names taken from most of the world's languages, they showed their ignorance of Adanson's concept of human unity. They failed to grasp his great idea and missed the significance of his principle of universality of knowledge, a principle which constitutes the basis of all of Adanson's work.

IV THE GREAT PUBLICATIONS: 1754-1763

Adanson came home to a changed world. His father had died in 1749 during the first year of his son's *voyage* to Senegal. His mother, Madame Adanson, had gone to Aix-en-Provence to be near her son the vicar, and the earlier connection with the powerful Cardinal de Vintimille was tenuous.

The scientific environment of Paris had changed markedly in less than five years. Adanson had left for Senegal with the works by Tournefort, Prosper Alpino, and Linnaeus under his arm. He had abstracted the works of de Réaumur and Pierre-Louis Moreau Maupertuis (1698-1759). As early as 1749 de Buffon had published the first three volumes of his famous *Histoire naturelle*, and Etienne Bonnot de Condillac (1715-1780) had written his treatise on metaphysical systems. Next year appeared the prospectus of the great Diderot *Encyclopédie* at a time when Chrétien-Guillaume de Lamoignon de Malesherbes (1721-1794) was named *directeur de la librairie*, when Stromer had completed Fahrenheit's work, and when de Réaumur was giving the thermometer its final form. It was the time when Jean-Jacques Rousseau was entering his philosophical stage, and Louis-Guillaume Le Monnier (1717-1799) became the king's surgeon.

The following year, 1750, the "Siècle de Louis XIV" of Voltaire, was published and also the thesis of the abbé de Prades.

Despite his absence and thanks to de Réaumur and to de Jussieu, Adanson had begun to stimulate talk about himself. When he returned in February, de Réaumur was in Paris, but Adanson probably did not go

to see him, for he was just emerging from a severe illness. We know through letters from Adanson to Bernard de Jussieu that in 1752 he had ceased answering Adanson's letters. Michel went, however, to the de Jussieus' home, the true sanctuary of botany. Adanson knew the place intimately, since he had stayed there before leaving for Senegal, and one is not astonished to learn that he first settled there on his return. The de Jussieus' house was one of several floors, located in rue des Bernardins [now number 11], and to it Bernard welcomed all whose passion was botany. The young naturalist from Senegal brought de Jussieu ostrich eggs, and it was doubtless during a lunch period that he removed them from their protective envelopes of "bdellon grease" [a *Balsomodendron* exudate] so as to taste them in the company of Bougnier, Casmus, Mairan, Nollet, and Brisson [cf. Diderot's *Encyclopédie* Dakar].

Paris was not the only place informed of Adanson's return. When Adanson left France, Bernard de Jussieu had informed Linnaeus of the expedition, and during the four years' sojourn the old professor had regularly given news to his Swedish colleague of his pupil's discoveries. He wrote him, "Another important collection arrived from Africa sent



Fig. 6. Baobab tree growing on Cap Vert, Senegal.

Photo by G. Labitte. Courtesy, Institut Français d'Afrique Noire

by Adanson, whom I told you about and whose departure I mentioned to you" [Letter dated 19 fevrier 1751, in Smith's Linn. Corresp., vol. 2, p. 221.] The same year Linnaeus wrote to Abraham Baeck (1713-1795) concerning the gum arabic and especially about *Mimosa aculeata* Adanson [Corresp. Linn. I/4, p. 147, 26 avril 1751]. Linnaeus was also in correspondence with a Bordelese physician, Jean-Baptiste Aymen, a *Membre Correspondant* of the Académie des Sciences de Paris, and Aymen was in touch with Bernard de Jussieu, who was his "mei amicissimus," [Corr. Linn. II/1 p. 107, lit. 60, 1 avril 1753], and certainly also was in touch with Adanson himself, whom he considered his very dear friend.

On 14 May 1753, Linnaeus wrote Aymen about the baobab tree saying, "The baobab B. de Jussieu calls *Adansonia*, but its character we have not [learned], neither [know we] the flowers, so that I don't know in which class it belongs." [Corr. Linn. II/1 p. 110, lit. 61] This suggests that the two botanists had been writing about the matter for some time. On 24 June 1753 Aymen replied to Linnaeus,

Dudum est B. Jussieu scripsit mihi, p. alp. adansoniam dixisse: characterem vero non communicavit. specimen siccum et mutilum possi deo. *Adansonioe* flos omnium ad monadelphiam polandriam pertinet [Corr. Linn. II/1 p. 112, lit. 62]. (B. de Jussieu recently wrote me about Baobab Alpinus, as he calls the *Adansonia*, whose characters he does not want to communicate. The dried and mutilated specimens which I have of *Adansonia* show the best and maximum connection with the *Monadelphia polyandriae*.)

We note here an affair which lasts for several years. Bernard de Jussieu had received a specimen and a provisional description of the baobab [cf. Margadant, AD 252] and had refused to communicate the documents to his colleagues so that Adanson would have priority for publication when he returned to France. He merely mentioned to Linnaeus that he had given the name *Adansonia* to the baobab. Specialists were wondering, however, about the systematic position to which that strange and monstrous tree would be assigned. This is why Aymen explained B. de Jussieu's refusal to Linnaeus. We do not now know where the Bordelese physician had obtained his mutilated specimens. They might have come from one of the first visits Adanson paid to the isle of Sor in 1749. This matter could have been communicated by Linnaeus to the Upsala Academy of Sciences, as the Aymen letter was addressed to the members of that body.

Just before Adanson returned to Paris, Aymen wrote again to Linnaeus, on 10 January 1754, saying, "Adanson, my dear friend, has returned from Africa, bringing back thousands of rare dried plants, which contain specimens having yet never been described, representing unknown new

genera he observed, about which he will soon publish. The *Adansonia* belongs to *Monadelphia polyandria*. I tell you that neither de Jussieu nor Adanson wants me to let you know the number of stamens, . . ." [Linn. Soc. Lond., Letters, vol. I, fol. 221-222, published by Hulth, vol. 3, p. 124, lit. 67] Aymen's correspondence with the young naturalist confirmed his opinion about the systematic position of the baobab and provides evidence that Aymen and Adanson regularly exchanged correspondence, even during the return journey, and surely Aymen knew by that time that Adanson intended to publish his results soon. Linnaeus could not wait any longer, however, to include this tree in his *Species plantarum* under the name *Adansonia* Linnaeus, [cf. Margadant, AD 268] and on 10 June he wrote again to Aymen,

Accepisti sine dubio ultimas meas in quibus a Te supplex petii numerum staminum Adansonioe in Speciebus meis p. 1190 eundem publice ab Amicissimo D.B. Jussieu efflagitavi [Corr. Linn. II/1 p. 122, lit. 66]. (You certainly received my last letter in which, I beg you, I have published in my *Species* [on] p. 1190 [the plant] of my best friend B. de Jussieu to whom I had asked.)

Although Adanson arrived in Paris in February, it was not until 28 June 1754 that he entered the controversy. At that time, in his letter to Linnaeus, he wrote about his correspondence with de Jussieu, and from his words it is clear that he is writing to Linnaeus for the first time. He told him of his specimens, wrote about baobab, but did not mention *Adansonia* [Corr. Linn. II/1, pp. 1-2, litt. 1.] On 1 October Linnaeus replied that he had received the specimens, which he had placed with those from Palestine and Cairo sent by his former student Frederik Hasselquist (1722-1752). He refers to the baobab, advising Adanson that the seeds de Jussieu had sent him recently were germinating with leaves unfolding well in a hot room, although they had not been given all necessary attention. He reported the same about *Acacia cortice albo*. Linnaeus emphasized that he had not known Adanson previously: "Sic noveram te ex tuis donis, antequam ullus de te scriperat praeterquam Ill. Jussieu." [Corr. Linn. II/1, pp. 2-3, Litt. 2.] (So I knew you by your gift before de Jussieu wrote me about you.) The end of the letter flatters his correspondent with, "Vale et pomoria Rei herbariae extende, artem tua luce illustra . . ." (Farewell, that the plant kingdom be increased by your work and illustrious light.)

On the 8th of the same month, Baeck informed Linnaeus of Adanson's return and indicated Adanson's intentions to publish the next year. [Corr. Linn. I/4, p. 318, lit. 873.] Then on 25 November Daniel Zachrisson

Hallman (1722-1782) provided details about the richness of Adanson's collections, writing,

Mr. Adanson, som förlenen wår kom ifrån Senegal, han har i 6 åhr rest uti Affrica ock besökt 30 kungariken omkring Senegal öfwer hwilka han wisat mig en Carta. De äro wäl icke stora; men hans samling af snäckor, polypper, insecter, crania, örter, mineralier, foglar ock fiskar är ganska stor. Han har ei ännu hint at städa mer än insecterna, af hwilka han hade några hundrade, som aldrig äro beskreffna. En snäcka hade han, som war vivipara. En liten insect, som hade fingers breda tentacula, uti hwars ändar ögonen sitja. [Paris, 25 novembre 1754. In *Corr. Linn.* 1/6, p. 314, lit. 1443].

(Mr. Adanson, who returned from Senegal last summer [an incorrect statement] during six years of travel in Africa visited thirty kingdoms around Senegal, of which he showed me a map [now at *Muséum National d'Histoire Naturelle*]. These are not very large but the collections of shells, polyps, insects, skulls, plants, animals, birds, and fishes are very abundant. He has not yet had time to study anything but insects, of which he has several hundreds never described before.)

The fact is that Adanson classified his collections very rapidly and undertook to publish the results of his travels. It was his ambition to cover all fields of knowledge about this little known area for which he had such an abundance of materials.

In 1755 his printer, C. J. B. Bauche, published a prospectus of two pages giving a summary of the different titles of the eight volumes Adanson proposed to publish [cf. Margadant, AD 4]. This prospectus mentions (p. 2) that the work "is" delivered to the printer now, but it did not appear in the bookshops until 1757. One may ask, what was Linnaeus talking about when on 31 March 1756 he wrote to Baech that he had lent to Count Carl Gustav Tessin his Adanson Senegal book, and that after having been lost it came back home? [*Corr. Linn.* 1/5, p. 7, lit. 928]. Might this refer to the prospectus only? When the second prospectus was printed in 1756, the account becomes very impressive. We learn that the eight volumes will treat the animals, flora, meteorology, physical geography, and anthropology of this Senegalese country in Africa. Adanson's small capital would not allow him to publish such a work at his own expense, and for it he sought subscriptions. This subscription was eighteen *livres* for the first two volumes, of which twelve were for the first alone. It seems likely that Bauche advanced the money for printing the first volume with the hope that subscriptions would be sufficient to enable him to get his money back, together with a reserve for the second volume.

Adanson looked for a priority item among the different subjects for his first volume and chose shells, which were numerous and represented

a large number of species. Conchology, a branch of zoology, has been very little studied; only the beautiful shells were valued by collectors, and these enriched nearly all fine cabinets of natural history. For this group Adanson was able to apply his new method of *ensembles*, as he had planned it in 1750 in Senegal. On the basis of his interest and training, he should have published first his botany of Senegal, but he did not do so because by that time he had not yet developed his own system of nomenclature, although he had already begun to reject that of Linnaeus. Too, Tournefort's system of botanical classification had been useless in Senegal for new genera, likewise that of Pierre Magnol, for both of them, as well as that of Linnaeus, were based on too small a number of characters. In classifying his plants he worked closely with Bernard de Jussieu and his brother Antoine, but he did not fully agree with their ideas either. He was looking for a personal expression, one more fitted to his general philosophy of nature. Even at this time, his very personal views about natural history brought him into conflict with naturalists who were concerned with the improvement of existing artificial or partial systems.

As an introduction to the first volume, he wrote an abridged account of his travel and work in Senegal. The text was written by 1755. France was then approaching the Seven Years War, and England was far from having given up her pretension to France's African settlements, so Adanson considered it prudent to omit from his discourse all information that might be useful to the eventual occupiers of the country.

The preparation of this work did not consume all his time. He was also classifying and identifying according to his method the numberless treasures in his collections. Many specimens had been damaged, and these he had to sort from the good (as shown in a list of Senegalese plants [cf. Margadant, AD 252, 253]). At the same time, he carried on various researches, such as those which were leading to a revision of French spelling, later used in his *Familles des plantes*.

Adanson believed that human knowledge is an unbreakable chain, which forms a network of experiences established by man between individuals acting on our senses. Out of these intercourses he believed the universe to resolve itself into a plurality of separate aggregates. By the same reasoning, he held that human knowledge has no reality without the spoken or written expression, which makes possible the communication and comparison of human reactions. From this follows the primary importance of grammar, the indispensable tool of knowledge. He emphasized that neither knowledge nor science is the creation of any

one people. Every human group, he said, knows particular things learned from its own environment. Human knowledge is therefore merely the sum of a local knowledge. What seems barbarous to us is common to others, and the reverse is also true. The concept of exoticness is, of course, completely relative. Consequently, he contended, it is unnecessary to give new names to things that already have been named by others; this practice, so frequently followed, leads to confusion. Let us group, he wrote, all names of objects, as used in all countries, into a single scientific lexicon. This kind of reasoning led Adanson very far afield, too far, for no one understood his idea, and since his work was only partly published, it never revealed to the reader the real homogeneity that was his objective.

To meet the publication expense of his first volume, Adanson sought to earn money through the sale of his cabinet, and undertook formalities for its purchase and addition to the Cabinet du Roi. He wrote to de Buffon on the matter. The "Surintendant" of the Jardin du Roi showed a warm interest in the young naturalist. When the volumes about African mammals were published, de Buffon quoted Adanson, whose Latin descriptions he published, calling his young colleague "quite a clever observer."

New philosophical and scientific work was appearing every day. This century, which has been described as futile and light, was in fact one of the most fruitful in our European history, one in which men manifested enormous energy and high creative genius. Intellectual productions appeared so rapidly that one had to keep up with them or he would become isolated in an ivory tower.

Adanson was far from being the recluse and misanthrope that his biographers have described. He was by then again robust and healthy. He enjoyed dancing and was a good swordsman, a fine pistol shot, and a smart rider, having had a long training while in Africa in all those sports. He wrote that his blood was impetuous and swift, causing him to expend his energies in physical activities. He knew how to mix the pleasure of work with recreation. He appreciated Glück, ballet, and the opera. He was far from disdaining the attractions and charms of the ladies, as is revealed by handwritten notations in his copy of Diderot's *Encyclopédie* now at Dakar.

Adanson also maintained contact with his friend, Andriot, whose life in the country had an attraction for Adanson. They continued research through correspondence, and there was hope for an additional manu-

script on optics, as is suggested in a letter from Andriot: "I made a fair copy of all observations according to the instructions you had sent me, and I think that next month you will be able to put together the calculus of the cylinders" [cf. Margadant, AD 140], and later about the determination of the optimum slope and shape of the glass in greenhouses and conservatories [cf. Margadant, AD 321]. This faithful friend sent to Adanson at this time samples of wheat, which would be studied in detail the next year.

On Saturday, 4 December 1756, during the Académie meeting in the Louvre, the *commissaires* voted to read and approve the first volume of Adanson's *Histoire naturelle du Sénégal*, with their conclusions to be written by de Réaumur and B. de Jussieu and read by the astronomer, Jean-Paul Grand-Jean de Fouchy (1707-1778). This work, wrote the *Commissaires* "develops clever views, shows exactitude in descriptions, acuteness in observations, and leads one to think that Adanson's work will be favorably received by the public." For the young naturalist this was his great day, his day of recognition. It was not the first time his name had been mentioned in the Académie meetings, but until now there had been no certificate. His certificate was not delivered until the book was in print, as is shown by the dates. The same was to be true later for his *Familles des plantes* in 1762. [cf. Margadant, AD 359.]

Although de Réaumur and Bernard de Jussieu sought a warm approbation by the public for Adanson's work, some scientists were holding another opinion. Daniel Hallman wrote to Linnaeus on 5 September 1757, Jussieu har jag icke håller råkat; ty han har varit ute på landet. Adansson har jag varit hoos; han har nu temligen stålt i ordning sine samlingar, samt gifwit ut en tome af sin beskrifning; men som i den ei är annat än en widlyfttig inledning til hans resa; samt några småkor beskreffna som utom 4 å 5 äro alla ganska bekan te, så anser jag icke honom så angelägen, at jag skulle föra honom några hundrade mil i min kappsäk, som utom dess är nog proppad; do ck hoppas iag få honom i Tyskland, ty han sade mig, at Exemplar tit afgåt. De följande tomerna, som snart komma, blifwa mer intressante. [Corr. Linn. I/6, p. 434, lit. 1472].

(I have not seen de Jussieu, who was in the country. I have been to Adanson's. He has more or less put his collections in order and has published a volume of his descriptions, but it is only a lengthy introduction to his *voyage* with some descriptions of shells, which except for three or four are already well known. There is nothing so important in it that I should travel miles with it in my knapsack. However, I hope to have it in Germany, as he assured me copies have been sent there. The next volumes which are to appear soon will be more interesting.)

It seems clear that no contemporary of this work understood that it

represented a prototype of a new conception in natural classification.

De Réaumur died on 18 October 1757 while at his estate at la Bermondière, in Vendée, at a time when his former pupils and "correspondants" were scattered among other Académiciens. We read in the transactions of the Académie for 20 November 1757, "I have said that M. de Réaumur's death left many of his correspondents without benefit of an Academy member to whom they may refer; accordingly, it has been decided to meet this situation as follows: "[as] Académicien: de Jussieu B., [as] Correspondant: Adanson."

Adanson was always loyal in his admiration for his professor Bernard de Jussieu. He had been de Jussieu's pupil at least since 1752, when de Réaumur already was too old to answer his letters from Senegal. However, when the question was raised as to whom to dedicate his book and whom to seek as a patron, Adanson did not turn to anyone at the Académie but to the "Very High and Very Powerful Lord Louis de Noailles, Duc d'Ayen, Chevalier des Ordres du Roi, Lieutenant-Général des Armées de sa Majesté, Gouverneur du Roussillon, Capitaine et Gouverneur de Saint-Germain-en-Laye, &c." It is to be noted that the "&c" follows immediately the mention of Saint-Germain, one of the most beautiful gardens of Europe, thus focusing attention on this important position. Furthermore, Ayen was in correspondence with Linnaeus and was wholly devoted to his principles of classification [Corr. Linn. I/4, p. 186, lit. 754, date 30 juillet 1752]. In 1788 he sponsored and erected a statue in Linnaeus' honor. It is most probable that Adanson, through this dedication of his *voyage*, expected to be introduced to the Trianon Garden by de Noailles. Damien's attack on Louis XV had directed again His Majesty's attention towards such serious pastimes as natural history, which had been one of his childhood interests. As a result Trianon was one of the most lively sections of Versailles. [cf. Margadant, AD 259.]

Adanson's book about Senegal is divided into two very distinct parts. The first, describing the *voyage* itself, shows the country to be picturesque and reveals the naturalist pitted against the vicissitudes of nature and testing the friendship of savages; it anticipated the work of the naturalist Jacques-Henri Bernardin de Saint Pierre (1737-1814). The scientific facts are exact and never contradict any other of his documents, but his feelings about his colleagues in Senegal, whom he had criticized in his private letters, are completely masked.

One point concerning this *voyage* remains to be clarified, and the answer may be found in the archives of the Compagnie des Indes. Not a

single word is said by Adanson about Messieurs les Directeurs, who in turn seemed to have become quite uninterested in him and his work and played no part in his publication. It is highly probable, however, that they issued restrictions concerning the information given in his travel accounts.

The map with which he accompanied his text is only an improved version of that by De Lille. Adanson wrote, "It has been carefully executed by Mr. Buache, [the King's geographer, member of the Académie des Sciences] whose competence and ability are so well known from his [other] works. It is only the summary or abstract of a larger and widely detailed map which the author proposes to publish in the volume which deals with physical history of Senegal. There he will provide an account of the additions and modifications that one could notice, [reporting] the technique he used so that this map would be more accurate than any one formerly published." The map is small scale, covering the entire West African coast from Cap Blanc to Gambia, and is of little value compared with that which was to accompany the projected second volume of his *Histoire de Sénégal*. Some of Adanson's original drawings, now at Muséum National d'Histoire Naturelle, have been identified recently by Mme. G. Duprat [cf. Mss. 2311].

The second part of the work is accompanied by nineteen plates, engraved by Marie-Thérèse Reboul-Vien. The preface contains interesting details of Adanson's intentions and of his philosophical concepts. He says he abhors all classification systems, that he knows their defects, and that he accepts none of them. But not content to merely reject them, he sharply criticizes them, and without citing Linnaeus, he says that he wants to escape from those "futile and lifeless repetitions which offer to the public only those things seen a thousand times already: let us multiply observations and not systems or books, which do more to increase the confusion in natural history than to instruct." It was not until 10 February 1758 that mention of the work is known to have been made by Linnaeus, when he wrote to Burmann, "Vidi jam Adansonii itin: Senegalis tomum primum." (I have seen Adanson's travel: the first volume on Sénégal.) [Corr. Linn. II/2 p. 116, lit. 349.]

The Duc d'Ayen, having influenced the king to appoint Le Monnier the King's Physician, also influenced His Majesty in favor of the creation of the botanic garden at Trianon. Claude Richard, then chief gardener to Louis XV, asked for assistance in laying out the design, and Bernard de Jussieu was invited to furnish the classification scheme. The king was

fond of this old quiet and scholarly man, and often chatted with him in the garden. It is possible that during one of those walks Adanson was introduced to His Majesty. Later Adanson wrote that he had been named King's Botanist, a statement for which we have not evidence or proof. He did work for a few evenings with de Jussieu in preparing the list of plants for Trianon and rearranging the *Systema naturale* of Linnaeus (1738). Although he said he wrote the manuscript [cf. Diderot's *Encyclopédie*, Dakar], the original copy of de Jussieu was evidently written by de Jussieu himself, for the document now at the Muséum National is in Bernard's hand, with additions by Adanson.

At this time, 1757, Adanson was hard at work preparing both his second volume on Senegal and the botanical classification for the *Familles des plantes*.

Ten years earlier Adanson had begun a preliminary study of previous authors' use of plant characteristics, particularly the uses by Linnaeus in his *Genera plantarum* [cf. Margadant, AD 81] and successively in his *Species plantarum* and *Philosophia botanica*. In this study Adanson compared and grouped the uses graphically to elucidate the classification systems. As he has explained it to Bernard de Jussieu, it was his plan to examine the use of all characters employed by others and to group all the partial systems in such a way that he could find the "character of the whole" and thus create the perfect classification system for the plant kingdom. If we accept Adanson's statement, he made twenty-nine different systems before going to Senegal, followed by twenty-seven additional ones while in Africa, and this would have left him just nine to complete on his return, since he accounted for sixty-five in his *Familles des plantes*. The first twenty-nine are based on reproductive parts and show the Linnaean influence. The second set of twenty-seven, prepared while in Senegal, includes again sexual features in smaller number, and most are based on general morphology of leaf, stem, or root. The nine prepared on his return from Senegal are mainly ecological in character.

The availability of these systems enables one to follow the development of Adanson's thinking on plant classification. All of them stress the importance of the genus. Adanson believed that no single character should be considered in isolation. But that all facts are necessary to assign to a plant its place in the vegetable kingdom. In his analysis of every plant Adanson stressed the point that its relationship can be understood only if we take into account the sum of its characters. Until his time, this expression of the significance of "whole character," or sum of the char-

acters had not received due emphasis. Recognition of this original approach must not, however, lead one to believe that the whole of Adanson's work is an application of this theoretical principle. He made as much use of it as he could, but not without many exceptions.

As he explained in his foreword to his *Voyage* in 1757, he had a great respect for Linnaeus [cf. Margadant, AD 4]. He wrote to him, in Latin, on 2 October 1758. The letter is devoid of any suggestion of animosity and its salutation is almost obsequious: "*Viro Praenobili Celeberrimoque D. Car. Linnaeo, Archiatr. Reg. Bot. Pr., Upsal aur. etc.*" In it Adanson first announces the death of Antoine de Jussieu (1686-1758), and then mentioned Bernard's ocular disorder which had imperiled his eyesight to such an extent that the old master had put Adanson in charge of the botanical demonstrations for his students. He lays the blame for his delay in writing to his domestic affairs, then writes of the baobab tree:

inter plurimas novas historiae nat. observationes quas academiae par. communica-
veram descriptionem integram gen. Bahobab quam B. de Jussieu Adansoniam
dixerat historiam dudum legeram. Cum tuae ad me pernevere litterae B. de Jussieu
noluit absente huius descriptionem tibi communicare, ne mihi hanc tibi quid grati
faciendi occasionem eriperet . . . Characteris . . . mitto . . . ex ipsis actis Acad. edendis,
seu potius ex meis manuscriptis latinis. [Corr. Linn. II/1, p. 3, lit. 3.]

(Translated freely, this reads: Among the natural history observations I communi-
cated to the Académie, I read recently the history of *Adansonia*, so-called by B. de
Jussieu, which is baobab. As I know from your correspondence, B. de Jussieu did not
wish to communicate to you the description, and since I had no opportunity to do
it before, I send you those characters as they appear in the *Actes de l'Académie*, or better
from my own Latin manuscripts.)

In this letter appears for the first time the Latin description of baobab, Adanson's first description of a genus bearing his own name, a name which he would never accept or use in any of his published works, since he resented Linnaeus' pre-empting his right to name and describe the plant he himself had discovered. No reference has been found to the letter from Linnaeus which Adanson was answering or to the Swede's acknowledgment of this communication. Linnaeus thought enough of Adanson, however, to present his name as a candidate for membership in the Upsala Academy. Later, on 20 October 1758, he wrote to Baek of having received word about the suffering of de Jussieu and about Adanson's being in charge of the demonstrations, but made no other comment [Corr. Linn. I/5, p. 56, lit. 980]. In conclusion to the baobab affair it should be mentioned that at least two other texts of baobab diagnosis are known: a brief one written in Adanson's copy of Linnaeus'

Genera plantarum (ed. 2), which he had with him in Senegal [Margadant, AD 81], and a second in full in Adanson's manuscript list of Senegalese plants sent to B. de Jussieu [cf. Margadant, AD 252]. Later, Adanson compiled a list of 400 characters for the baobab [cf. Margadant, AD 256].

The death of Antoine de Jussieu profoundly changed the atmosphere at the rue des Bernardins. Bernard, then an old man, was unable to go out alone and was constantly accompanied by good friends when he went to church, to the Académie, or to Trianon. Adanson wrote that he had to bring his old master four times a day to the Jardin du Roi. It might have been during this period that Adanson became better acquainted with Henri-Louis Duhamel du Monceau (1700-1781), who was a most devoted friend of de Jussieu. It was, without doubt, a very fruitful period for Adanson, one during which he had opportunity to learn much from such men as Le Monnier, Poivre, Tessier, Thouin, Duhamel du Monceau, and Malesherbes—all of whom frequented rue des Bernardins. It was certainly at this time that Malesherbes, *Directeur de la Librairie*, proposed that Adanson be named *Censeur Royal*, with an annual pension of 400 livres. Adanson had a pressing need for money; in a short time he would have to reimburse his subscribers for the second volume of his *Histoire naturelle du Sénégal*, which was never published.

On 23 January 1759, the *Parlement* condemned the Diderot *Encyclopédie* and Adanson immediately took an active part against the theologians and in favor of the philosophers, and in his notes has left us very severe judgments of the Roman Catholic Church and its priests [cf. Diderot's *Encyclopédie*]. The Seven Years War had already cost France the colony of Senegal, which had been taken by the British in 1758. The next year, 1759, two English translations of Adanson's *Voyage* were simultaneously published in London and Dublin. Notwithstanding his patriotic devotion, Adanson was not insensible to this British mark of interest in his work. He sent a copy of his work to The Royal Society of London on 1 January 1758, which was reviewed at the meeting of 13 April [*Journ. Roy. Soc.*, vol. 13; Ltrs. and Papers, Roy. Soc. 3 litt. 307, 1 Jan. 1758].

Adanson conceived the idea of presenting to the Académie de Paris the outline of his botanical work then in preparation. In connection with this event, it is to be remembered that Adanson and de Jussieu prepared in 1759, for use at Trianon, the manuscript of plant classification that was the antecedent of Antoine-Laurent de Jussieu's *Genera plantarum*. (1789). Adanson's knowledge of the plan of de Jussieu explains why he rushed his own work and delivered at the St. Martin's Day opening of

the Académie⁹ on 14 November 1759 the general sketch of the book he intended to publish so as to establish for himself priority for the discovery of the concept of natural families in plant classification. Prior to this time he had planned to include his system of botanical classification in his general encyclopedic work. In November 1759 he set aside work on the Senegalese collections and proceeded to develop his botanical method. It is certain that Bernard de Jussieu's eventual publication of his own classification scheme, as applied in Trianon, would have commanded universal respect, and his venerable knowledge would have been an obstacle to any further attempt by Adanson of the same nature. It may well have been the only time in all his life when Adanson apprehended the reality of things and events and their possible consequences. As he said later, he did not want to publish but he had to do so.

The St. Martin's Day meeting, on 14 November 1759, was well chosen by Adanson for this event, for it was the first communication he presented following his election as *Adjoint Botaniste* on 23 July of the same year, replacing Auguste-Denis Fougeroux de Bondaroy (1732-1789). The communication is only a general sketch of the first volume of his *Familles des plantes*, together with some indication of his general principles of classification [cf. Margadant, AD 263]. It also contains a general exposé and condemnation of Linnaeus' system as recounted in the latter's *Philosophie botanique*. The original manuscript [cf. Margadant, AD 263] has a note indicating that the whole paper was not read owing to insufficient time and in the 19 November issue of the newspaper *La Feuille Nécessaire* this interruption is noted and regretted. Under those conditions, it is little wonder that the data Adanson wanted to present had been but little noted, although the *Histoire de l'Académie* did print an abstract. It was during a meeting that Duhamel du Monceau stood up and asked if Adanson was one who would pretend to dictate the laws in botany [cf. Margadant, AD 315].

In the same year was published the famous letter of the Duc de Noya Caraffa on the semi-precious mineral tourmaline. The author was presumed to be Adanson, and new evidence confirms this view, for Adanson wrote of it in a letter to Charles Bonnet (1720-1793) [cf. Margadant, AD 169]. It was addressed to Duc de Noya Caraffa, to "oblige two of my friends, Mr. Bombarde and the Comte de Caylus." This letter on tourmaline is most interesting and shows Adanson experimenting in a field quite

⁹ The first meeting of the Académie for each year takes place in November and, in Parisian academic circles, the day is known even now as St. Martin's Day.

different from his usual one and giving very sound conclusions about the electrical origin of the magnetic force of tourmaline.

We know little of the activities of Adanson as a censor, but his name appears three times in archives as having acted as such. The first time was as examiner of *La collection de différents morceaux sur l'histoire naturelle en général*, translated from German and Swedish. He received an order from Malesherbes on 20 November to give his report on this work at the next meeting of l'Académie des Inscriptions et Belles Lettres on the 25th [cf. Diderot's *Encyclopédie*, Dakar]. His next appearance as censor was in 1769, when he reported on a work by Ferrand entitled. *Mémoire raisonné sur l'avantage de semer du Trèfle en prairies ambulantes* (Adanson's approval dated 24 March). The third instance was in 1779, on Ellis' *Description du Mangoustan et un fruit à Paris* (approval dated 7 March).

He did not neglect his academic communications and published his observations on the toredo, a writing especially appreciated by the Académie de la Rochelle, which gave an account of it in its reports.

In a later paper Adanson wrote that by 1754 he had already received a proposal from the Spanish court to go to Madrid to establish there a Universal Academy [cf. Margadant, AD 304]. This allegation remains to be checked since it has been ascertained only recently from newly discovered documents. Adanson also claimed to have received invitations from the Empress' Court in Vienna and the Royal Courts in Denmark and Russia. Another document deals with the offer to him of a professorship of Natural History at the University of Louvain, transmitted by the Comte of Cobenzl (1712-1770), then administrative head of the Austrian Netherlands, friend of the arts and founder of the Académie de Bruxelles. This proposal was for an opening in 1760. Admitting that these claims can be documented, one may, without too much error or conjecture, contemplate what was then in the mind of this naturalist. Had he accepted one of these offers, he would have certainly acquired a considerable income, but as he says, it would have been to the detriment of his academic career in Paris and would have meant the exclusion of the possibility of becoming a resident member of the Académie. He refused several proposals for properties in the country, for he did not want to be more than a few miles from Paris.

On 5 June 1760, d'Alembert, Daubenton, Bernard de Jussieu, Clairaut, and de Fouchy signed a certificate sent to The Royal Society of London, to be countersigned by Needham, Martyn, Parsons, Birch, and Wray at their meeting of 19 June. Adanson's candidacy was considered and an

announcement of its proposal was posted in the meeting room during a period of ten consecutive meetings. The balloting took place on 15 January 1761. Adanson's name was misspelled in the minutes of the meeting, transcribed as Francis Adamson (*sic*) (Roy. Soc. Journal Book, vol. 23, p. 918, 1757-60; and certificates 1751-66, 19 juin 1760).

The policy Adanson had followed became productive, and the preface to the English edition of his *Voyage* calls it the most accurate and interesting description given since that by Lord Anson. This was a time when everything was in his favor. Although his health was somewhat weakened by his long sojourn in the tropics, nonetheless, he gave full energy to his work, studying as much as eighteen hours a day.

In 1760 the first rearrangement of the plants was made at Trianon. Despite the urging of Adanson, neither Bernard de Jussieu nor Claude Richard, the gardener, would accept his new method then in preparation. This rebuff served only to hasten his completion of his *Familles des plantes*.

As a member of the Académie des Sciences, he began the long series of *Comptes Rendus* and *Mémoires*, continued quite regularly until the Revolution. At Académie meetings he gave his own observations and joint opinions with other commissaires concerning the papers and letters received from *Membres Correspondants*. In August 1760 he was appointed, with Bernard de Jussieu, to draft a reply to the question asked by the London Society of Arts about the usefulness of winter herbaceous vegetation in France as fodder [*cf.* Margadant, AD 139]. In this he gave many original views and concluded, "ces diverses réflexions ne suffisent elles pas pour vous prouver que la nature a disposé ici comme ailleurs les choses avec autant de prévoyance que de sagesse." (Translated freely: do not these various thoughts prove that nature has displayed itself with as much foresight as wisdom.)

Academic routines were not his only interest, and he used every occasion to enlarge the scope of his knowledge. An example is to be noted in a letter written to José Celestino Mutis (1732-1808) then in Madrid, who had come there from Santa Fé de Botota, in which Adanson sent instructions about meteorological inquiries he wanted made, offering to send him thermometers but adding that Mutis would have to send all data exclusively to him [*cf.* Margadant, AD 221].

The baobab report, first read in 1758, again in 1761, and published in 1763, was reprinted with very slight changes in Panckoucke's *Supplément* to Diderot's *Encyclopédie*.

In 1762, while making a tour to observe the natural history of Norman-

dy, Adanson received at Caen a letter from Bernard de Jussieu [cf. Margadant, AD 203] with instructions of places and persons to visit along the coast. In this letter de Jussieu mentions for the first time his report to the Académie on Adanson's *Familles des plantes*, averring that he signed with Le Monnier the report of approval, although he knew very little about the book and had seen only those pages Adanson had read to him. He remarks, too, that the publisher, Vincent, did not want to give him a copy of the complete book. All of this is at first somewhat puzzling when ascertaining the exact publication date of the work. Perhaps de Jussieu was referring to page proofs, although he does not use the term. The Académie delivered its report on 2 September 1762, as de Jussieu said. Perhaps a large part, if not all of the book was printed by that time. We do know that Adanson did not send a copy to The Royal Society until the following June.

Adanson corresponded regularly with Charles Bonnet, of Geneva, and the first known letter is dated 1762. Another, dated 19 December, reports on Bonnet's *Considération sur les Etres Organisés* [cf. Margadant, AD 164]. This exchange of correspondence continued until 1783. In his first letter Adanson announced the pending publication of his *Familles des plantes*, which he expected to be published three months from then, in March 1763. Perhaps more important, he noted that he had requested the Académie to elect Bonnet as *Associé Etranger* (Foreign Associate Member), for which an opening existed through the death of Bradley, but that Linnaeus' name had been approved instead. Adanson provides here the first word of his low regard for the great Swedish scientist. Linnaeus' nomination was supported by Morand, La Lande, de Jussieu, and Clairaut, and the balloting on 17 December 1762 found a large majority in support of l'abbé Nollet's proposal to elect Linnaeus. (cf. Corr. Linn. I/273-274, 277-278, 279-280).

In a letter to Linnaeus, Baeck advises that he is sending him a copy of Adanson's *Familles des plantes* (Corr. Linn. I/3 litt. 307, p. 105). Linnaeus had already learned of the book from Alströemer, who wrote:

Adanson är en ganska arbetsam man. Han håller på att skriva ett nytt systema naturale plantarum, som redan är trykt, men brister endast förtalet. Det är på fransyska. Han vill retablera de gamle grekiske och Latinske authors namn och tror sig visst veta, hvilka Örtor de dermed ment. Han tror bäst utfunnit ordines naturales, men att derpå gifva goda definitioner tycker jag att han bryr sig ej mycket om, men fordrar att den, som begynner lära Botaniken, bör först känna Gräs, Kål, Örtor, Måssa, någon Syngenis m.m. eller någon ört af hvar ordo Naturalis. En dess idé gillar jag nog, som är att totum bör constituera character genericus och ej en

emsam character essen tialis, den han tror ej skulle finnas, om alla örter voro kände. Derför skrifver han sina Characteres Generici i Columner, där hvar pars fructificationis har sin för att med lätthet se Generum likhet och atskilnad. Radix, folia, caulis &c: a gå äfven in i dess Characteres [Corr. Linn. I/3, litt. 486, p. 69, dated 30 Jan. 1763].

(Adanson is a great worker, who has written a new system of plant classification which is already in the press but lacks only the foreword. It is in French. The author wants to re-establish the names used by the early Greek and Latin authors. He believes that he knows which plants they wrote about and that he has found the natural arrangement, but he does not take care to provide good definitions. Adanson claimed that a beginning botanist has first to recognize grasses, cabbages, and mosses but that every *syngéniste* must know some plant of each natural orders. I agree with Adanson's view that the whole, and not a single generic character, must be taken in account when determining a generic concept, which he believes cannot be discovered, even if all plants were known. Therefore Adanson listed all his characters in columns, using those of sexual parts when determining likenesses and differences between his genera, even using those of roots, leaves, and stem in some of his generic determinations.)

Public comments about the book are, of course, not evidence that the *Familles des plantes* was published by the end of 1762 [which it was not], but by that time the essential contents of the work were known to Alströmer, who may have discussed it also with de Jussieu. Later on 17 June 1763 Adanson wrote to The Royal Society, thanking it for his election and announces the second volume of his *Familles des plantes*, reporting that it will be sent via D. Cumming [Roy. Soc. Ltrs. and Papers, IV, vol. 34, ltr. 166]. The Journal Book of The Royal Society reports the presentation of the volume, with the letter, at its session of 23 June 1763.

This first opinion of Adanson's work was only a prelude to a series of commentaries to be found in botanists' correspondence for several years after publication, some of which are far from complimentary!

It was also during 1763 that the French government moved to determine the value of French Guiana in an effort to compensate for losses caused by the colonial disaster created by the Treaty of Paris. De Choiseuil asked for technical reports on both Guiana and Senegal, the latter having been expected to be repossessed within a few years, but of the former West African settlements only Goree was left the French in 1763. To this end, Adanson prepared three detailed reports. In these he connected Senegal, Goree, and French Guiana in a broad colonial project for a triangular exploitation based on the classical shipping route of Europe-West Africa-America-Europe. He proposed to export Senegalese plants and animals to increase Guianese production and recommended a ten-year travel project, by which he would travel these commercial

routes at seasons best suited for the collection of seeds and the transportation of plants and animals. His proposal included plans for financing that would do justice to any businessman. Predicting profits from the investigation, he proposed to sell shares in the project with full assurance of no losses. In the course of this activity he used the opportunity to be heard by the court, thus attracting attention to his personal part in the situation.

At this period, his personal finances were bad. Since 1758, his efforts to sell his cabinet of herbarium specimens, shells, and animal remains to the great Cabinet du Roi had been fruitless, and he went from one office to another without success. He had hoped, then, that during his travels on the Guiana project he would continue to receive his 500 *livre* grant, which he used to support his mother.

Unfortunately, he included in these technical reports the suggestion that upon the death of de Buffon, who was then ill, de Buffon's post should, by right, be given to him. De Choiseuil gave no opinion on the project, but de Buffon himself certainly knew of the document and this may explain why he became circumspect towards Adanson. In retrospect, all of this now seems to be a pity because the program was well conceived; the work would have given perspective to the French colonial policy, which, in fact, is now seen to have been shortsighted in such matters. It was a time when projects were succeeding projects, one pitted against another, but none of them is believed to have had the majesty of concept and promise of success as did Adanson's. The subject came to an end on 9 August when Adanson received de Choiseuil's negative but very polite answer, thanking Adanson in the name of the king, who then held Adanson in high esteem.

The Adanson report includes his opinions of the economic situation of that time. He maintained that Senegal was of paramount economic importance; he wrote, "Senegal offers the great advantages to its population in the easy availability of [its natural] riches, in its many exportable products."

Although the government did not support his project it commissioned him, as a representative of the Académie, to examine Fusée d'Aublet's herbarium. The specimens were provided him by Bombarde, a friend whose garden he supervised. In 1803 a paper was published accusing Adanson of having taken the herbarium as his own [cf. clipping in Diderot's *Encyclopédie*, Dakar, from *Journal de Paris*]; none of the archives I have consulted, however, make mention of this.

One may look on 1763 as one of the richest years in all of Adanson's career. He published reports; he published his *Familles des plantes*; he carried on his communications and reports for the Académie; he spent much time herborizing in the environs of Paris. Since 1762 he had undertaken experiments on the growth and productivity of wheat varieties, conducted by means of plants grown in small pots. But it is only during the next years that he extended his experimental activities, when he had at his disposal his own garden in rue du Jardin du Roi.

V PERIOD OF RESEARCH: 1764-1770

The second volume of *Familles des plantes* was published in January-February 1764. Adanson was his own literary critic and promoter: he wrote his own reviews of it for the press and gave them to two newspapers, *l'Année Littéraire* and *Mercure de France*, both of which published his opinions without alteration. [cf. Margadant, AD 264].

It is necessary to consider Adanson's financial situation along with the production of this book. Sale of the *Histoire naturelle du Sénégal* (1757) was slow and the funds invested in it were not recovered. Following the publisher's bankruptcy and the reimbursement to subscribers, Adanson estimates the cost of the book to him had been 5,000 livres. It is most probable that the winter of 1763-1764 was financially his most difficult up to that time, and that he was unable to give to his book the energy and attention he wished, especially for corrections and additions to Volume II. He had scarcely touched the first volume, although he had much more material to incorporate into it. When the *Familles des plantes* was issued, the price for the two volumes was ten livres. It was during this period that he elected to make his future in Paris and not in Denmark, despite the offer received in April 1763 to accept a professorship there in Natural History and the knowledge that it was one "the king was founding for him, with all honors" (Bibl. Nat. Ms. Fr. 6244, Fol. 182).

There is always some doubt in evaluating his position. He wrote to his friend Andriot that on 12 March 1764 he was going to present his *Familles des plantes* to the king, to Madame la Marquise, and to Mgr. d'Averdy, who was *Contrôleur Général* [cf. Margadant, AD 140]. In the same letter he wrote about his negotiations for the Louvain professorship, which had been renewed through Needham. As this is a private communication, in his own hand, I believe it must be accepted, but it shows that Adanson certainly was making vague promises for an engagement, as was stated also by Mailly in his study (1880).

He accepted none of the offers to leave Paris, and finally the sale of the cabinet was completed. As early as 1759 de Buffon had declared that "this precious assemblage was not to be found in any European cabinet and was worthy to be acquired by the king, who possesses already so many rare varieties from America and India but lacks entirely any African specimens." The sale price had been set at 40,000 *livres*, but to make the arrangement easier, Adanson was willing to accept a life interest of 4,000 *livres*, payable annually, with one a year's allocation made in advance to pay his more urgent debts. De Buffon had discussed the purchase with Comte de St. Florentin, who appeared favorable, but the execution of the sale was to be made by the *Contrôleur Général* de Boulogne, who was nearly convinced of the merit of the purchase and was ready to execute it when he resigned [cf. Archives Nationales série o/666]. After the Seven Years War, Adanson revived the negotiations for the "sale of a curious and unique Cabinet in view of obtaining help for a zealous man who sacrificed his youth, health, and small fortune to research which bring honor to France and attracts the foremost countries esteem." By that time Bertin, a man well-known in theater circles, had succeeded de St. Florentin. His assistant, M. Amelot, welcomed Adanson, but found the matter not quite in good order. De Buffon, having given only an appraisal and not an official report, was then asked to name two *commissaires*, of whom one, of course, was himself and the other Louis Daubenton. On 2 May 1764, Adanson received at last the order to deliver the collection to the Cabinet du Roi, but did not receive payment until 29 June 1765, only to learn that it was reduced to 3,300 *livres*, probably on de Buffon's order.

Adanson may have felt some satisfaction on the sale of his cabinet, but his connections with his colleagues were not improving, especially with Linnaeus. The Swedish scientist showed his adverse reaction first on 27 July 1764, in a letter to J. Burmann:

Vidi Adansonii methodum naturalem nec stultiorem unquam, ille lacerat genera naturalia: Mesembryanthema quae quivis tyro agnosceret ejusdem generis in fria distinguit et sic in ceteris, certe nulla ejus classis valet. Dat notas copiosas, sed tamen nulla distinguit, adeoque nullus character; ideoque et haec nil nisi fragmenta nec systema mutat omnia nomina in pejus, minor num iste sit sanus et sobrius certe nulla methodus et minus naturalis. [Corr. Linn. II/2, p. 171 Litt. 387.]

[[freely translated]: I saw the natural method of Adanson, nothing more silly. That destroys the natural genera; the *Mesembryanthema* [species] which any beginner recognizes to be of the same genus, he divided into three, and so on for the rest; certainly

none of his classes is valid. He gives copious notes, but nevertheless distinguishes nothing, I consult [find] no characteristic; and therefore, except [for] fragments, there [is] not any system. He changes all names into worse [names]; I wonder whether he be sane or sober. Certainly [he has] no method and little [that is] natural.

On 13 August 1764, Hernquist wrote, in Swedish:

Adamssons [!] arbete hålles här för tokeri, hålst som han welat agera domare och ägt ei mer styrka. Dess bok är obrukbar, äfwen bland Frantsoserne, hwilka taga ingen del i dess ogrundale critiquer [Corr. Linn. I/7, Litt. 500, p. 78]. (Adanson's work is looked on here [Lyons] as a madness . . . His book is useless, even among Frenchmen who do not share his unfounded criticisms.)

Five days later Linnaeus wrote to Burmann:

Adansonii methodum naturalem nondum vidi et quantum ex tuo testimonio detegere possum, non multum interest num viderim, cum contra naturam egerit eumque dilaceravit [Corr. Linn. II/2, litt. 388, p. 173].

(The natural method of Adanson I did not perceive, and how grand [it is] I can discover from your testimony, I shall not see much interest [in it], with what he spoils and destroys, contrary to nature.)

Linnaeus countered Adanson's criticism of him and gave some interesting details in another letter of 14 September to Baeck:

Hans methodus naturalis är den onaturligaste af alla. Mesembryanthemum blifwer nu delt i 5 genera. Alla mine latinske nomina plantarum generica gå bort och malabariska, mexikaniska, Brasiliska &c. komma i stället, some ej kunna prononciaras med våra tungor. bladen giöra nya genera. Fundamentum fructificationis går öfwer ända. Ingen hans class blifwer naturel utan blandning af alt. Man bör supponera, at Gut gjort ett för än han gjorde 2, 2 för 4; att han gjort först simpli cia och sedan composita, att han först gjort ett Species af hwart genus, att han blandat sedan differente Genera att där af blefwit flere species. supponera att Gud gjort ett Ranunculus; att detta Species blandats med Helleboro, Aquilegia, Negella &c. per generationem hybridam lege divina concessam och att proles af dessa blandningar i växterneliksom i diuret behållet medullare åter modren och corticale åter fadren. Där af hafwa blifwit så många Species Ranunculi folliis hellebori, alia foliis Aquilegiae, alia foliis Nigellae. Desse alla få ej skillias i arbitrelle genera. att så gått till wisas a posteriori. detta är fundamentum fructificationia, ärkient alt Gesneri tid, det Adanson borde wettat. Adamsson har sielf rön; alt sitt har han compilerat af mine skrifter, som jag wisa. Men han biter intet många diur. [Corr. Linn. I/5, Litt. 1048, pp. 127-128.]

(Adanson's method is the most unnatural possible. His *Mesembryanthemum* is divided into five different genera. All my generic Latin names have been deleted and instead come Malabar, Mexican, Brazilian, etc., names which can scarcely be pronounced by our tongues. He makes new genera on leaf characters. The *fundamentum fructificationis* is overturned and no one of his classes is natural, but a mixture of everything.)

(It is necessary to assume that God created one before He created two, two before four; that He created simple things before He created complex things, that He first made one species of each genus and then mixed different genera of which there

were several species. Let us suppose God made a *Ranunculus* [and that] this species is crossed with a *Helleborus*, and *Aquilegia*, or a *Nigella* in hybrid generations. Through Divine Law the descendants of these hybrids will have, as in animals, the mother's medulla and father's cortex. As a result, there are so many of *Ranuncula* with either aquilegous leaves or nigellous ones that you could not separate them into arbitrary genera, lest they would be transmitted to posterity as stable genera. This is the foundation of fructification already known since Gessner's time, which Adanson must very well know. Adanson himself has no empirical knowledge; all his work has been compiled from my writings, as I can demonstrate. But he does not take in many people.)

All of this shows that Linnaeus had studied the *Familles des plantes* as soon as he could see a copy and that he was well informed about Parisian events and comments concerning it. Later, other correspondents also voiced violent criticisms of the work.

In this same year, 1764, the arrival of Bernard de Jussieu's two nephews forced Adanson to leave the de Jussieu residence at rue des Bernardins and to rent a small house off rue du Jardin du Roi, in Clos du Patouillet. His standard of living was modest; the house was small, and the garden was close to a vineyard. His capitation (poll) tax for himself was 10 *livres*, for his maid 3 *livres*. Now he extended his experiments on wheat undertaken in 1762. His coterie of correspondents included among others such men as Turgot, Duhamel du Monceau, Beguillet, and Andriot. From them he received seeds and soil samples from Flanders, Alsace, Franche Comté, Gatinais, Anjou, and the environs of Paris. These experiments demanded his attentions for a large part of his time until 1769. Contrary to Chevalier's statement (1934), there is no record that Adanson rented a property in Chatrouges or that his project to have a 300 *arpents* field ever materialized. In fact, his very good friend Aved proposed that Adanson acquire for his experiments a property of about 198 *journaux*¹⁰ in Villeneuve au Roi, about a league away from Suzane, between Clairveaux and Chateaulain in Bassigny. Chevalier, in his biography, confused this proposal with another concerning property in Chatrouges, which was located too far away [cf. Margadant, AD 150 dated 26 Mars 1768, and AD 275].

While investigating wheat production, Adanson started experiments with grapes (*Vitis*) in connection with the wine production, establishing for this investigation a second network of correspondents in Bourgogne, Provence, Roussillon, etc. Among these, the most active was Lemoine,

¹⁰ An eighteenth-century French unit of land measure, said to be the area that can be tilled by one man, by hand, in one day.

who later sought Adanson's help in some of his own difficulties [cf. Margadant, AD 210-214].

Concurrent with his experimental labors, his activity with secondary interests increased, particularly those related to the Académie and to his classifying specimens received from his brother Jean-Baptiste Adanson (1732-1804), then an interpreter in Sayda (in Lebanon). Jean-Baptiste had been in Salonica, Greece, since 1760, and had sent specimens of shells and plants together with descriptions and very good drawings of them, continuing to do so even after his transfer to Egypt (cf. Margadant, AD 247).

The cereal investigations enabled Adanson to make new observations about the constancy of species. The minute detail in which he examined everything led him, in August 1764, to observe an abnormal barley spike, while journeying in Plaine d'Ivry [cf. Margadant, AD 266], which he presented to the meeting of the Académie on 1 September. Among those present were de Jussieu, Tillet, Daubenton, and Le Monnier, to whom he announced his intention to sow the seed from the spike to learn if the character of monstrosity would remain stable from one generation to another, making a date with his colleagues to learn the results the next year. Until now, following Linnaeus, he had considered the species as a variable unit.

When he reappeared before his colleagues in 1765, he reported that there was no variation in the species and that the monstrous forms were not produced from the seed, and concluded that variation was due only to the ecological factors [cf. *Hist. Acad. Roy.* for 1764, p. 77; *ibid* 1765, p. 50]. Supplemental observations on this, not read during his oral communication, were published in 1768 [*Mém. Acad. Roy.* 1768, pp. 613-619]. On continuation of these investigations, he published his final conclusion in 1772, in which he rejected the concept of variation of species [*Mém. Acad.* for 1769, pp. 31-48]. Hence, Adanson did not become predecessor of Mendel or Darwin, as he might have done. Although he recognized variations arising from ecological conditions, he never admitted the creation of new species, nor of transmutations. He coined the term *mutation*, using it in the very strict sense of variations of ecological origin (not genetical), in opposition to the ancient term *transmutation*.

In addition to his morphological research he conducted, with rare technical ability, a study of plant growth, marking his specimens with threads and observing their changing of position. A part of his time was given to compiling notes on his *Familles des plantes*, adding in proper se-

quence all new genera published by his colleagues. He continued to add to the manuscript of his *Dictionnaire* and to make additions to that of his *Species plantarum* [cf. Margadant, AD 268] insofar as it dealt with the European flora. On 10 August 1766 he sent a new lot of specimens to the Cabinet du Roi, including 682 minerals, 150 fish, 75 snakes (numbered 1,218-2,126), and on May 1767 another lot of 75 shells, 200 species of worms, 321 fossils, 53 quadrupeds, one cetaceous, 35 bird bills, 17 samples of gum resin, and 72 species of wood (numbered 2,127 to 3,501).

If Linnaeus was fighting hard with his French contemporary, whose system was of no interest to him and was considered to be the work of a fool, Adanson, in rebuttal, via annotations in his copy of Linnaeus' *Systema naturae*, written between 1766 and 1767, showed not only his contempt for the Linnaean system (whose author he often called "ignorant"), but showed also the great differences between the concepts of the two men. Linnaeus, the son of a Lutheran minister, molded his philosophy of the universe to fit the Holy Scriptures and wrote his works in the context of this background. Adanson, on the other hand, was at this time in sharp conflict with the Christian concept of nature. He noted in his copy of the *Systema naturae* 1766 (vol. 1, p. 14) [cf. Margadant, AD 88]:

Le tout universel n'a pu être qu'un ensemble simultané incréé et éternel de toute éternité qui n'a pu être créé, il n'y a que la raison et l'imagination humaine qui créent, quoi? Des idées et qui inventent et perfectionnent les machines. (The whole universe cannot be other than a simultaneous eternal whole, which could not have been created. [And] it is only the human reason and imagination which create. And what do they create? Ideas, which invent and perfect machines.)

This difference of concepts cannot be analyzed here, but one must remember that the dispute between Adanson and Linnaeus is not merely one of ruffled sensitivities or academic differences, but one of basic philosophy. Despite his philosophy, by many persons Adanson was considered to be one of the leading botanists of his time.

As noted above, Adanson was working also on a *Species plantarum* [cf. Margadant, AD 268]. He was interested in species, as taxa, however, only to the extent that they collectively constituted genera. For this reason he had never given much time to his projected *Species plantarum*, although it was certainly announced and made known. Beguillet, for example, inquired of its publication and expected it to be Adanson's most worthwhile work [cf. Margadant, AD 161].

An interesting sidelight on all this is found in a letter from the Swiss physician, Jean-François Coindet, who asked Adanson for a list of book

titles for Jean-Jacques Rousseau [cf. Margadant, AD 179, dated 6 July 1767]. It is well known that Rousseau's interest in botany was arrested temporarily by his indecision over the correctness of Linnaeus' vs. Adanson's system of classification, and that it was resumed when he adopted Linnaeus' system. His judgment in favor of Linnaeus is not of scientific value, as an opinion, but may have reflected a social stigma that existed then against Adanson.

Adanson's fame was continuing to grow at that time. Lacombe, the publisher of the newspaper *l'Avant-coureur*, invited him to contribute to his columns, and without asking for authorization to do so, published an account of Adanson's memoir on meteorology. Adanson acceded, and later this journal published accounts by Adanson of nearly all academic communications [cf. Margadant, AD 205, 206].

It is of some academic interest that Adanson and Bernard de Jussieu reviewed Marcocelle's paper on *Salicornia* [cf. Margadant, AD 215, 216, 367]. Later (in 1771) Adanson reported also on several other papers by Marcocelle, notably that on vegetation.

Work with natural history specimens did not require all his time, and in February 1767 he accompanied Comte de Lauraguais by open coach to Le Tremblay to see *in situ* "a shining, foliated, translucent greenish or yellowish, very heavy stone, called Petintse by the Chinese. It is a kind of *Klikar*, that is, a Lias limestone transformed from marl into marble" [cf. Diderot's *Encyclopédie*, Dakar].

It is certain that the delay caused by Adanson in the post-scale delivery of his collections to the Cabinet du Roi was due in part to his efforts to complete his descriptive notes on them before relinquishing the collection. On 25 August 1767 he delivered 632 specimens of invertebrates from Senegal (numbered 3,502 to 4,135). On 2 June 1769 he added those specimens numbered 4,136 to 4,551.

On 19 December 1768 Hernquist wrote to Linnaeus:

Herr Adanson har nu under händerna et stort wärk, som skall innehålla alla 3 rikens afritade, innehållande öfwer 30.000 Species. Han beklagar sig öfwer publicum, som ei accordarat honom så allment bifall han förväntat. Han har giordt en samling af alla figurer hos auctorerna på hwart et species således, så at han waldt och, utklipt löfwen hps en auctor, som fästad wid en gren af en annam auctors figure, hwilken sedermer blifwit fogad til en stam af den 3 figurem etc. . . . [Corr. Linn. I/7, Litt. 1505, p. 90.]

(Adanson has now a great work that includes drawings of more than 30,000 species from the three kingdoms. He complains that the public does not care enough about him. He makes a collection of all drawings taken from other authors [who] have described every species; [doing so] in such a way that he chooses and cuts out leaves

from one author and combines them with a branch from another author and applies this to the stem of a third [plant].

Hernquist never missed an occasion to attack Adanson and to praise the Swede, as when he wrote in 1769: "I have never yet seen anyone using Adanson's *Familia confusarum*" [Lin. Corr. II/7, Litt. 1506, p. 94]. One may see from this the extent to which Linnaeus is kept informed and may judge the influence exerted by his informers.

Fortunately for Adanson, who was surely oblivious to most of these attacks, criticism did not worry him and he continued with his researches and reviews. In one of them he treated three reports by Duhamel du Monceau on ichthyology [Muséum National d'Histoire Naturelle, Laboratoire d'Herpétologie mss.]. On another occasion he used his knowledge of soil to write a report about the land around the Abbaye de Homblière. Indeed, as Chevalier noted, Adanson was one of the first botanists to treat soil analysis from a scientific approach and is to be regarded as a forerunner of that science.

In 1770 the king gave to Marie-Antoinette the property known as the *Petit Trianon*. Chevalier wrote about Adanson's sojourn at Versailles and tells us that he participated in the planning of the famous garden. No justification has been found for this statement. Adanson did write about various occasions when he was entertained at Trianon and remarked that the king had built a pavilion for him and his collections, adding later that this building had been considerably enlarged and embellished by Marie-Antoinette. We know that she destroyed the botanical garden to replace it by an English garden. However, Adanson gives certain details which are surprising. He mentions, for example, his having an apartment on the left side of the entrance of the Grand Trianon and giving the key to a Monsieur Bellance [?] who was "gouverneur." (cf. Diderot's *Encyclopédie*, Dakar). It is probable that all during the construction of the Petit Trianon gardens, under the direction of his best friend and architect, Belanger, Adanson expected to move to that address. He wrote, "While I was naming, classifying and supervising his [Louis XV's] botanic garden in the Petit Trianon Pavilion, which was built for me and my cabinet, with the title and pension as his botanist, he forgot me for more expensive pleasures." [cf. Diderot's *Encyclopédie*, Dakar]. It is certain that Adanson at one time was authorized to use a room in Grand Trianon (as were many other persons) when he worked on the king's collections (between 1770 and 1772). Adanson was prone, however, to misinterpret acts of kindness as strong promises. Thus, he may have

thought that he was to be housed, protected as the king's botanist, and installed in an apartment to which only he would have the key.

From other documents connected with his proposed move to Spain we know again of Adanson's efforts for his self-aggrandisement, and we may sense the Trianon affair to be a similar example. We do know that Adanson was presented to the king, and that Bernard de Jussieu went regularly to Trianon. We believe that Adanson certainly received encouraging words from the royal household and maintained high hopes, which were prompted by friends who could not bear to bring him disappointment through enlightenment. From time to time he visited Trianon, but if at any time he moved from Paris, where the list of his addresses is complete and unbroken and where his activities left no time for a permanent residence elsewhere, we know of no record of it. During this period he was deeply engrossed in his wheat investigations. He never spoke of having made any of those experiments in Trianon, as did Mathieu Tillet (1729-1794), who worked there uninterruptedly investigating seed pathology; furthermore, he did ask Averdy, Louis XV's *Contrôleur des finances*, to inquire of the king if he would provide him with an experimental plot outside Paris. [cf. Margadant, AD 130.]

In his criticism of Duchene's investigations with strawberries, Adanson does not mention Trianon and had not seen Duchesne's gardens [cf. Margadant, AD 267]. Throughout his notes one finds only vague allusions to observations made at Versailles, such as when he studied salamanders, a species of moss, and a fungus in the park. In the letter of 1762 from Bernard de Jussieu, cited above, the Master wrote that he went to Trianon, but saw nothing which could be of interest to Adanson. Nevertheless, the only original drawing of the Petit Trianon botanic garden known, as of now, is one crudely drawn by Adanson and found among the collection of papers at the Hunt Botanical Library [cf. Margadant, AD 321].

Adanson presented to the Académie many reports of memoirs by other members. Here one must recognize that there were two types of memoirs—those by elected members of the Académie and those submitted by other scientists, whose works were printed separately in the special *Recueil des ouvrages des savants étrangers*. Linnaeus, being a *Member étranger* of the Académie and having sent only one memoir, on *Cycas* in 1770, found it printed in the *Mémoires* of the Académie, which by a very strange twist of "fortune" was reviewed by Adanson [cf. Margadant, AD 365].

Linnaeus and his correspondents were not the only ones interested in the *Familles des plantes*, for Scopoli on 23 November 1768 wrote concerning the use of certain generic characters, to which Adanson replied point by point [cf. Margadant, AD 234]. But it was Beguillet who asked the most questions and made the soundest criticisms. His position between the two naturalists was fairly neutral, but Adanson regarded him as a chatter-box distinguished by three B's—Beguillet, *bavard* [garrulous], and *barbant* [boring]. He was, however, the author of the article on wheat [*Blé*] in Diderot's *Encyclopédie*. His criticisms of the *Familles des plantes* are so pertinent that Adanson made every effort to answer [cf. Margadant, AD 161].

During this time the baobab tree (*Adansonia digitata*) continued to generate interest for botanists, for Frederik Allamand of Leiden, received a letter from Linnaeus dated 29 November 1770:

Ascoma. Bombaci et Adsoniae affinis multum haesitavi utrum Adansonia esset distinctum genus a Bombace, quamvis Adansonia gerat farinam loco lanæ Bombacis; præcipue cum utriusque generis species sunt arbores vastae foliis digitatis [Linn. Corr. II/1, Litt. 4, p. 9].

(*Ascoma*. A relative of *Bombax* and *Adansonia*. I strongly hesitated [to say] whether *Adansonia* should be a different genus from *Bombax*, although *Adansonia* bears a waxy powder instead of the wool of *Bombax*; especially since the species of both genera are great trees with digitate leaves.)

At about this time Linnaeus had received a second copy of the *Familles des plantes*, which Bæck sent him on 19 June [Linn. corr. I/2, Litt. 414, p. 321].

Adanson's botanical preoccupations did not prevent his giving time to personal affairs, and although as he once told Aved, he was shy when with the ladies, nonetheless he found time to marry Mlle. Jeanne Bénard (?-1821). In this choice, as in all his activities, he gave no thought to improving his social position by marrying for money or rank. This is not in accordance with Chevalier's picture of the man "wishing to arrive quickly and high." There were none of these objectives in the marriage he made. While his bride showed interest in natural history, she was only the daughter of an employee of the Fermes du Roi. Her parents lived in the rue Mouffetard. No official records of the wedding have been found. It took place in Paris, at 4 o'clock in the morning, 9 May 1770, in the Saint-Hilaire Church at the corner of rue de Lanneau and rue des Carmes. The church has since been destroyed. Adanson was then forty-three years old. Until 1772 he and his wife resided in Clos du Patouillet, and then moved to an apartment at rue Neuve des Petits Champs on

the right bank of the river, far away from the Jardin du Roi. At this time he gave up his former garden and rented a new one in Neuilly, with which there was a small rustic house. It is to be noted that some of these details, reported in his own manuscripts, are at variance with those furnished by the Académie, which notes that he resided at rue Neuve Saint-Augustin for a short time in 1771 and on another occasion in 1780.

There is one document that gives us some idea of the relationship Adanson had in this period with his family. It is a letter about his brother, Jean-Baptiste, a Dragoman in the consular service, who had great difficulties with the Turks in the Near East and had once been furiously beaten by them and left unconscious. A colleague who had been also beaten subsequently died. Michel Adanson, intervening in his brother's behalf, wrote to Le Monnier on 12 October 1772, who in turn forwarded it to Thouin. The letter advised Le Monnier that he wrote to the Marquise de Rohan, Comtesse de Marsan, sponsor of Jean-Baptiste, whose herbarium contained many plants from Adanson [cf. Margadant, AD 248]. Adanson tells us that he made several interventions in an effort to have the Sayda (= Saida, Lebanon) office transformed into a chancery or vice consulate, addressing his request to the Duc de Praslin, then Minister of the Navy and of the Colonies. This record of his kindness was preserved by Adanson and is evidence of his charitable nature in cases he considered important. When Dick of Bollinger (near Berne) asked him for plants for his botanic garden, Adanson sent many, especially species from Senegal [cf. Margadant, AD 190]. When his brother sent him his celestial observations from Sayda about a comet observed on 2-4 July 1771, he forwarded the document to Le Monnier.

We find the same cooperative spirit in his correspondence with Montehermoso, who sent what Adanson called "advantageous proposals from the Spain Court." This correspondence deserves some consideration [cf. Margadant, AD 218, 219].

On 17 December 1770, Montehermoso, a colonel of the *Régiment Espagne Cavalerie* at Cadiz, wrote Adanson for information and some seeds of Lucern clover, sending him other seeds in exchange. But the real purpose of this letter was a vague proposal made in the name of the Société de Biscaye. Earlier, a favorable opinion was given by this group on Adanson's memoirs, and Montehermoso now proposed to submit his name for membership. Adanson replied on 12 January 1771, saying that he had written to the Comte de Piñafiorida, that he would be pleased to be called to the Spanish Court to have the "opportunity to reestablish

in Spain, with the help of an academy of sciences to be founded in Madrid, a reign of Natural Sciences, and to educate worthy persons who would be deserving of me and who would develop in all your provinces an intimate and profound knowledge of Natural History" [cf. Margadant, AD 219]. He did not hesitate to add that if this proposal was accepted, it would enable him to publish his large work accounting for some 30,000 species of flora and fauna. Montehermoso, in his answer of 22 February, rejoiced at the idea that he might welcome his very dear friend to Spanish territory, but mentioned that it would be necessary to manage tactfully some diplomatic negotiations. He pointed out the main lines of the procedure with the Spanish Embassy—the Embassy Secretary, Chevalier de Magallon, the Comte de Piñafloreda, and the Comte de Pignatelli—mentioning that a pending war crisis might create unfavorable conditions, but that he nevertheless expected to see his friend succeed in this enterprise. Adanson replied in May, giving details of his plan, referring to a M. Davila, whom he knew was also desirous of having this Spanish post.

This determination to go to Spain conflicted with his alleged claim of patriotic attachment to France, but reflected his awareness of the intellectual eighteenth-century environment in Europe, when not only ideas but scientists, too, were travelling, and the thinking was more European than national. For Adanson, as for other scientists of that time, the thought of personal triumph transcended the narrow frontiers of nationalism. What is amazing is to see Adanson engaging in intrigues with foreign embassies at the exact moment when his academic career is at its best at home.

In this Spanish affair there was the sympathetic influence of Mme. Adanson, who liked Spain and the Spanish and was in favor of a move to Spain. But above all, there was Adanson's need to find a publisher for his work. This need was so urgent that he made three different proposals: one, to be head of the new academy; two, to be head of a new botanic garden complete with conservatories, a cabinet of natural history and a menagerie to amuse the king of Spain, like that in Versailles; or three, to be named professor or tutor to the royal family, as was abbé Nollet at the French Court. When he used the term *patriotisme* Adanson was not referring to his own but to that of his correspondent, who would add new glory to his country by sponsoring the establishment of the natural sciences and acting as a promoter of Adanson's great work that was awaited by the public. This story is paralleled by two

Fig. 9. Adanson's final draft of his opening lecture of the *Cours d'histoire naturelle* (1772). [Cf. Margadant, AD 284.]

others; in one, Adanson asked von Haller to support his request for a publishing grant from the Swiss government [cf. Fonds Haller, Bibliothèque de la Bourgeoisie, Berne]; in the other Adanson sought similar help from The Royal Society, London. He failed in both efforts.

His three proposals are similar to those he made to the Académie des Sciences in 1775, renewed before the Assemblée Nationale and the Convention, and presented again during the first Empire a few months before his death. In spite of the childishness of these proposals, one must admire his unflagging effort extended over thirty years when he was always hopeful of engendering government support of his efforts.

Associated with this is the Louvain proposal and Schreber's reply of 1771, sent through Schoulemberg, in which instructions are sought about building conservatories along the lines of Adanson's proposal. Adanson certainly was interested in this; because several rough drawings have been found among those he made in preparation for his *Familles des plantes* [cf. Margadant, AD 321].

This was a period when the fashion of dictionaries and encyclopedias invaded all fields of knowledge. One cannot blame Adanson for joining in the movement when he knew well the success of works such as that by Jacques-Christophe Valmont de Bomare (1731-1807), made with nothing more than scissors and copies of works of others. Valmont de Bomare's *Dictionnaire raisonné universel d'histoire naturelle* went through four editions between 1764 and 1791. Adanson's work required originality and would not be a simple compilation. Nowhere do we find any allusion to any personal benefit to be made from its possible publication. When he wrote of "advantageous conditions" it would bring him, he was referring to the services he might give and lectures he could deliver, and never to remuneration from the publication. This ideal of originality in an encyclopedia was an obstacle to any immortality his work might have enjoyed, for it defeated its chances of completion.

VI L'ENCYCLOPÉDIE UNIVERSELLE: 1772-1791

In the two years which followed Adanson's marriage in 1770, one can see a new turn in his life and activities. Until then he was a fixture at the Jardin du Roi and lived on the left bank. Then, for whatever truth there may be in the Trianon affair, he had to give up his ties at the Jardin. His *Familles des plantes* was no longer a topic of active discussion, and its lack of acceptance was finally conceded as a personal defeat. This was a period when Adanson devoted more and more time to the philosophy of

knowledge. No person nor government had considered favorably the publication of his great work, his *Encyclopédie universelle*. He went on with its preparation nevertheless, expecting always that a favorable opportunity would at last appear.

It was fashionable in that Parisian era to deliver public lectures in natural history, and Valmont de Bomare is said to be one of the first to have done so. Ousted from the Jardin du Roi, Adanson undertook to deliver lessons at his home at rue Neuve des Petits Champs. During the three years from 1772 until 1774 he repeated with variations a series of lectures and discourses, the zoological parts of which were published by Payer and Alexandre Adanson in 1845 [Margadant, AD 9]. A nearly complete set of manuscripts of these lectures is a part of the Adansoniana at the Hunt Botanical Library [cf. Margadant, AD 282-285].

The series was first given on 30 January 1772. Its full title is translated to read:

Lessons of Natural History, on the three kingdoms or spheres, presented according a natural series, in a natural method, divided into classes and families, the distinctions and relationships of which are indicated for each class, and for each kingdom; with a preliminary discourse about the spectacle of Nature, and about the way to study it and to demonstrate it; and terminated by another discourse, which is the general recapitulation of the whole series, constituting thirty-seven booklets in four volumes, of which four [parts are] for animals, one for plants, and two for minerals (cf. Margadant, AD 282).

The lectures were announced twice, once with large posters (broad-sides) [cf. Margadant, AD 7] and once, on 10 November 1771, in such newspapers as the *Affiches de Paris* and *l'Avant-coureur*. Adanson identifies the places where the bills were posted. Registrants were to come to his home to inscribe their names in his record book and to pay the annual fee of five *louis*, which was sufficient to pay for the advertising and to leave a small amount in his pocket. The first series of lectures, known as the *Cours*, was commenced on 6 December 1771 at 11:30 a.m. and continued every Wednesday and Saturday. Those of the second series, known as the *Discours*, began on 17 December and were given on Mondays and Thursdays. Although the extant text are the lectures of only one series, it is certain that the two series of lectures were different.

From the attendance list it appears that some persons registered only for the *Cours*, while others registered for both the *Cours* and the *Discours*. Among those attending the *Cours* were Mgr. le Duc de la Rochefoucault, M. le Duc de Chantory, le Chevalier de Chatellun, M. de Jussieu's

nephew, Mr. le Duc de Choisy, Mlle de Choisy, MM Cassini père et fils, Desmarests, Mmes de Serione, Concret, and Adanson, le Vicomte de Castellane, and M. de la Lande. Among those attending the *Discours* were Mme de Meulan, Mme la Marquise de Lambert, le Curé de Boisgeline, le Vicomte de Condorcet, le Duc de Luxembourg, Charles des Torrens, M. Duschesne, secrétaire de Trudaine, le Prince de Croy (who later quoted the *Cours* in his *Mémoires*) and d'Olbach fils. Adanson estimated that seventy persons attended, which would have given him a combined fee of 350 *louis*. When d'Alembert wrote him asking for remission of the five *louis* fee to a vicar, he answered that his own expenses for the preparation of the lectures were considerable, but that he would see him and make an arrangement for the fees the vicar was unable to pay [cf. Margadant, AD 139].

The manuscript text of the lectures was considerably changed during the period 1772 to 1774, and perhaps even later [cf. Margadant, AD 284]. However, the whole *cours* shows a fresh interest, and the presentation suited well such an assemblage of *honnêtes hommes* (the enlightened gentry of the day). The genera of the three kingdoms in nature were presented as links of a chain with well established breaks identifying the groups. The general content and the approach to the problems were more modern than those of Adanson's contemporaries, and certainly were advanced for the time.

The first lectures dealt with the animal kingdom, beginning with man and ending with the microscopic infusoria. His systematic presentation of invertebrates was very advanced for its day, anticipating the later ones by Lamarck and Geoffroy Saint-Hilaire.

The botanical section of the series was a short analysis of the *Familles des plantes* in five lessons, followed by a rapid review of the fifty-eight families. In this, however, the characterizations differ from those in the printed book in their more elemental nontechnical language.

The mineralogical section includes many original concepts. Of chief interest are the lectures on the general classification of minerals and on petrography, for which he included a list of volcanic and sedimentary rocks [Margadant, AD 284].

Unfortunately, the manuscripts for several lectures are missing, but those dealing with soils can be reconstructed from other records in Muséum National d'Histoire Naturelle. Here his petrogenetic concepts brilliantly anticipate the later plutonian and neptunian theories. In his last lecture he gave a very clear recapitulation of the series.

Adanson announced a third series of lectures to commence on 13 May 1773 and to comprise a succession of lectures and excursions into the countryside around Paris. This was the old formula of "herborisations" as given a generation or more previously by Vaillant, Tournefort, and then by the de Jussieu. He made the preliminary preparation for each with great care, diagramming the itinerary and listing the plants to be seen. He met his students either at his home or on the *Barrière* coming out of Paris. They took their food with them. Adanson devoted afternoons to answering questions by the students, based on their morning's observations. He made cards listing the route and materials for each itinerary, together with a rough sketch of the environs of Paris, on which are marked the distances covered by each excursion. The last excursion was made in July 1773. He remembered those he made while he was a pupil of Bernard de Jussieu, and he knew by heart his own catalogues of the plants. He prepared advertising posters with the same care as was given those for the previous series and, as before, sent an announcement to the press [cf. Margadant, AD 285].

The full title was, "[a series of lessons] having the aim to procure an exact knowledge of all natural productions of the animal, vegetable and mineral kingdoms which are to be found around Paris so that persons who like the country might, while amusing themselves in looking for them, find an agreeable occupation and recognize by the same time the riches they possess in those three reigns for the best advantage of their rural properties." In his summary he reviewed the botanical walks of Tournefort, of which he has left us a set of notes [Margadant, AD 382-388].

To add interest, he covered all facets of nature, not only the botanical. He limited his groups to ten well-selected persons, and to avoid trouble with property owners, limited the walks to existing paths within a radius of not more than one and a half leagues from Paris. This enabled him and his students to make a systematic exploration of a small area. Unlike his predecessors, whose objective was to compile as large a list of species as possible, Adanson opened the way to the ecological studies in botany and zoology. For this he established twenty-three walks, taking his students twice to the same place so as to see the evolution of vegetation between the two dates. In addition to the points included in the de Jussieu itineraries, he added to the list such ecologically interesting places as the Isle aux Cygnes in the Seine River, Madrid in Bois de Boulogne, Montmartre, and Clichy La Garenne.

This series seems not to have enjoyed long success and may have been

terminated for lack of registrants. Its significance lies in its use of a new method for herborisation, its emphasis on the ecological approach, and its inclusion of all that was biological. His private life was most painful for in one year he lost his two-year-old son, Arthur, his sister Françoise-Charlotte, and his mother [cf. Margadant, AD 139]. His marriage was not the spiritual and intellectual union he had hoped for. His wife was blessed with a mind of her own and a volatile disposition. All of these converging pressures may have contributed to a state of anxiety about his future.

On 25 February 1773 Adanson was named *Associé Botaniste* at the Académie, replacing Tillet. Important as this nomination may have been, it is certainly more important to note that Antoine-Laurent de Jussieu, nephew of Bernard, was elected *Adjoint Botaniste*, replacing Adanson. The younger man was very well grounded in scientific work, not only because of his family ties, but because of his great aptitude to recognize what was important in his uncle's work. It was this same month, February 1773, that Antoine-Laurent presented his now famous *mémoire* on the classification of the Ranunculaceae, which ironically enough Adanson was asked to review [cf. annotated copy in Muséum National d'Histoire Naturelle, ms 845]. This assignment he tried to avoid, but without success, for compliance was virtually mandatory. The whole story of the long conflict between Adanson and Antoine-Laurent de Jussieu remains to be set forth, but for the present it is sufficient to know that this way, to say the least, a somewhat confused period, which until now has been only incompletely understood.

In this memoir, Antoine-Laurent de Jussieu presented his botanical classification, based on his uncle's principles as incorporated in the earlier plan for the Petit Trianon. This gave an immediate publicity to the *méthode*. Encouraged by his success, Antoine-Laurent published the following year a detailed elaboration of the principles for the Jardin du Roi (1774). All of this focused attention on de Jussieu and, despite Adanson's claims of priority, his earlier and basic contributions were ignored. De Jussieu had shown his intellectual capacity to comprehend and utilize the significance of Adanson's insistence on the synthesis of all characters to express the meaning of the whole—a philosophy from which Antoine-Laurent derived his hypothesis on the subordination of individual characters to any comprehension of the whole. There is little doubt that the three botanists, Bernard and Antoine-Laurent de Jussieu, and Michel Adanson, discussed the matter. Each of them made a contribution to the advancement of science. One idea came from another, and if we may

attribute to Adanson the view that the distinctiveness of any organism depends on the sum of its characters, then the heart of the rough classification made in 1759 by Bernard de Jussieu for the Petit Trianon was in large measure one of Adanson's own views. This plan was accepted by Bernard's nephew as a starting point for his own classification, delineated later in his *Genera plantarum* (1789).

Are scientists always devoid of self-interest? I dare say no. And I wonder if the antipathy between Antoine-Laurent de Jussieu and Adanson did not have its origin in Bernard's expectation to make Adanson his heir in scientific work, a position which Adanson says he declined, suggesting instead that his preceptor pass this mantle on to his nephew in Paris. Whatever may be the truth in this note by Adanson, there are in the Hunt collection of Adansoniana a number of books and notebooks associated with Linnaeus, Tournefort, Barrelier, and Deschizeaux, all of which came from Bernard de Jussieu's library, plus some manuscripts of de Jussieu [cf. Margadant, AD 85, 253, 346-348, 365-366, 379-390].

The question is then raised, why did Adanson decide to read his memoir on *Acacia* this same year; a report that had been written more than ten years before and was based on observations made twenty years before [*Mém. Acad. Sci.* 1773: 1-17, 1777]? Could it be that it was to focus attention on himself at a time when he sensed that his position in the Académie was being weakened by the activities of Antoine-Laurent de Jussieu—for Adanson's last paper on systematic botany, that on the baobab, was published in 1756? The second part of the *Acacia* paper was combined with the first for use in Panckoucke's *Supplément* (1776) and was read to the Académie about 1778. One may wonder, too, why was the paper divided in two parts, with five years separating one from the other? The answer to this may be found only in materials yet to be discovered.

A burning question among naturalists of that time was, by what precise lines are the three kingdoms of natural history separated? Adanson did not avoid the question; as indicated in the title of his *Cours d'histoire naturelle*, where he stated that sharp distinctions did exist between plants and animals, and between plants and minerals. This problem was the vortex of a whole series of experiments then conducted to provide a better basis for natural philosophy. For his part, Adanson had discovered, in 1767, a special movement in a plant called *Tremella* [cf. Margadant, AD 276], and had presented a brief memoir on it to the Académie on 24 March of that year.¹¹ Adanson reported that, on the third of August of

¹¹ Adanson's use of the name *Tremella* is for a genus of algae and which probably is the genus cur-

the same year, Linnaeus wrote from Upsala to the Académie de Paris to inform his colleagues of his discovery of a certain movement in the plant called *Marchantia*, a liverwort, named for Jean Marchant, who had already written about the matter in 1713 [cf. Margadant, AD 342]. Adanson and Bernard de Jussieu reviewed Linnaeus' memoir on 26 November [cf. Margadant, AD 342]. This coincidence focused his attention on the problem, which he had already studied from 1759 to 1761 and on which Bonaventura Corti had published his *Osservazioni microscopiche sulla Tremella* (1774) [cf. Margadant, AD 38].

During three years between 1773 and 1775 Adanson made many experiments and observations on the directions of "sap" (i.e. protoplasm) movement in plants, on their survival in dryness, and on the regeneration of excised parts in snails and amphibians, as well as on the reproduction of infusoriae. In the course of this he maintained a correspondence with Bonnet, with whom he disagreed on several points, and with Corti, who repeated Adanson's experiments on *Tremella*. He corresponded also with Fontana, Covolo, and indirectly with Spallanzani, whose experimental techniques he sharply criticized [cf. Margadant, AD 167]. The problem of regeneration was then a subject of much interest also to Lavoisier. Adanson received from Corti a copy of the latter's publication on *Tremella* movement together with an explanatory letter, and replied at some length on his own observations [cf. Margadant, AD 183, 184]. It is now clear that their observations had already been reported by Desmons, a physician at Boulogne, who published in 1761 on movement in *Conferva*. Corti replied to Adanson on 14 March 1775, reporting new experiments and introducing a quite modern idea about the influence of electricity on the growth of aquatic plants.

Meanwhile Adanson had undertaken a new series of experiments on *Tremella* viability following four years of dessication. The results were negative [cf. Margadant, AD 315]. The same year he completed his microscopical studies of infusoria. He used a variety of substances—such as hay, rye, wheat, and indigo—which he thought were able to generate this animal life. Each experiment was made in duplicate, once in an open vessel and again in a closed vessel. Unfortunately his techniques were too crude to permit any conclusions on the influence of the "air" on the occurrence of these lower forms of animal life [cf. Margadant, AD 289].

rently known as *Oscillatoria* since it produces the oscillatory movement referred to by Adanson and by Corti.

A letter in the Hunt collection addressed to Adanson from Bonnet in 1769, reveals for the first time a second series of excision experiments conducted by Adanson over a period of years; from the letter it is evident that Adanson had objected to Bonnet's favorable review of Spallanzani's claim of having observed regeneration of snail head [cf. Margadant, AD 166]. He reported to Bonnet that he had already worked on 1,400 to 1,500 specimens and ascertained that there had been no regeneration of the head. Bonnet then sent a copy of a letter by Spallanzani, dated September 1769, wherein the Italian described his techniques in full.

Bonnet's conviction of the correctness of Spallanzani's findings caused him to try to convert Adanson, asking him not to judge too severely before having again reviewed his own conclusions. The Frenchman's objections, however, to Spallanzani's conclusions, were shared by Valmont de Bomare and Père Cotte. In 1775 Bonnet inquired again if he had changed his mind, reporting his continuing correspondence with Spallanzani. Adanson's pique over these controversies prompted him to investigate the regeneration of excised parts in a higher group of animals, the frogs and toads. There is at the Académie des Sciences a collection of these anatomical preparations, but unfortunately without notes.

It is in this correspondence with Bonnet that Adanson discusses general considerations about the interrelationship of God, nature, and creation, disclaiming the role of divine power or the existence of divine creations. All of this is supported with data from his experiments on wheat grain viability. Here again the two friends did not agree. Adanson showed conclusively that there was a limit of a few years only in the grain's viability. It is quite clear that Bonnet, the *Palingéniste* as he called himself, had no marked influence on Adanson's views of nature.

To return to the *Encyclopédie universelle*, we note that on 15 February 1775 Adanson read before the Académie his prospectus. It was so long that its presentation required three successive meetings. On 4 March the *commissaires* (Grand-Jean de Fouchy, Le Roy, Guettard, and Desmarest) were asked to examine the report and to visit Adanson to appraise the material, which could not be taken to them at the Louvre. They were amazed at the quantity of documents in Adanson's portfolios, and even though some chapters were far from complete and covers for others were empty, those which were ready for publication were recognized to be of such value, so up to date in content and organization, and evidence of such a tremendous amount of work, that they could not hide their admiration in their report. The summary Adanson presented

Extrait des Registres

De L'Acad^e Royale des Sciences

Du 4 Mars 1775

Messieurs Le Roy, Guettard, Desmarest et moy
qui avons été nommés pour faire l'examen de ces
ouvrages manuscrits de M^r Adanson notre Confrère,
en ayant fait notre rapport; L'Acad^e a jugé que
Vu L'Utilité qui résulteroit pour Les sciences naturelles
de la publication d'un ouvrage Composé de ce genre, et de
dans toutes ses parties par des rapprochements et de
Vues Philosophiques qui doivent le faire considérer
comme une Encyclopédie de L'histoire naturelle prise
dans sa plus grande étendue, Il seroit à désirer que
M^r Adanson, après avoir publié son plan de division,
commencât enfin à mettre Le public en possession des
découvertes précieuses faites dans ses voyages qui restent
comme enveloppés dans ses portefeuilles, et qu'il y joignît
Les figures et les Descriptions des animaux tellec
qu'il les a eu sa possession et que pour la publication
de ces ouvrages si utiles à L'histoire naturelle il
méritât La protection du Gouvernement. en foy de quoy
J'ay signé Le présent certificat à Paris le 9 mars
1775.

Grand Jean Desfouchy

Sec^r perp^{et} de L'Ac^d des Sciences

in his prospectus, however, was so comprehensive and grandiose as to frighten his colleagues. Desmarest declared it to be a veritable *Encyclopédie d'histoire naturelle*, based on a concept of natural history in its broadest possible meaning, encompassing everything about all living organisms and non-living artifacts, together with their properties, qualities, and affinities. The portfolios contained a few thousands of plates drawn by some of the best artists of the time, and ready to be engraved. The *commissaires* informed Adanson that the scope of the project was so prodigious as to put it beyond the capabilities of any one man to complete. Recognition that it would be a pity for such a collection of materials to go unpublished prompted them, and others, to convince Adanson to make available and publish those parts that were completed.

Adanson replied that he had given the better part of forty years to the development and application of his philosophy, as embodied in this work, that every new idea or fact had been put in its right place, that the final preparation would merely require a putting together of the notes, and that a complete view of any question would be given through cross-references. The *commissaires* were not alone in their doubts for such a grandiose scheme, but even Adanson's best friends could not persuade him to be more realistic. Bonnet wrote on 3 May 1775, "No, my dear philosopher, I would not know how to depict all my astonishment when I saw the scope of your prospectus about your *Orbe Universel*. What immense periphery, and how can one find a man capable of embracing all its scope? I should depict you as a modern Atlas, carrying the world on his shoulders, and this modern Atlas would surpass the old one as much as [today's] knowledge surpasses the strength of that body" [cf. Margadant, AD 167]. A part of this *Encyclopédie* was botanical, and since 1769 Beguillet had been asking Adanson to produce a *Species plantarum*, which was under preparation; but we know Adanson's contempt for any partial solution. He was convinced that he had to publish all or nothing.

Nature, said Adanson, is an unbreakable homogenous whole. All facts concerning it are connected. The connections or links between its unchanging forms are perceived by the human mind. The recognition of isolated forms in nature, and the reduction of the study of nature to an analysis and description of them, is certainly a necessary function. But all this, reasoned Adanson, is transcended by the philosopher of the universe, who must turn to the philosophy of synthesis of the whole if the truth is to be known. Thus Adanson explained his refusal to publish only a portion of his work. "Genius," he wrote, "naturally instinctively

Fig. 10. Manuscript of Grand-Jean de Fouchy's report [by amanuensis?] to the Académie on Adanson's materials for his proposed *Encyclopédie de l'histoire universelle* (i.e. *Encyclopédie universelle*). [Cf. Margadant, AD 360.]

combines. My instinct combines for me while I am asleep; numerous ideas of combination often wake me or come to me as I awaken, and advise me to recollect them for comparisons and new combinations, so that generalities result, [generalities] which are often great and [engender] new principles" [cf. Diderot's *Encyclopédie*, Dakar]. Thus the *Encyclopédie universelle* is Adanson, and Adanson is his *Encyclopédie*. He identifies himself so closely with his work that he could not consider at that time either delegating a part of it to collaborators or omitting sections which, he felt, would ruin the presentation of the whole.

The *Plan de mes ouvrages* was published in l'abbé Rozier's *Journal* (Adanson, 1775) and special reprint of it was issued. Adanson annotated a copy, now in the Hunt collection, noting that a reprint was to be sent to The Royal Society at London on 1 May 1775, but none has been found in their archives [cf. Margadant, AD 8]. He noted also that he sent a copy to the Archives of the Convention in 1790 and to the Comité d'Instruction Publique in 1795, which copies have been found in Paris. One always wonders if behind this calm self-assurance on his part there was not a certain hesitation. He knew that his adamant position was being criticized and that he could not make his convictions clear to his contemporaries. A sense of insecurity could have caused him to hesitate and not to send his paper after all to The Royal Society. This dual personality might explain also some of the more unkind aspersions by some foreign visitors. When E. Heim, for instance, came to Paris, he noted "this man, although possessing great botanical knowledge, shows such an egoism of his personal convictions, and such a contempt for other botanists that it would [cause me] great suffering to speak to him again" [Banks Letters, Br. Mus. Add. Mss, 8094, vol. 84-84, dated 24-1-1775]. This superficial appraisal is a fair description of the shy but self-confident man we know him to have been, and is in harmony with other appraisals which show him also to have been a very kind and obliging colleague.

It is interesting to compare Adanson's projected encyclopedia with Panckoucke's *Encyclopédie méthodique*. When the two are placed side by side, Panckoucke's is seen to be a purely commercial project by a great entrepreneur who was much more interested in collecting his subscriptions than in logical developments of the enterprise. Adanson's work is a carefully constructed project, organized like a living thing, the work of a naturalist epitomizing his belief in the unity of life. Unfortunately he was too early for such an attempt. Material possibilities for the realization of his dream did not exist. It was the commercial project that

achieved lasting fame as a model for posterity, while Adanson's plan was relegated to the shelf along with the foolish works of lesser men.

The failure of his *Encyclopédie* did not affect his work at the Académie, where he presented in two communications a letter (*mémoire*) about mistletoe on oak trees [cf. Procès Verbaux, Acad. Roy. Sci. pp. 294-299, 1776]. He defended the nomination of Palisot de Beauvois as a candidate to the Académie. Palisot de Beauvois replaced Adanson at the Institut after his death in 1806. He corresponded with Sonnerat, who sent him several letters from the Far East and a memoir about China [cf. Margadant, AD 376], which he read to the Académie. Later, in November 1777, on Adanson's nomination, Sonnerat was elected as a *Membre Correspondant* of the Académie, the only one known to have been sponsored by Adanson, although others had requested the honor in their behalf, notably Beguillet and Buc'hoz [cf. Margadant, AD 170-172].

As early as 1769 Beguillet inquired who would be commissioned to revise the botanical articles in the second edition of Diderot's *Encyclopédie* to which Adanson replied that even if he were asked to do so, he would refuse. But there was finally a contract between him and Panckoucke, concerning the *Supplément* of 1776, of which the first two volumes contained more than 400 articles by Adanson. The introduction to this edition reports that Adanson extracted these articles from his portfolios. These articles deserve close examination. The number is impressive, and they are not known to ever have been studied since then. They include 232 articles on botany and 212 on zoology (of which 98 are on ichthyology and 29 are on ornithology). The Hunt collection includes about ten additional unpublished manuscripts of the same series [cf. Margadant, AD 293]. These last obviously were written for Panckoucke, but were omitted from the second volume of the *Encyclopédie, Supplément*. Some of the accounts are only corrected revisions, others are abstracts, from such leading works as those by Coyett about fishes, or by Rheede tot Draakestein's *Hortus Indicus Malabaricus* and Rumphius' *Herbarium Amboinense* on botany. Others are short original monographs, and a very small minority is composed of extended monographs of genera, some of which are valuable today—e.g., those about the palms, the banana, and the *Acacia*. These articles represent considerable preparation and seem to have been prepared for Adanson's *Encyclopédie*. It is somewhat difficult to believe that Adanson would sign a contract with Panckoucke to provide his *Supplément* with cheap papers of a popular nature. This he did not do. Those published were selected by Adanson and not by the publisher,

and one marvels that so large a number of them were so scientific as to be of no real value for the common man who would use the encyclopedia. Certainly the specialist would not have looked for them in such a philosophical work.

Adanson suddenly stopped his collaboration when he arrived at the letters CH. This large number of papers on natural history may explain why the two first volumes cover A to EZ, while the last two cover all the other letters. Doubtlessly, had Adanson continued to contribute to this *Supplément*, it would have occupied at least six or seven volumes. One may ask, who put an end to the collaboration, and why? Unfortunately, the contract remains in private hands and the terms are not known. Perhaps Adanson used this *Supplément* as an opportunity to have published free of charge the descriptive part of his *Encyclopédie*. The interruption in the collaboration may reflect Panckoucke's wish to begin with his own series and thus reduce the size of the *Supplément*.

At about this time the Académie named Adanson a *commissaire*, together with Le Comte de Maillebois and M. Sage, to prepare a review of the Spanish work on the natural history of Spain, especially of the production of saltpeter in that country [Archives départementales du Puy-de-Dôme, ms. 337-339, Autographes, vol. 2, fol. 248-249]. This work was of later use, when, during the Revolution Adanson had a second opportunity to be interested in the production of saltpeter.

The death of Bernard de Jussieu in 1777 caused a new turn of events in Adanson's life. No longer would there be a bond, either with Bernard's old home at rue des Bernardins, or with the Jardin du Roi. Adanson, then its senior botanist, was requested by the Académie to examine candidates to fill the de Jussieu chair.

Advancing years and disappointments caused Adanson to become more sensitive to criticism. When Faujas de Saint-Fonds published his *Description des Volcans éteints du Vivarais et du Velay* he expressed doubts on the accuracy of Adanson's observations in Tenerife. Faujas re-identified Adanson's "prismes de basalte" as prismatic lava [Faujas de Saint-Fonds, p. 82]. Adanson, piqued by the controversy and offended that someone should follow him with a more accurate observation, quoted from his own book, adding "those two passages are without doubt sufficient to justify myself in the face of de Faujas' inculpations, and to show the fallacy of his system, which assumed that all volcanic production is basalt; he certainly ignored the fact that the term "basalt" is a proper name especially used for a kind of volcanic production, for which the

general noun is "lava," which includes all kinds . . ." [cf. Margadant, AD 4].

At this period Adanson seemed always to be either behind the time or ahead of his time. For the most part, he was spending too much time on data already twenty years old and had not noticed that he was not keeping abreast of the scientific world. The botanical Olympus was unoccupied. Both Linnaeus and Bernard de Jussieu were dead. Who would seize the torch? Concern among men of science for a new leader displayed itself in the solemn meeting of the Académie on 29 April 1778, when, with Voltaire in the chair, Condorcet read the *éloge* of Bernard de Jussieu [*Histoire Acad. Roy. Sci.* 1779: 44-53, 1782]. Flourens later interpreted the thinking of the group and predicted that all were convinced that the only possible successor was Bernard's nephew, Antoine-Laurent de Jussieu. But this was not so obvious on the surface.

Adanson had tangled with Antoine-Laurent and did so again, in 1779, when the latter sent Adanson a note proposing that the subject for a prize in botany for 1779 be to find the natural method of classification in botany. De Jussieu, with deliberate baiting, addressed himself on this proposal directly to Adanson adding that he already had the approval of the other botanists [cf. Prix à proposer à Pâques sur le sujet de Botanique, in Bibliothèque Nationale Paris, Mss. Nouv. Acq. Fr. 5.153, fol. 148].

Adanson understood the situation and immediately made a counter proposal, because de Jussieu's subject was in no way acceptable to him. Adanson knew his own studies were incomplete, and until he had completed them for the entire plant kingdom, he could not know the whole, nor fit into it all the pieces. He proposed, instead, that the subject for the prize be cotton and its economic importance, noting that the objective should be "to determine with constant characters, easily comprehended and exclusive of erudition and prolixity, the differences existing among the diverse cotton plants growing in Asia, Africa, and America." [cf. Bibl. Nat. Mss. Nouv. Acq. Fr. 5, 153, fol. 148]. Antoine-Laurent was obliged to agree, in spite of his objection that this subject was more technical than botanical. The final text of the proposal was re-edited by Adanson, and in his manuscript he requested his colleagues to "sign your names at the end of this program in conformance with the acceptance you have made and to return it at earliest [opportunity] to your . . . colleague Adanson [at] rue des Bons Enfants. In the name of the Director of the Académie." This was a time when he stood as the great botanist, against whom broke the swell of the new generation. He

gave great importance to his academic functions and often wrote his reviews on the spot at the Louvre. From successive drafts we learn he would sometimes soften reactions which initially were too severe, especially his reactions to works whose standards fell below his own [cf. Margadant, AD 334].

In May 1779 Adanson felt the necessity to get away from Paris, both to improve his health and to escape from marital difficulties. On this trip he went to Auvergne, Alpes, Provence, Roussillon, and northern Spain, returning via much the same route but visiting Geneva and the Rhône valley in Switzerland, and arriving in Paris in mid-October. There he found a letter from the editor of a proposed encyclopedic bibliography, to comprise about seventy volumes, to which he was invited to contribute. He agreed, with some restrictions [cf. Newberry Library, Chicago, Adanson Litt. dated 17-III-1780].

Adanson was elected *Académicien de premier degré* on 6 December 1781, with an annual pension of 3,000 livres. In this, he replaced Duhamel du Monceau and occupied the armchair of Jean Marchant, one of the three chairs created by Louis XIV in 1699. So, in spite of jealousies, cabals, and complete misunderstandings on the part of some of his contemporaries, in spite of his great awkwardness and a somewhat difficult disposition, and the unfortunate absence of opportunity by which to rise to fame, Adanson finally did arrive at the pinnacle of his scientific glory. He owed his position not to his birth nor to intrigues, not to the occult protection of some powerful person nor to a mistress hired from the Opera, but solely to his personal qualities. Perhaps some of his colleagues foresaw the final correctness of some of his theories which, more than 150 years later, were found to be both productive and modern.

VII THE ACADÉMICIEN PENSIONNAIRE: 1782-1792

As Adanson grew old, philosophy occupied a larger place in his thoughts. He took for himself the title of philosopher, and it was by this name that Sophie Arnould, the famous singer, referred to him in her correspondence [Goncourt 1884]. In terms of years, at fifty-five he was far from being old, nor was he a decrepit scholar. He had reached the age when he knew how to mix science and pleasure, to consider himself an epicure of the best sort. Seeking all opportunities for new knowledge, he was present at Blanchard's balloon experiment in June 1782 and immediately conceived a project to produce a dirigible, somewhat along the lines of that designed by Leonardo de Vinci [cf. Diderot's *Encyclopédie*, Dakar].

His contacts with his fellow *académiciens* had deteriorated, and when Bonnet visited Paris he was most astonished to learn of his friend's absence from the Académie meetings [cf. Margadant, AD 169]. In response to Bonnet's later inquiry for the reason, Adanson replied that he was suffering from very painful troubles, whose misery was aggravated when he had to remain seated and maintain a decent posture during the meetings and for which the only relief came from lying down or walking about. It is clear, however, that the real reason for Adanson's absence from the meetings was his numerous disagreements with his colleagues, but he gave no details concerning them. At the same time, Adanson did give to the Académie a collection containing 1,542 specimens of plants, and 1,600 of animals preserved in spirit in glass vessels—a collection which he had classified according to his own principles. The herbarium specimens were from collections made between 1741 and 1747, when he was studying at the Jardin du Roi and making his herborisations around Paris. [cf. Margadant, AD 302].

His domestic difficulties continued but did not interfere with his work, to which he devoted tremendous energy. Since 1780 he had lived in the rue Vivienne, across from the Grandes Ecuries d'Orléans, and in 1782 he and his wife moved to Place Vendôme in Neuilly-sur-Seine, which was nearer to his garden in the same suburb and may have been at the same address. This juxtaposition of home and experimental garden may have simplified his work, but it was not an economy, for with every move the Adansons made their rent increased. It was 1,000 *livres* in 1774, at Cloître Notre-Dame; 1,600 when at rue des Bons Enfants; 2,200 at rue Vivienne; and now 2,700 at Neuilly [cf. Margadant, AD 305]. In partial compensation for increased living costs, Adanson received in 1780 a second allowance of 1,800 *livres* towards his rent, so that he might have an apartment adequate for his library and his collections. We know through letters from his friend Aved, and through a few scattered notes, that as early as 1767 Adanson contemplated the purchase or rental of a property large enough for his wheat investigations. He sought a place within a few leagues of Paris. To this end, Aved made him several proposals for which sketches were drawn, facilities listed, and requisite documentation prepared [cf. Margadant, AD 141-151]. Nothing came from these, however, for the locations were all too far from Paris to suit his needs. From these negotiations we may infer that by this time Adanson had accumulated enough of a fortune to allow him to contemplate buying a 6,000 *livre* property.

In 1783 he renewed his interests in melon culture, having begun such a

project when in Senegal and continued it later between 1760 and 1779 in his garden at rue du Jardin du Roi and in this new one in Neuilly [cf. Margadant, AD 317]. He has left us a series of notes and observations on these last melon experiments [cf. Margadant, AD 317]. We know that he studied more than 200 varieties from all parts of France, Spain, Italy, and Senegal, and made several sets of artificial pollinations. He established a classification scheme using fruit and seed characters, and calculated that 92,000 combinations were possible. He had in his hands everything he needed to have anticipated Mendel's discovery of some seventy-five years later, but his mind was oriented toward the rational utilization of *all* characters and he could not comprehend the role of inheritance for such things as dominant and recessive characters.

The Adansons' marital situation worsened, and a separation was effected in July 1784. Michel moved to a house at rue de la Rochefoucault, to which address his faithful friend, Aved, several times wrote to send his sympathy and to propose that he come to Chaumont for a rest, not forgetting to remind him also that he had a small property in Reclancourt which was at Adanson's disposal. But Adanson refused, as always, not wishing to be far from Paris [cf. Margadant, AD 153]. It is in this intimate correspondence that we see the open-hearted Adanson. He wrote frankly of his own disgrace. The foundation of his character was his great independence. He never accepted a subordinate position, even among his best friends. Aved, whose fortune was considerable, expected to be appointed *Receveur Général des Domaines et Bois de toutes les Généralités de France* and his friendship put Adanson in a dependent situation which he frankly did not enjoy. Ever renewing his pledges of attachment, Aved once proposed to share his meals with Adanson whenever he was in Paris, so that his friend would feel less his loneliness. Aved's kindness never cooled, remaining warm and cordial until his death.

By 1785, Adanson's financial situation became critical again; his fortune was cut in half, he owed alimony to his wife, and he had to pay boarding charges for his daughter, Aglaé, in the convent of the Dames du Calvaire. He was back in the domestic situation he had known in 1765, with a small house, a small garden, and his domestic needs served by a provincial woman, who was both a cook and a governess. This servant, Marguerite Roux (known more familiarly as "Gotton" and the wife of Henry Simon) who worked for him for the remainder of his life, was a robust peasant from the north of France, whose husband continued to work in the north and on occasion visited her in Paris. She was very fond of

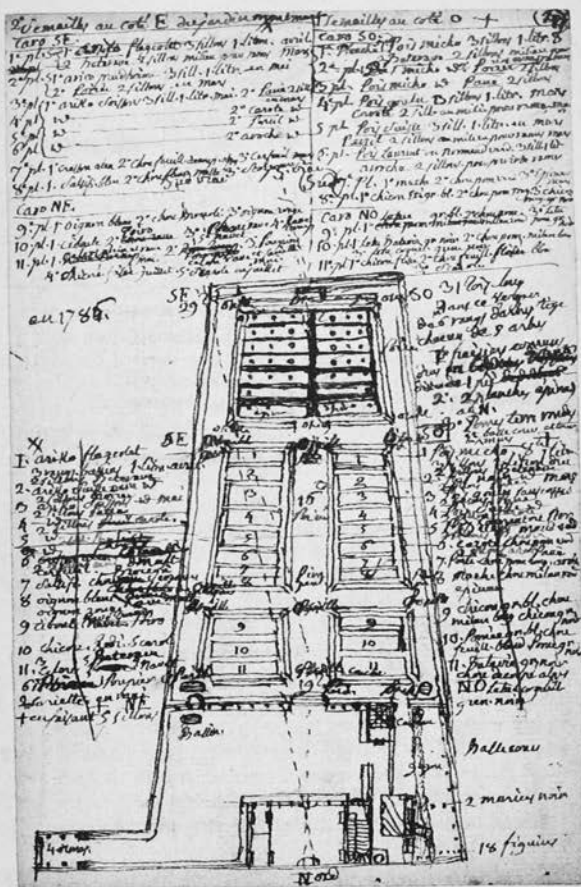


Fig. 11. Adanson's sketch of his garden at the foot of Montmartre [1784-1895].
[Cf. Margadant, AD 327.]

Aglaé, whom she cared for as a daughter [cf. Diderot's *Encyclopédie*, Dakar]. The annual rent for this socratical household was 150 *livres*, and in order to support it Adanson had given up all secondary expenses. We know that every day a "third friend" shared his lunches with him. His identity is unknown. Perhaps it was Le Joyand, author of Adanson's first biography (1806).

According to his notebooks, Adanson changed his experimental garden in 1784 for another area, rented from a *sieur* Philibert, at the foot of Montmartre hill [cf. Margadant, AD 305]. This is confirmed by numerous documents. With the assistance of Aved, he moved in 1785 from rue de la Rochefoucault to a small apartment at Palais Royal no. 44, whose proprietor was Sr. Léger and whose rental price was 1,400 *livres*. This rent, plus that for the garden at Montmartre, came to 2,900 *livres* a year. Adanson lived at the Palais Royal for the first part of the Revolution and continued to work at his little garden at Montmartre until he moved to his last establishment on rue Chantreine. At Montmartre he had a small house, which he transformed into a silkworm room. The garden, measuring about 180 x 96 feet, was divided into six squares for experimental use.

Despite his many financial difficulties, Adanson took into his care at this time his nephew, Charles-Louis, son of Jean-Baptiste, who had then finished his studies at the "Jeunes Langues" School and who later became a wealthy ambassador during the First Empire. It was Charles-Louis' brother Alexandre Adanson who, in 1845, published the zoological part of the original *Cours d'histoire naturelle*.

The reorganization of the Académie took place on 23 April 1785, and with this the status of the members improved. Adanson was named *Pensionnaire de Botanique et d'Agriculture*. When in 1786 the final decree for Adanson's divorce was given, Adanson had to pay 2,400 *livres* to his former wife. Fortunately for him, he received the following year a second academic pension of about 1,800 *livres*, reduced the next year to 1,749 *livres*. He enlarged his apartment in Palais Royal, increasing the rent to 1,400 *livres*, and continued to live there until October 1789, when he moved to 47, Palais Royal.

During the years of Adanson's absence from the Jardin du Roi, Le Monnier was in charge of botany, but he resigned his commission in 1786 and negotiated quietly for the appointment of René Desfontaines to his post. Desfontaines had made extensive botanical collections in Barbary and had published his *Flore Atlantica*, but by no means did he have

the immense botanical knowledge of Adanson. He won the appointment, however, and Adanson found himself the loser. Le Monnier had a strong entrée at Court and obtained there for Antoine-Laurent de Jussieu a continuation of the favor enjoyed by his uncle, Bernard. The period ended with the death of Comte de Buffon on 16 April 1788.

The most striking feature of this period is the double face of truth. There was one truth the public could read in the Académie papers and another for the persons concerned with Académie intrigues, and which appeared time and again in private letters. The period was not one of tenderness, and if Adanson argued against such men as Linnaeus, Antoine-Laurent de Jussieu, and Lamarck, there was Malesherbes and his friends who attacked de Buffon checking his errors, and commenting on the carelessness of his judgments about Linnaeus. De Buffon recognized that he was not a botanical authority, saying once "I am short-sighted. I have known three times as much botany [as now] and forgot it every time." This review of childish controversies between scholars of such eminence serves only to show that Adanson was far from being an exception in his idiosyncracies. Ideas had such a strength by this time that they were able to carry the académiciens with them. The quarrel crossed the Channel. Sir James Edward Smith reported at the dedication of the Linnean Society, London, "Adanson served the Linnaean cause, too, although this was his last intention, but it [*Familles des plantes*] is one of those books of which the reader must discount the author's opinion" [Memoirs of J. E. Smith vol. 1, p. 125]. When Smith came to Europe the same year, he reported his meeting with Adanson as follows: Adanson's "knowledge of botany would procure him great reputation, were he less a slave to paradox and pedantry. He accosted me with some attack on Linnaeus, sometimes calling him grossly ignorant and illiterate; and then when I have ventured to quote *Philosophia botanica*, as a proof of the contrary, abusing him as scholastic, I was contented with smiling, to think how one accusation destroyed the other" [*Memoir and Correspondence* of J. E. Smith, vol. 1, p. 329, 1832].

In spite of those Parisian disputes, the country was anxious to learn something from the masters of the Académie. Some championed Linnaeus, others Adanson, as did Tournon who, in 1786, planned a *flore tolosan* in accordance with Adanson's classification [cf. Margadant, AD 244].

We know very little about Adanson's dealings with his publishers and editors. The collection of Adanson's pamphlets and manuscript material at the Newberry Library, Chicago, contains a letter from [John?] Hill

about a new edition of *Hortus Malabaricus* in 1774, another letter by Royer, who wrote him in 1786 about plates from Plumier might be of interest [cf. Margadant, AD 229]. This raises the possibility that Adanson may have used his personal stock of publications for exchanges and thus obtained indispensable plates to be cut up for his great work on botanical figures. His two publications, *Familles des plantes* and *Relation de voyage . . . au Sénégal* had little value in the book markets of that time. In the catalogue for the sale of Camus' library in May 1786 the *Familles des plantes* was offered for 6 livres (no. 382, p. 50) and the *Voyage au Sénégal* for 22 livres and 19 sols (no. 827, p. 108), but in the same catalogue, Linnaeus' *Philosophia botanica* was priced at 14 livres 10 s., his *Systema plantarum* (1779 ed.) at 44 livres and the *Genera plantarum* (1764 ed.) at 12 livres.

The Revolution was nearing. In the calm before the storm, the abbé De Lisle still had time to read his poem on *l'Imagination* at the Académie meeting of 11 December 1788, when Félix Vicq-d'Azyr was named successor to Comte de Buffon. The daily news attracted more and more attention and the tempo of events was accelerating. Adanson divided his time between his apartment and his garden in Montmartre where he attended his silkworms and mulberries. He noted each day's events in his diary, which he called his "Journal Général Parisien" where he recorded meteorological data and observations of experiments. Once a month he outlined the principal garden operations for the coming month [cf. Margadant, AD 321].

By mid-1789, the news of the day became so important his diary notes report the first popular uprisings. From his room at the Palais Royal, his windows opened directly onto the Garden, where he could hear the groans and cries of the people. It is well known that for many years, he shared the ideas of *Les Philosophes* and had strong desires for radical change in French institutions. Earlier biographers have recorded as fact the legend that his garden in Montmartre suffered once from Revolutionaries. The so-called "Revolutionnaires" were only robbers plundering for their own gain, and did not represent the *populace* in revolt against him. He wrote of his, noting that on this occasion there were three persons, one of whom was a child [cf. Margadant, AD 321].

Thanks to this "Journal Général Parisien" we know that Adanson on 4 September 1789: "went to Versailles at 3 p.m., arrived at 5, met Marquis d'Aousti (?), gave my free contribution to Mr. le Baron de Charon, of the Finance Committee at the War Office." On the sixth he went to the Assemblée Nationale from 9 a.m. till 3 or 4 p.m. and returned to Paris

at 6 p.m. One wonders if it was during one of those visits to the Assemblée Nationale that he intended to present his memoir for the establishment of an Académie Universelle. In that memoir there is much that is of great interest [cf. Margadant, AD 304].

The project was well conceived. The proposed Académie was to be constituted at an assembly of all the members of all the Académies and scientific establishments in Paris. Its purpose was to provide a situation in which a more logical order might be followed in the search for knowledge, and in which, above all duplications and double appointments might be avoided, thus effecting, substantial economies for the government. This memoir begins with an epistle to the Assemblée Nationale members, but there is no record that it was even read publicly [cf. Margadant, AD 304].

If philosophers had been diligently working to destroy the very basis of the *ancien régime*, the several Académies also shared in the responsibility. Their members, however, were too few to be effective, and many of the encyclopedists had died. For the moment the Académie stood as if immortal. When the académiciens realized that all the laudable principles they had enunciated and treated as Holy Scripture were actually going to become a reality and that the public order was consequently in danger—the revolt having passed from the saloons to the street—they tried to disassociate themselves from the Académie. But it was too late. The Académies were to be abolished because they were images of the past, of the bourgeoisie, and of the king's largesse. The académiciens, correctly foreseeing the future, demonstrated their good will as best they could, and in May 1790 the members of the Académie d'Architecture sought to relinquish their privileges and to share with their fellow citizens the right to win prizes in competitions. Unfortunately the architects had to accept the refusal by d'Angivilliers. Had their wish been carried out, however, many other barrier breakdowns might have followed, and perhaps all could have been saved. In October 1790, the *Mercure de France* announced that after fifteen days the Revolution had ended, creating the belief that all Académies were already suppressed.

At this time Adanson thought once more that the nation was ready for his great encyclopedia, his universal dictionary. Again he took his portfolios, along with a copy of his report, to the Assemblée Nationale to his colleague, Armand-Gaston Camus. The preliminary work required him first of all to check his treatments of the 75,000 organisms in nature, their figures and descriptions; secondly, to put in order his natural,

universal, and encyclopedical philosophy—which had already received a favorable judgment by Grand-Jean de Fouchy of 1775; and finally, to prepare an *hommage* to the Assemblée. Then, and only then would Adanson know if he has to go on alone with his work, or if it would receive governmental support. If successful he would automatically have 40,000 municipal subscriptions, whose royalties would provide payment for his collaborators, a list of whom was drafted by Adanson [cf. Diderot's *Encyclopédie*, Dakar]. Many of them were also collaborators for the Panckoucke's encyclopedia. Camus gave a favorable review of the project, but the Assemblée took no action on it. This document shows that Adanson was far from isolated at the beginning of the Revolution, but on the contrary, was in close contact with his colleagues. Now, he is the "great" académicien, and the Société Royale d'Agriculture invites him to its inaugural meeting on 29 December 1790 [Mss. at Newberry Library, Chicago].

The year 1791 witnessed the beginning of financial difficulties for Adanson and his colleagues in the Académie, who received their pensions from the king's cash box. The financial reforms that followed on 27 July converted Adanson's pension of 1,475 *livres* to a life-pension. At this time he considered owning his own house and garden. He could have had an apartment in the Louvre, but refused it because he could not have one of his choice, and he would have forfeited his rental allowance which he applied in part for his garden. After much hesitation and investigation, and with the assistance of his architect friend, Belanger, he purchased in February 1792 a plot of ground where what is now 60 rue de la Victoire, behind the Chaussée d'Antin, and which was then in the fashionable part of Paris. Here was then living Joséphine de Beauharnais, and later joined by Bonaparte—when he organized his Brumaire coup d'état.

Several years passed between the acquisition of the land and the construction of his house, which was not earlier than November 1795. Belanger designed the structure, which was made of stone. As shown in the accompanying diagram, the house faced parallel to the street with his experimental garden at the rear. The furniture was plain. The study, which he called the herbarium, contained that collection plus the library with other natural history collections in three large wardrobes and some dressers, plus three cupboards where curiosities were exhibited. The wardrobe and cupboards in the hall were also filled with specimens. The garden was designed with a "caraffe," or terraced earth pyramid, situated in the lower center. In the center was the tank for water storage.

The remainder of the garden was divided into plots for each type of plant.

Meetings of the Académie were infrequent, even in 1791, but Adanson continued to be active, on one occasion signing with others a proposal for national compensation for Noel Chiquet, who was making microscopes [cf. Daumas 1953], and continued to report on his own investigations on the mulberry tree and silkworm breeding. For these he was well known and, in 1790, Monsieur Quatrefage de la Roquette, deputy from Nîmes to the Assemblée Nationale, offered to send his observations on a study of silk products, manufactures, and trade to his département.

In the heat of the Revolution, Adanson shared the general enthusiasm for new institutions, and leaped to the support of the abolition of the Catholic church. He faithfully recorded in his copy of Diderot's *Encyclopédie*, now at Dakar, the accounts of the Revolution. For example, in 1792 he wrote a long note about the cenotaph erected in the Tuileries to commemorate the victory of people. This enthusiasm left little room for criticism of him by the people, and one would be astonished to find partisan judgments from his pen, if we did not know the exact psychological context of the period, when even the coolest heads were pushed into the fire. Certainly he was most sincere when he wrote that the perfidious Louis XVI hides in his palace while 25,000 rascals like himself, set fire and let blood flow in the capital. At the same time, with aplomb of a savant, he would review and present the abbé Ramathuil's memoirs about the *Gemmalogie française*.

Unfortunately for many, the Parisian atmosphere was becoming less and less propitious for quiet intellectual speculations. While he agreed with the destruction of the old institutions, Adanson could hardly approve the initiation of a new society based on the philosophical principles of the day. In the face of this, he remained calm, knowing that spring would come after the winter, and that Nature in its immutable cycle would not fall before human passions. After the king's assassination he showed increasing disinterest in public affairs that were much too bloody for him, and held that the king was neither better nor worse than those who came after him. For the most part, his travels were to and from his garden.

Although Adanson fought often during his academic career, the distribution of academic appointments for 1792 gave him cause for battle stronger than any before. He judged the list of candidates for admission to be made up of unadulterated charlatanism, and he set forth his dissenting opinion in the following manner [cf. Diderot's *Encyclopédie*, Dakar]:

| | ACADÉMIE | ADANSON |
|--------------------|------------|--------------------|
| <i>Géométrie</i> | Borda | Meunier |
| <i>Astronomie</i> | LaLande | LaLande |
| <i>Mécanique</i> | Laplace | Perrier |
| <i>Physique</i> | Bradley | Monge |
| <i>Anatomie</i> | ? | ? |
| <i>Chimie</i> | Bertholet | Fourcroy |
| <i>Botanique</i> | de Jussieu | Thouin |
| <i>Agriculture</i> | Dapert | Duhamel du Monceau |

These evaluations indicate Adanson's judgments of his colleagues. His strong feelings concerning the botanists are shown in his substitution of Thouin for Antoine-Laurent de Jussieu and of Duhamel du Monceau for Dapert.

On 8 August 1793, all Académies were abolished. In the fury of its condemnation, the convention had seen in the Académie one of the last strongholds of royal resistance, the evidence of living on shameful privileges.

Adanson and his friends then came into the most sinister years of their lives. Charity, hope, and love were all that was left them. None of these provided sustenance. So, tossed from the fold of security, and made miserable in the same plight, Belanger, la Dervieux, Sophie Arnould, the right honorable members of the Royal Académies of Sciences, of Music, or Architecture, and the rest, slowly moved towards the grave and oblivion, bowing as they passed the fallen heads of such notables as Malesherbes, Lavoisier, Chénier, and many others whose privilege was not to witness the emergence of a new France.

VIII THE TERRIBLE YEARS: 1793-1800

The press for a long time had been preparing public opinion for the suppression of the Académies. *L'Ami du Peuple* wrote: "Académiciens are like chaplains of the sciences, of literature, and of the arts. Académies are kinds of menageries where are gathered at a great expense many rare animals, charlatans, and most famous of scholars." The attacks in the *Mercur de France*, noted earlier, became more violent, as when it published, "An académicien in his velvet armchair eats alone as much food as forty country couples . . . [Let there be] no more pensioned académiciens for as long as there remain workers to be paid, poor to be fed, creditors to be satisfied." One thing was forgotten: none of the académiciens had been paid any académie pension since 1790, although this was contrary to the public law.

The situation became more serious as it responded to the demands of an uninformed and misled populace that the *litterati* be discredited. In their fury, the masses one day broke the bust of Linnaeus, which they mistook for that of Charles IX. The great riches of libraries were pillaged, collections were scattered and destroyed, all to fulfill the urge to destroy that which was of the past. The notebook and manuscript collections of the Benedictines of Cluny and those at Saint-Maure were pillaged. In the provinces the situation was the same. In Aix-en-Provence, the library of 1,000 books and most of the manuscripts were destroyed. Six hundred and twenty-five boxes of documents at Versailles met the same fate.

In spite of all this, work went on. The citizen Chappe successfully experimented on 5 July 1793 in sending signal transmissions between Saint-Martin du Tertre and Ecouan. Adanson was present and his notes have been preserved, including his sketch of the apparatus. [cf. Diderot's *Encyclopédie*, Dakar.]

Adanson felt a bitter injustice at the attack on the *académiciens*. He who had sacrificed all for science, who for twenty years had attempted to bring the very best minds to the Académie, whose objective was to serve men, found it to be particularly painful to see himself included among the traitors simply because he sat in a red velvet armchair in the Louvre. Nonetheless, those years spent during the Rule of Terror were not the worst of all for Adanson. He owned a plot of land and his garden supplied him well with vegetables and fruit. Happily, his servant, Marguerite Roux, as well as her husband, stayed with him, and she put her available funds at his disposal. This fact undoubtedly gave rise to the story that Adanson at this time was in direst need. It is true that the public treasury owed him money and that his reserve was very small; but although he was in need of cash, he was free from debt and far from destitute. He lived in Palais Royal and had, as always, his garden. Circumstances of the times reduced his activities, and he could no longer afford wages for his gardener nor a place for him to live. Coiled in his chair, he would occupy himself with his encyclopedia, clipping notices from the newspapers and adding illustrations—a practice that he continued until his death. But this was not his only interest, for every flower, every leaf, held his attention. Continuing to take a few walks he would bring back specimens for his herbarium, and would attend himself to his collections. [cf. Margadant, AD 391.] He gave special attention to political and religious matters. We know that at this time he accepted the existence of a Supreme Being, not in what he considered to be its ridiculous masquer-

ade in public, but in the deep philosophical sense. He noted on 12 June 1794 that he adopted the Convention's declaration that the French people recognize the Supreme Being and the immortality of the soul [cf. fly-leaf of vol. 1, Diderot's *Encyclopédie*, Dakar].

When at last Adanson moved into his new home at rue Chantereine he was quite out of money, having always and unrealistically been sure that his rental allowance and pension would be reinstated. At this time he was sunk in the darkness of misfortune. His servants, Henri and Marguerite, lent him money on several occasions, not only for daily needs of food and fuel, but for other expenses as well. His brother, Jean-Baptiste, was then in Paris, but Adanson would accept nothing from members of his family. He refused the offer of a loan from his former wife as he had refused, in 1783, the hospitality of Aved when he was divorced [cf. Diderot's *Encyclopédie*, Dakar]. He expected always that the Republic would recognize all who were waiting, some of whom died of hunger while doing so, and would honor the obligations of the *Ancien Régime*.

Alas, time went on but nothing came. Claims were filed and refiled with no effect. The Republic, he contended, now owed him 14,700 francs. He wrote of all this to Belanger, who was then in Republican favor and released from prison. In this letter he pleaded for help, pointing out that among those on the new courts were such friends as Tronchet, Treillard, Durand, and de Maillane [Letter 14 December 1795 Bibl. Nat., Nouvelles Acq. Franç. 1301]. He considered the wisdom of pleading his case in person before these men. His position was desperate. From scattered documents and letters of formal proposals, we may follow the development of the whole story. A petition for liquidation was prepared but not executed, despite a petition in its behalf submitted 17 Brumaire-An I (7 November 1792,) and another on 23 Frimaire An II (13 December 1793) to the president of the Convention [Archives Nationales, Série AA 163/5, Autographes An VII]. Adanson sold all personal goods not of essential or immediate use. Not knowing where else to turn, he considered the wisdom of offering his house and land as loan collateral, together with his cabinet, his library and manuscripts—all worth more than one million francs in cash value. But he rejected this plan as being too time-consuming and decided to sell them outright to a private person rather than to the Republic. He inserted an advertisement in the *Petites Affiches* [Letter to Belanger, 14 December 1795 l.c.].

The tide began to turn on 15 July 1793 when the Commission d'Instruction Publique was established. Even then, however, there were frustrating

procedural delays, understandable in any new governmental organization. Proposals were followed by counter proposals which were then later negated by another agency. Adanson became involved in such a situation when the Convention asked him if he would publish his works on natural history. And there was Adanson's petition of 26 Frimaire (16 December 1793) presented to the Commissaires by his friends Fourcroy and Guiton de Morveau [Archives Nationales, Série F/17, 1326, Instruction Publique]. But nothing bore fruit.

Positive action came on 4 Nivose, An III (24 December 1794)

Depuis cinquante ans que j'exerce ou professe publiquement la philosophie naturelle, qui seule peut mener aux principes de toutes les vérités physiques, qui sont la base de la morale pratique, de la probité ou de toutes les vertus sociales et civiles; j'ai toujours eu lieu de remarquer que dans le grand nombre de personnes que cette science m'a fait connaître, et qui étaient tous, ou qui passaient pour être des gens probes et pour avoir de la probité entre eux, surtout ceux qui s'occupent particulièrement de ces études, s'éloignaient et me fuyaient au bout d'un certain temps. D'où cela vient-il? me disois-je à moi-même. Le voici! C'est que la conscience naturellement juste et droite de ces hommes leur faisait sentir qu'ils avaient dans le cœur une passion déréglée, un sentiment d'égoïsme et d'intérêt personnel d'amour propre oppose à celui de l'amour de leurs semblables qui les éloignait d'écouter plus longtemps les vérités que le philosophe était forcé de leur répéter par devoir naturel et réciproque de ses services de l'humanité que tous les hommes se doivent par le droit naturel qu'ils ont aux recours mutuels les uns envers les autres [Diderot's *Encyclopédie*, Dakar].

For the last fifty years I have practiced publicly the natural philosophy which is the only one leading to the principles of truth, which are the basis of moral practice, of probity, or of all the social and civic virtues; I always had occasion to notice that among the many persons I have known in this science, persons known for their honesty with themselves and others, those who were engaged in the same studies as I, avoided me after a short time. Why was this so, I would ask myself? This is why! It is that the naturally right and just conscience of those men caused them to feel that in their hearts they had an egotistical and personal interest in conflict with their love for their confrères, which turned them away, refusing to hear any longer these truths that [this] philosopher was compelled to repeat as a natural duty and in reciprocity for the help which all men owe one another.

Can one holding these philosophical principles—noble, idealistic, and expressive of a natural religion of truth and responsibility—be fairly labelled a misanthrope, or an irascible self-centered old egoist?

The application of those lofty principles was not, of course, easy—especially in dealing with those whose knowledge of science was short and with those who were liable to be offended by bluntness. When measured against this insistence on honesty, such things as his deep

antipathy for Linnaeus—who most certainly had his own and equally positive opinion and was himself a celebrity—it is obvious that the general consensus of superficial and often biased observers concerning Adanson's personality would be far from favorable. His abusive and sarcastic notes about Beguillet are examples of Adanson's intolerance of intellectual weakness in people he judged to be wrong. But there is great contrast between what he wrote about the "bold charlatan" and what he wrote about his friends. Pougens, whom he had long known, wrote him on 22 February 1795 as follows:

You are my Delphian Oracle, and you are certainly so for all who cultivate philosophy and literature. Please tell me which is the bird named Loraquet, which lives in New South Wales. I looked for it everywhere but my books are mute. I implore you, let me know through the good Citoyen Jus when [i.e., via whom] you will allow me to receive this information [cf. Diderot's *Encyclopédie*, Dakar].

We find the same spirit of kindness in two letters from and to Félix Nogaret, when Adanson showed that he knew more than one might expect about modern literature [cf. Diderot's *Encyclopédie*, Dakar]. Then it was Duschesne, the monographer of the strawberry and of pumpkins, who wrote in 1799.

Many reasons cause me to address myself to you, the *Doyen* of all naturalists at the Institute, the successor of the great distributor of all knowledge [Aristotle], to whom you introduced me in my youth, there to dig what I was able to grasp; you, the author of the book [*Familles des plantes*], the fullest of facts I have ever met. I dare to add that the way in which you have expressed yourself gives some rights to ask for explanations, and your kind disposition gives me confidence to do so [cf. Diderot's *Encyclopédie*, Dakar].

Duchesne is the same man who, as a mere youth, published in 1764 the famous *Manuel de botanique* and became directly involved in the quarrel with Antoine-Laurent de Jussieu concerning his uncle Bernard, and did so to the disadvantage of Adanson. As shown by this correspondence, Adanson forgave freely many who had committed personal injustices against him. Within his family he was never abandoned, not even by his former wife. His daughter visited him regularly, and once wrote to him, "... [the feelings] you show me are sweetening balm, appeasing the bitterness of my wounds. Dear and respectable Papa, never deprive me of your love, because what would happen to your unfortunate daughter." [cf. Diderot's *Encyclopédie*, Dakar]. There was also his sister, withdrawn from her convent but staying in Paris, who wrote him a very touching

letter on 1 January 1801 [cf. Diderot's *Encyclopédie*, Dakar]. All of this for an irascible egoist?

IX L'INSTITUT DE FRANCE: 1801-1806

A triumvirate of académiciens was appointed 17 December 1795 to serve as a nominating board establishing the membership of a new and august body, authorized by law on 25 December 1795 and named *L'Institut de France*.

At one of the first organization meetings for the Institut, about 14 October 1796, Lakanal nominated Adanson as a member of the *Tiers Électeur* for botany and vegetable physiology. Unhappily, with the cruel irony of fate, Adanson's name was immediately suppressed from the list with the allegation that he had been a royalist. He was not alone in being so rejected, for Antoine-Laurent de Jussieu was also counted as among the royalists. As the records have since shown, this was an injustice to Adanson, for he was one of the philosophers who from the beginning had championed the change in government. At the same time, he certainly was not bustling with any urge to serve politics.

The new Institut was beginning to function. In the period between the suppression of Académies and the creation of the Institut, several organizational meetings had been held by order of the Convention, but some former académiciens, such as Lavoisier and Adanson, had refused to appear, an attitude which may explain why Adanson's name was deleted from the list of *Tiers Électeur*.

The inaugural meeting of the Institut took place on 22 December 1795 [1. Nivose An IV], not 1 January 1796 [11 Nivose An IV] as reported by Cuvier.¹² Among the more stable minds were enough to assure the election of Adanson. He had been notified of his earlier nomination on 17 December 1795 [26 Frimaire An IV] by the secretary of the office of the *Ministre de l'Intérieur*, and was asked to attend the first meeting of 22 December at 5:00 p.m. "dans la salle de la ci devant Académie des Sciences au Muséum des Arts" [cf. Margadant, AD 180].

Cuvier has given the impression that in these later years Adanson was of little service to the Institut and rarely attended its meetings. This often repeated charge is untrue. The record deserves correction. Signatures of Adanson appear in the meeting books of the Institut for the meetings

¹² French documents and publications originating during the early years of the First Republic are generally dated in conformance with the French Republican calendar. These now unfamiliar dates are given here in square brackets to assist one checking original sources. A convenient table equating them with dates of the Gregorian calendar is in *Larousse de XXe siècle* vol. 1, p. 961 (1928).

of January 1 and 11, 1796 (11 and 21 Nivose, An IV). During the meeting of 21 January (1 Pluviose) when Cuvier presented his famous memoir on the elephants, Adanson was absent, but he was present at the next meeting and attended about once a month throughout 1796 except in February, the coldest month. During the summer and spring, he attended all of the meetings, and participated with Lamarck and Jacques-Martin Cels in reviewing a letter from a citizen Gérard concerning lentil varieties. One wonders how Cuvier could read his *Éloge* to the members of the Institut and not immediately be charged with his errors. The Institut's Journal book provided irrefutable proof of Adanson's activities during his last years, and many académiciens who were present knew perfectly well the truth of the matter. However, no one stood up to defend the memory of our botanist. Later biographers, having little curiosity and less perspicacity, accepted Cuvier without investigating the facts. Cuvier was no fairer with Lamarck when he wrote his *Éloge*, which has never been printed in its original text but only in an amended version [cf. Fonds Cuvier, Institut de France].

He attended five meetings in September 1796 (Vendémiaire An V) and six in October (Brumaire), but did not attend any in November (Nivose) or December (Pluviose) because he was not well and knew that the meeting room would not be heated. This attendance pattern continued, with some variations, until March (Germinal) 1798 when he was ill for a few weeks. At the meeting of 20 April (1 Floreal) 1798 a member reported this news, and citoyens Lessier and Lelièvre were asked to visit him. On recovery he attended the next meeting (25 April) and continued to do so until the end of September 1798 (An VI). He attended no meetings in 1798-99 between 12 October (11 Vendémiaire) and 4 June (16 Prairial) 1799, but thereafter attended regularly through the summer. Not only did he attend the sessions, but on 14 February 1799 (8 Pluviose An VIII) was on the ballot for nomination (which he lost) to the *Sénat Conservateur* [cf. Margadant, AD 110]. The record continues in his favor and shows a better than average attendance well into 1801, during which time he reviewed papers and entered into discussions. By no means was he merely a figurehead!

Adanson's position on religious matters became more clear in those last years of revolution. He believed that "without priests one may adore God; one's worship is in his heart [and] there is his altar" [cf. Diderot's *Encyclopédie*, Dakar]. He seems not to have taken any part in the first *théophilanthropique* worship in the Catherinettes Chapel, which is to

be noted here because a large number of académiciens were so engaged—among them such associates as Valentin Haüy, André Thouin, Bernardin de Saint Pierre, and Louis-Sébastien Mercier. Nonetheless, Adanson always guarded his freedom of philosophical expression, expressing it thus in 1798, in verse:

De la Philosophie que j'aime
Je montre le chemin que j'ai suivi moi-même
Je suis vieux il est vrai, mais 71 années
N'ont pas encore éteint le feu de mes pensées.
[cf. Diderot's *Encyclopédie*, Dakar]

Of Philosophy which I love
I show the way I have followed myself
I am old, it is true, but seventy-one years
Have not yet cooled the fire of my thoughts.

Philosophy occupied a large part of his last years. He regarded himself as a philosopher leading his fellows so subtly that they do not notice they are being lead! He was indignant when the memory of René Descartes (1596-1650) was scoffed at in a meeting of the *Cinq Cents* [in 1798], for to Adanson, Descartes had been the promoter of modern science, the genius who lifted the veil of ignorance that had suppressed progress for so many centuries. Unable to do so himself, he asked his friend Le Joyand to protest this affront, whereupon Le Joyand did so, saying: "While you delay the honors due to his [Descartes] memory, tremble lest England open the tomb room of its Kings to place the effigy of Descartes beside the bones of Newton." [cf. Diderot's *Encyclopédie*, Dakar] This hit the target. Adanson had his satisfaction.

At about this time the government of the Republic took action to provide support for the older people whose fortunes had been lost in the financial chaos that followed the Revolution. On 27 April 1797 Armand Camus (1740-1804), a long-time acquaintance of Adanson, presented a proposal, accepted by the *Cinq Cents*, that it pay Michel three-fourths of the arrears he deemed were due him.

The future looked brighter. Adanson felt more self-assured, devoted himself to his writing, to keeping abreast of the times, and to adding to his immense file of clippings from current sources. Contrary to Chevalier's denigration, averring that Adanson was then suffering from intellectual diminution and decline, there is much evidence of his activity. Fortunately, Adanson's clippings and papers have been kept and classified. Every special print from the Institut and every announcement

of its *Prix* were carefully read and annotated by him [cf. Margadant, AD 1].

With the inauguration of the consulat, the academic pensions were reestablished, and lodging was made available to Institut members. Adanson refused the apartment offered him in the Louvre, having now his own house. In compensation, and in lieu of the apartment, de Neufchâteau obtained for him the annual lodging allowance of 1,200 francs, which, combined with the 2,400 franc pension from the Institut, would place his annual cash income at about 3,600 francs. This improvement in his finances enabled Adanson to pay some of his debts, although when he died in 1806, there was still money due his domestics on their earlier loans to him.

It is noteworthy that Michel Adanson was a member of the first group of men in France to be elected a member of the *Légion d'Honneur*, for not all members of the Institut were so nominated. Although elected on 17 December 1803 (27 Frimaire An XII), he was not informed of the honor until 16 July 1804 (25 Messidor An XII). This explains his uneasiness, expressed in a letter to Chaptal, of accepting the salutation of *légionnaire* [Archiv. Nat. Série F/17, 1,025, dossier 2].

Adanson suffered new difficulties in his family with the second divorce of his daughter Aglaé, who had two sons by her second—Emile-Auguste Doumet (1796-1869) and Paul-Anacharsis Doumet (1800-1880). A Monsieur Girard de Busson, who interested himself in "assisting" this young lady, gave her the use of his property, Tresnay, in Allier. After that, Aglaé remained most of the time in the country, and for Adanson the loneliness became more poignant.

In 1793 Adanson proposed and submitted sketches for a grand museum to include zoological and botanical gardens as well as anthropology, and fine arts, and science. This was to have been erected in Paris, near the present Petit and Grand Palais, between Champs Elysées and Rond-Point de l'Etoile. Of course, he planned also that it would house his own collections and would at last provide a place where both the public and scholars would enjoy his treasures. Like so many others of his plans, this one remained only a dream.

Adanson was entering his twilight years. His last attendance at an Institut meeting, when he signed the journal, was 6 September 1803 [18 Fructidor An XI]. One of his last contributions followed a few months later, when he submitted, at the request of Pingaud, a clear and critical review of Camus' work on the *Grands voyages*. On 10 December 1803 [18 Frimaire An XII] he signed his will.

No longer able to go to the Institut, the Institut came to him. At its meeting of 27 April 1805, La Billardiére was directed to visit Adanson in the name of the Académie des Sciences. La Billardiére reported on his visit at the next meeting, 5 May, informing the members that Adanson was unable to walk without help and appeared to suffer from a tumor on his right leg. Adanson's message of thanks for the interest shown him was read on 2 July. Following a secret session at which Adanson's situation was reviewed, it was decided to invite him to submit one of his manuscripts for publication. The président announced on 19 May 1805 that Adanson had accepted the proposal. Apparently Adanson was not well enough to give the matter further attention, and we find no more about him until 26 January 1806, when he broke his leg while getting out of bed. Word of the mishap reached the botany section the next day; Pelletan, Tenon, and La Billardiére were asked to visit their colleague. After their report at a secret session on 3 February, it was voted that the Institut should send him 1,200 francs to "ease the painful state of their colleague." This is probably the action Cuvier referred to in his *Éloge* when he wrote about the "munificence of the Emperor," whereas in fact, the payment was nothing more than the overdue pension for lodging which had not been paid since January the 1st!

At this meeting, Desfontaines and Lamarck were asked to inquire into the possibility of purchasing Adanson's manuscripts and collections so that he might benefit from the proceeds. All of this has current importance, for until now the source of documents in Paris has not been known. If we examine Adanson's manuscripts now at the Académie des Sciences, we find only the notebooks on optics, dated 1752, written in Senegal—works of no real value, even in 1806; a collection of clippings on Batracians, some remarks about the poisonous effect of maize when fed to animals, and some official papers belonging to the Académie.

These papers were given personally by Adanson to Lamarck and Desfontaines and were brought to the Institut by Tenon at the meeting of 24 March 1806. What happened to the documents his colleagues reported having seen and suggested be published for his benefit? Cuvier reported in his *Éloge* that he looked over Adanson's manuscripts and gives such details as the fact that Adanson's collection comprised 4,000 natural history specimens when he was only nineteen. Cuvier saw the *Parisibotanon* manuscript. It would appear either that any one had free access to Adanson's cabinet—which does not fit Cuvier's picture of Adanson—or that there were several official visits to see the old man

when he was ill, during one of which Cuvier was present. This seems to be more probable. Also, could it be that Cuvier himself possessed some of these manuscripts when he wrote his eulogy? The last hypothesis, if correct, would explain several very troubling similitudes between the account of the tortoise called *Caouane* in Adanson's *Cours d'histoire naturelle* and Lacepède's description of the same. Lamarck was as much interested in those papers as was Cuvier, and Adanson's Natural Laws are worthy of comparative study with those of Lamarck. This is not to say that Chevalier was necessarily correct when he wrote that Adanson was a progenitor of evolutionary thought, but in Adanson's works one may find the original thought for a part of Lamarck's theories.

None of the manuscripts mentioned above was ever published. Of those available, that comprising the second edition of Adanson's *Familles des plantes* would have been the greatest contribution. The basis for this would have been Adanson's copy of his *Familles des plantes*, which was abundantly annotated by him and is now at the Laboratoire de Phanérogamie of the Muséum National d'Histoire Naturelle in Paris. This and the associated documents were lent in 1809 by Aglaé to DuPetit-Thouars, who tried, unsuccessfully, to convince his fellow académiciens that they should be published by the Institut as a memorial to Michel Adanson. The volume was used by Payer in preparation of his second edition of the *Familles* in 1864.

The herbarium of about 30,000 specimens was the subject of a letter from Mme. Adanson to Blagden in London, asking him to negotiate for its sale to The Royal Society. Blagden wrote to Banks on 15 February 1815, only to learn that available funds were being used to purchase the Baron de Moll collection [cf. *Roy. Soc. Lond.*, Banks' ltrs. B-58]. On several later occasions the Muséum National d'Histoire Naturelle sought to obtain the Adanson materials. Through the generosity of the de Rocquigny-Adanson family, the shells, the fishes, and the herbarium were given to this institution.

Adanson on his death bed, was without illusion about the nearness of the end of his sickness. Gangrene was spreading through the leg and open wounds existed. On 3 August 1806 his long travel on earth was finished. At the last moment, according to his commentators, he is reported to have said, "Farewell, immortality is not in this world." Many names of species and genera created by Adanson had already disappeared from usage by the time volume seven of Lamarck's *Dictionnaire de botanique* was published (1806).

At the 11 August meeting it was officially announced that the Classe de Botanique had lost its member, Michel Adanson. Little is known of his funeral, held on 5 August. It was then customary for académiciens to be given impressive ceremonies. The records at Notre-Dame de Lorette report only two Institut members as present: the architect Jean-François Beurtier and the mathematician Legendre [cf. *Extrait des Registres des décès*, Notre-Dame de Lorette, 5 Août 1806]. If the Institut had its own convocation, we know of no record of it. According to his will, Adanson was faithful to the Roman Catholic faith, and a requiem mass was sung for the peace of his soul [Chevalier, 1934, pp. 79-81]. All of this for one who through most of his adult life had professed an atheist philosophy and who often expressed a total aversion for church and clergy.

At the time of the funeral Aglaé was occupied with the estate of Baleine, which had been bequeathed to her by de Busson and to which she had moved in 1805. The only Adanson who signed the funeral register was Michel's grandnephew Alexandre Adanson, who later did all he could to bring justice to his uncle's memory. According to Cuvier, quoting Le Joyand, the only decoration of the grave was stipulated by Michel to be a floral wreath representing his fifty-eight families of plants. The location of his grave has long remained unknown, and Alexandre, who attended the service, made no mention of it, nor did Cuvier in his *Éloge* of that year. A recent search by my parents Mr. & Mme. Edouard Nicolas, of official French cemetery records reveals that he was buried in Cimetière du Père Lachaise, in the oldest section known as *Carré Delille*, near the grave of Chevalier de Boufflers. Inasmuch as the option for perpetual care did not exist before 1810, it can be presumed that, as was done for all who were interred in non-permanent graves, the bones of Michel Adanson were later removed and put in a common unmarked grave. We know that the bones of Lamarck, for example, rest today in such ignominy.

Adanson, having given all his personal belongings to his faithful housekeeper, left some furniture to Aglaé, along with his scientific documents, which were kept together until 1960, after which date they were unfortunately scattered. The major part of the botanical collection is now well preserved in Pittsburgh.

X THE AFTERMATH

What remains of this prodigious activity by one man after so many pains, so many hopes unrealized? Some of the public may know Adanson through his two published books: *Histoire naturelle du Sénégal* and *Familles*

des plantes. Some scholars know of him also from the few memoirs he read which were published at the Académie—especially those about *Acacia*, the baobab tree, teredoes, and his *Variabilité des espèces*. A handful of specialists knew vaguely of his project to produce a universal encyclopedia. But the richness of the documents buried in the files is a collection far more interesting than the few published works. Outstanding are his innumerable observations, records of collections, texts, accounts of projects, and correspondence.

Adanson's sole heir was his daughter Aglaé, divorced from J.-B. Doumet. She transferred her rights to her father's property to her mother, who then lived at 111 rue de Sèvres, in Paris, and Madame Adanson sold Michel's house sometime between 1807 and 1808. In the early 1930's Chevalier reported that the scientific papers, constituting the Adanson's *Cabinet d'histoire naturelle*, were still as he had left them, in the same pieces of furniture, with the same labels. It is probable that the library, too, remained as the Master had it. At that time Chevalier saw and went over the available documents at Baleine and used them in his biography, the first to give Adanson his real place among scientists. The transfer from Paris to Baleine of the cabinet and the books took place in 1807, but that of the herbarium seems to have been later.

Aglaé, a fascinating personage herself and worthy of a special study, developed an arboretum at Baleine, which has been maintained by the descendents. In doing this, she was guided by such provincial men as Requien, Quenin, and Audibert and developed a new and long-lasting interest in Provence. Aglaé continued to enjoy her life, and her third and last affair was with Hubert Descotils, whom she never married but to whom she bore a son, Pierre-Anthénor-Hubert Descotils, on 13 September 1808, at Yseure. Hubert Descotils was later Préfet of Calvados in Caen, and their son went to the Vire College and became a tax collector in Viller-bocage [Chevalier, 1934].

Emile-Auguste Doumet, son of Aglaé, married Mlle Julie de la Perelle, a niece of Lacépède, and became *Pair de France*, mayor of Cète (his father's home city). He established a museum in Cète, which was later returned by his son in 1880 to Baleine and incorporated with his grandfather's collections. This grandson of Adanson, Raoul-Paul-Napoléon Dumet, became a botanist who specialized in the flora of Tunis and Algeria. After his return to Baleine he was granted permission (in 1891) to add the Adanson name to his own.

With the assembling of the Adanson-Doumet collections, we enter

the modern period. Louise, daughter of Raoul-Paul Doumet-Adanson, (in 1885) married Guillaume de Rocquigny, who came from an old family of Picardy. As had his father-in-law before him, de Rocquigny received authorization to add the Adanson name to his own, becoming Guillaume de Rocquigny-Adanson. He was a man of remarkable intelligence, played an important role in the scientific and intellectual life of Bourbonnais, and wrote several short studies about Michel Adanson. From this union came two sons, François, killed in 1915 during World War I, and Hugues, who died in 1959, and a daughter, Felice.

In 1952-53 the Institut Français d'Afrique Noire (University of Dakar, Senegal) acquired the Adanson copy of Diderot's *Encyclopédie*, fully annotated by him; this book served as my initial and inexhaustible source of documentation for the present work. The Institut Français d'Afrique Noire attempted to reassemble the Adanson library, but the few scattered books that had found their way to the book shops quickly exhausted their very limited resources. The major dispersal of the Baleine treasury took place in November or December of 1960, scarcely a year and a half after the death of Hugues de Rocquigny. In March 1961, Mr. Roy A. Hunt acquired the botanical part of the collection for the Hunt Botanical Library, at Carnegie Institute of Technology, Pittsburgh. Missing from this collection are the 3,000 original drawings by Adanson. The Newberry Library at Chicago in 1963 acquired the Adanson collection of historical papers dealing with Parisian printers and publishers, which had been assembled by Adanson in his official role as a Censor. The zoological part of the library has left Baleine and presumably rests on booksellers shelves awaiting a well-deserved repository.

Recognition and much credit is due to Alexandre Adanson, the nephew of Michel, who used his financial resources in many ways to perpetuate the memory of his uncle. Comparatively little is known of Alexandre's personal life or other activities. His inherited fortune was considerable. He provided well for the later years of Michel's widow, and the large monument marking her grave in Cimetière du Père Lachaise was provided by him. It was he who engaged Jean-Baptiste Payer, of Nancy, to prepare for publication the zoological part of Adanson's manuscript of the *Cours d'histoire naturelle*. In his will he provided also for the sculpture of two marble statues and a bust of Adanson.

Adanson has been the subject of a certain number of short biographical accounts and notices. The first, by Le Joyand in 1806 [cf. Margadant, AD 75], was a superficial resumé, but written by one who knew Adanson

personally during the later years of his life. Le Joyand was not a naturalist, however, and thus had little understanding of Adanson's contributions to science or of his future place of esteem. It must be noted that Le Joyand's observations of Adanson's personality are not wholly correct, since he knew him only in those last years that were marked by many disappointments and disillusiones.

Abstracts and reviews of Adanson's accomplishments, published in the Paris press after his death, are superficial and contribute no new information. These are to be found in the *Gazette Nationale* (or *Moniteur Universel*) of Saturday, 4 October 1806, the *Journal de l'Empire* of the same date, and in the *Journal de Paris* of October, which is the best of the three.

Cuvier's *Éloge*, with an acerbidity characteristic of his many eulogies, smothered his caustic and biting criticisms with countering flowery phrases. This eulogy was compared not as homage to a respected friend but as an oratorial tool for Cuvier's own ulterior motives. He presented Adanson largely as he had been during his last years, with no significant review of his earlier periods of accomplishment, and he took the occasion to pay discreet tribute to the then powerful Napoléon, whose munificence protected scientists and artists. The *Éloge* was reprinted nearly *in toto* in the *Mercur de France*.

A third original tribute to Adanson is that by Louis-Marie-Aubert Dupetit-Thouars in Michaud's *Dictionnaire universelle* (1: 194-200, 1811), which contains numerous items not found in the others and which owes much of its sound appraisal to Dupetit-Thouars' background as a botanist, horticulturist.

Virtually all subsequent biographical accounts in numerous encyclopedias and dictionaries have been taken from one or more of these three works, thus perpetuating errors and misconceptions for nearly a century and a half. Chevalier's biography (1934) was the first to break the cycle, but his was a work of limited distribution, focused on the French colonial interests, and, has been little noticed by other scientists.

Iconography

No biographical study approaches completeness without an accounting of the man's iconographie—the portraits and other representations of him. For Adanson, this presents many interesting situations, for only one bust was sculptured and one miniature portrait painted during his lifetime. All other representations are adaptations of that bust (until now the portrait has remained with the family) or the product of an artist's

imagination, utilizing, perhaps, Le Joyand's description of the man's physique.

Le Joyand tells us that Adanson was short but strong, dried-up but nervous, redheaded and very hirsute but becoming bald in middle age. His head was broad, and his small penetrating eyes were deepset and canopied by exceedingly bushy eyebrows.

The earliest likeness of Adanson is a miniature recently acquired by the Hunt Botanical Library from the Parisian antiquarian, Max Besson, who received it from Guillaume de Rocquigny-Adanson. It is here reproduced for the first time in its original size on the title-page of this volume. This miniature is a medallion measuring 6.25 cm. in diameter, executed in white pencil and watercolors on a blue-black background. It is signed by Langlois, and while it has not been determined which of several artists of that name then in Paris is responsible for it, the miniaturist and engraver Pierre-Gabriel Langlois (1754-1810) may be the man. This piece has been perfectly preserved in a contemporary gilt frame with lens-shaped glass. It depicts Adanson in profile between the ages of sixty-five and seventy. It can be dated as having been executed between 1789 and 1795 by the type of his collar, with its large fold with no facings—a type worn only in the Directoire period. The coat shown is similar to one worn by Goethe at that time. The rendering shows a marked resemblance to the bust of Adanson executed in 1798. The bust was carved for the *Institut* by Jacques-Antoine Boulliet as one of a series of busts of academicians in a Romanesque style with bare throat and a toga. It is cited by Auvray [1882, vol. 1, p. 139] as representing C. Adanson (meaning Citoyen). The plaster original used for the white marble copy—referred to as the Institute Bust and later as the *Muséum* bust—now occupies a pedestal at the *Muséum*. Two plaster copies are known: one at the *Musée de Versailles*, the other in the *Institut Michel Adanson*, the regional center of the *Institut Français d'Afrique Noire* in Saint-Louis du Sénégal.

This bust served as the model for many of the published engravings. The first (ca. 1806), by Ambroise Tardieu (1788-1841) a three-quarter face view showing Adanson as a young man, dressed in a Louis XVI coat with a lace frill. The right cheek bears the same wrinkle shown on the bust, but the coat is buttoned in reverse from that in the miniature. It is part of the *Collection de portraits de tous les personnages célèbres comprenant 800 pieces* (Paris 1820). A second engraving, that drawn by Jean-Henri Cless, of Strasbourg, and engraved by Konrad Westermayr (1765-1834),

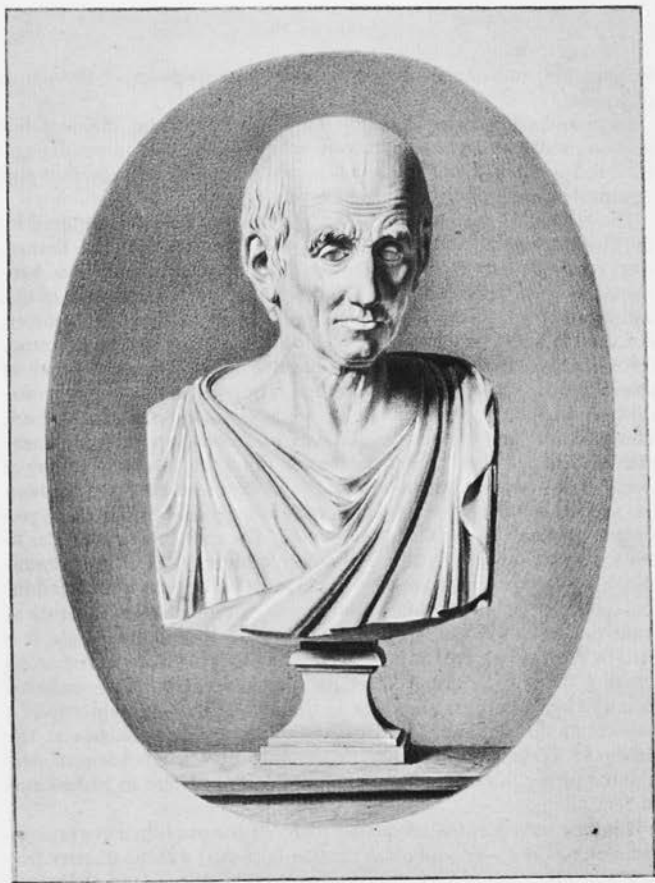


Fig. 14. Michel Adanson, portrait. An original drawing by an unknown artist of [or for?] the bust made for the Académie des Sciences, and now at the Muséum National d'Histoire Naturelle, Paris [cf. p. 107].

bearing a German inscription. The fact that its caption cites only the birth date suggests execution about 1804, when Cless worked in Paris. This engraving presents a reverse facing from that of the bust. Another original drawing found in the Hunt collection of Adansoniana is of a bust in full face view. It bears no identifying marks of artist or time. The watermark of the paper is that of a Dutch mill, in business from 1733 to 1827. This well-executed drawing is certainly the best we have seen made from the Académie bust; there are many others of inferior quality.

One drawing that has been extensively reproduced is that first published in *Biographie Nouvelle des Contemporains* . . . Paris, 1820 (1:30-32), after a drawing by Pierre-Felix Trezel (1782-1855). It was redrawn and engraved for the *Annales des Voyages* (vol. 13), accompanying the account of the Senegal trip. Two other unsigned engravings belong to the portrait collection of the Linnean Society, London. A bad adaptation of the Tardieu likeness accompanies an abstract of Cuvier's *Éloge* [In Cap, Museum, 1854]. When Joseph-Marius Ramus, an artist in Aix-en-Provence, carved a white marble bust of Adanson, he worked from the Ambroise Tardieu engraving and seems also to have had knowledge of the miniature because one may observe many similarities in the head likenesses found elsewhere only in Langlois' painting. This piece is in Muséum d'Histoire Naturelle d'Aix-en-Provence facing the Tournefort bust.

Two statues were commissioned by Alexandre Adanson in his will of 1835: one for the Muséum at Paris and the other for that at Aix-en-Provence. The first, by Antoine Etex, stands nearly seven feet high and is adapted from the Boulliet bust at the Académie, but the facial expression is wrong, and the general appearance of the body does not agree at all with Le Joyand's description. Although impressive, the piece is of no value as a document. It stands today in the Muséum at Paris in its *Galerie de Phanérogamie*.

The second statue is even further removed from reality than the first. It was carved in 1857 by Matthieu Meusnier—not by Mattieu Rolland, as sometimes reported [Auvray, vol. 2, p. 54, 1882]. It depicts Adanson as very tall and thin, wearing the uniform of a member of the *Institut*. One familiar with true likenesses of Adanson might recognize the head, which, however, is far from that of the model. A wreath of flowers shows that the sculptor read Cuvier's *Éloge*, and the open maps and the shells recall Adanson's Senegalese voyage.

To those records must be added a medal by G. Guiraud, coined jointly in 1963 by the Muséum National d'Histoire Naturelle, the Académie des

Sciences, and the municipality of Aix-en-Provence, in commemoration of the bicentenary of the publication of the *Familles des plantes*. It was inspired by the miniature at the Hunt Botanical Library.

Commemorations

Many plants and animals have been named by other scientists in commemoration of Michel Adanson. One drug, Adansonine, used initially by the Senegalese and now elsewhere as an antidote to *Strophanthus* poisoning, is prepared from the bark of the baobab tree (*Adansonia*). The following lists are provisional and are known to be incomplete, but indicate the number of species named in his honor.

Professor E. Fischer, of the Laboratoire de Malacologie, Muséum National d'Histoire Naturelle, Paris, has kindly provided the following list of Latin names of shells (names following the specific epithet *Adanson* are those [sometimes abbreviated] of the scientist who gave the name to the organism):

Acanthochiton adansoni Rochebr.
Bulinus adansoni Gray
Bulla adansoni Phil.
Cerithium adansoni Brug.
Comus adansoni Lamarck
Cycladina adansoni Cantr.
Dosinia adansoni Phil.
Helix adansoni Webb & Berthelot
Gibbula adansoni Payr.
Lasaea adansoni Gmelin
Lucina adansoni d'Orbigny
Marginella adansoni Kien.
Mitra adansoni Phil.

Natica adansoni Blainv.
Natica adansoni Phil., not Blainv.
Natica adansoni Reeve, not Phil. nor Blainv.
Natica michaelis Fischer-Piette
Patella adansoni Dkr.
Pedipes adansoni Blainv.
Phacoides adansoni d'Orbigny
Planorbis adansoni Gray
Pleurotomaria adansoniana Crosse & Fischer
Sormetus adansoni Fér.
Tellina adansoni Gmelin
Terebra adansoni Desh.
Vermetus adansoni Daud.

There is no record known to me of any lower forms of plant life (fungi, mosses, or ferns) named in honor of Adanson. Among the species of flowering plants named after him are those listed below. Most of these names are now held to be synonyms of earlier names for the same plant [given in the list where known].

Acacia adansonii Guill. & Perrot in Guillemain, J. A., Perrottet, S., & Richard, A. *Florae Senegambiae* tentamen . . . 1:249. 1830 [*A. arabica* Willd. *vide* Index Kew.]
Adansonia Linnaeus, *Species plantarum* p. 1190. 1753
Bauhinia adansoniana Guill. & Perrot. in *Florae Senegambiae* 1:265. 1830
Convolvulus adansonii Desrousseaux in Lamarck, *Encyclopédie Méthodique, Botanique* 3:560. 1791 [*Ipomoea aquatica* Forsk. *vide* Index Kew.]

- Crataeva adansonii* A.-P. De Candolle *Prodromus systematis naturalis regni vegetabilis* . . . 1: 243. 1824 [*C. religiosa* G. Forster *vide* Index Kew.]
- Curcas adansonii* Endlicher ex Heynhold *Nomenclator botanicus hortensis* . . . 2: 176. 1840 [*Jatropha Curcas* L. *vide* Index Kew.]
- Cyperus adansonii* C. B. Clarke in Durand, Th. & Schinz H. *Conspectus florae Africae* 5: 546. 1895 [*C. conglomeratus* Rottl. *vide* Berhaut]
- Grangea adansonii* Cassini in *Dictionnaire des sciences naturelles* 19: 304. 1839-49. [*G. maderaspatana* Poiret *vide* Index Kew.]
- Monstera adansonii* Schott in Wien. Zeitschrift 4: 1028. 1830. [*M. pertusa* Schott *vide* Index Kew.]
- Polystachya adansoniae* H. G. Reichenbach in *Flora* 48: 185. 1865
- Pterocarpus adansonii* A.-P. De Candolle in *Prodromus systematis naturalis regni vegetabilis* . . . 2: 419. 1825
- Rhododendron adansonii* Pépin in *Annales de flore et de pomone*, . . . p. 304. 1839
- Sabal adansonii* Guernsent, in *Bulletin des sciences, Société Philomathique (Paris)*. no. 87: 205. 1804 [*S. minor* Persoon *vide* L. H. Bailey in *Gent. Herb.* 6: 387. 1944.]
- Tula adansonii* Roemer M. J. & Schultes, J. A. *Systema vegetabilium* 4: 355. 1825(?)

Journals named for Adanson

The two French botanical journals named for Michel Adanson, one in the 19th century (ceased publication in 1879), and one in the 20th century, are:

Adansonia; recueil périodique d'observations botaniques. Paris. Vols. 1-12, (Sept.) 1860- (Dec.) 1879.

Adansonia nouvelle série. Laboratoire de Phanérogamie du Muséum National d'Histoire Naturelles, Paris. Vol. 1, 1961 (published irregularly). [Supercedes *Notulae Systematicae*.]

Synopsis—Michel Adanson

| | |
|---|------------------|
| Born in Aix-en-Provence | 7 April 1727 |
| Departed France for Senegal voyage | 3 March 1749 |
| Elected <i>Membre Correspondant</i> of the Académie Royale des Sciences, under the sponsorship of F. de Réaumur | 24 July 1750 |
| Arrives in France from Senegal | 4 January 1754 |
| The <i>Commissaires</i> of the Académie present their report on the <i>Histoire naturelle du Sénégal</i> , volume I | 4 December 1756 |
| Sponsorship as a <i>Membre Correspondant</i> transferred, on de Réaumur's death, to Bernard de Jussieu | 20 November 1757 |

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|--|--|
| Appointed <i>Censeur Royal</i> by Louis XV | 1758 |
| Elected <i>Adjoint Botaniste</i> replacing Fougeroux de Bondaroy | 23 July 1759 |
| Reads his <i>Mémoire</i> , announcing his <i>Familles des plantes</i> | 14 November 1759 |
| Elected Fellow of The Royal Society, London | 15 January 1761 |
| The <i>Commissaires</i> of the Académie present their report of the <i>Familles des plantes</i> | 2 September 1762 |
| Volume II of <i>Familles des plantes</i> published ¹³ | ca. June 1763 |
| Volume I of <i>Familles des plantes</i> published | January-February 1764 |
| Elected <i>Associé Botaniste</i> replacing Tillet, A.-L. de Jussieu elected to replace Adanson | 25 February 1773 |
| Elected <i>Académicien Pensionnaire du Premier degré</i> replacing Duhamel du Monceau | 6 December 1782 |
| Appointed <i>Pensionnaire de la classe de Botanique et d'Agriculture</i> (on the occasion of the reorganization of the Académie) | 23 April 1785 |
| Appointed <i>Membre du Tiers Electeur</i> of the new Institut de France, for the Section de Botanique et de Physique végétale | 26 October 1795 [4 Brumaire an IV] |
| Denied membership in <i>Tiers Electeur</i> on grounds of alleged royalist support | November (?) 1795 |
| Elected <i>Membre</i> de l'Institut de France | 10 December 1795 [18 Frimaire an IV] |
| Appointed <i>Académicien</i> de la Section de Botanique de l'Académie des Sciences | 1 February 1803 [11 Pluviose an XI] |
| Appointed <i>Membre de la Légion d'Honneur</i> by the Premier Consul | 20 December 1803 [27 Frimaire an XII] |
| Died, in Paris | 3 August 1806 |
| Succeeded by Palisot de Beauvois in the Institut de France | 29 September 1806 |
| <i>Éloge</i> read by G. Cuvier at the Institut de France | 5 January 1807 |

¹³For documentation cf. pp. 47 and 116 and for Stafleu's commentary cf. pp. 237-240.

ACKNOWLEDGEMENTS

This study has been made possible largely through a Fellowship granted me by the Hunt Botanical Library and for which I am most grateful. During the ten months devoted to this study in Pittsburgh I have had the everyday indefatigable assistance and collaboration of Dr. G. H. M. Lawrence and the friendly cooperation of W. D. Margadant, the latter having worked closely with me in our joint effort to read and translate the hundreds of manuscripts and letters in this Library's Adanson collection. Messers Ian MacPhail and J. V. Brindle of this Library's staff have been of material help in matters associated with their respective fields. In this experience I found myself for the first time a member of an American team working together and applying their individual talents to all facets of the work involved; an activity that produced a final manuscript many times revised and rearranged. To all members I extend my best thanks.

The background of this study is one of eight years in Dakar, during which time I wrote a detailed biography of Michel Adanson, thanks to the liberality of Professor Th. Monod, director of the Institut Français d'Afrique Noire, and under whom I was then engaged. This biography was based substantially on my study of a copy of the 36-volume Diderot *Encyclopédie* that had once belonged to Adanson, which he had annotated most copiously and in which I found hundreds of slips and cuttings bearing his manuscript notes. Following my study of the very rich collection of Adanson materials available to me at this Library, my initial work was wholly revised and rewritten.

The English language version published here, freely translated from the French, is an abridgement of the last French draft. Two points concerning it deserve mention: the translation, adaptation, and editing, of the text has understandably removed from it many untranslatable French *nuances*, and many the *touches vivantes* that would have presented Adanson more adequately in his daily *milieu*, but whose retention would have increased materially the size of the publication and which have understandably been adjudged as somewhat irrelevant and verbose; and conversely, there exist many *touches alien* to common practice in French literature, such as the inclusion of full names of persons cited—*touches* that may be considered by my French colleagues as highly pedantic. For all of these variances from conventional French writing I invite the understanding of my compatriots.

REFERENCES

References to published biographical accounts of Michel Adanson, and to critical studies of his contributions, comprise the last section of this bibliography in a section titled Biographical Studies [cf. p. 118]. Citations for all other source materials are given alphabetically by author (or by title when anonymous), and chronologically when represented by two or more titles by the same author. The extensive list of Adanson's own work is divided into two sections: printed books and papers, followed by manuscripts at institutions other than the Hunt Botanical Library (for the latter, cf. Margadant, pp. 340-369).

ADANSON, MICHEL—PRINTED BOOKS AND PAPERS

- . Observations sur les marées de l'île de Gorée et sur la latitude de Podor tirée de la méridienne. *Mém. présentés par les Savants Etrang.*, Acad. Sci. Paris 2: 605-606. 1755
 - . [Prospectus] *Histoire naturelle du Sénégal* Bauche, Paris. 1755
 - . [Second prospectus] *Histoire naturelle du Sénégal* Bauche, Paris. 1756
 - . *Histoire naturelle du Sénégal. Coquillages. Avec la relation abrégée d'un voyage fait en ce pays pendant les années 1749, 50, 51, 52, et 53* C. J. B. Bauche, Paris. 1757
 - . *A voyage to Senegal, the Isle of Goree and the river Gambia* Transl. by an English gentleman. Nourse, London. 1759 [Another printing: G. A. Ewing, Dublin. 1759]
 - . Lettre du Duc de Noya Caraffa à M. de Buffon sur la Tourmaline. Paris. 1759 [cf. *Procès-verbaux*, Acad. Sci. Paris. 1759: 201, 316-322. 1765]
 - . Plan de Botanique. *Collection académique (Savants Français)* Acad. Sci. Paris 8: appendice p. 59. n.d. [after 1759]
 - . Précis du vol. 1. *Histoire naturelle du Sénégal. Histoire Acad. Sci. Paris* 1757: 56-70. 1762
 - . Description d'un arbre d'un nouveau genre, appelé Baobab, observé au Sénégal. *Histoire Acad. Sci. Paris* 1761: 77-85. 1763; *Mém. op. cit.* pp. 218-243.
 - . Précis de l'ouvrage intitulé "Familles des plantes." *Mercur de France* pp. III+, 1763
 - . *Familles des plantes* 2 vol. Vincent, Paris. 1763
- Adanson retained at least two copies of this work. One [Margadant, AD 5] is unannotated. The other, fully annotated by Adanson and identified as "Collationé no. 66," was lent by

his widow in 1807 to DuPetit Thouars. It was used later by Alexandre Adanson and J.-B. Payer when compiling their second edition of *Familles des plantes* (1847 [1864]). Since then it has been in the library of the Laboratoire de Phanérogamie, Muséum National d'Histoire Naturelle, Paris. A heavily annotated set of page proofs of the original printing is also at the Hunt Botanical Library [Margadant, AD 6].

- . A description of the Baobab or Calibash tree . . . *Gentleman's Magazine* 33: 500-503. (Oct.) 1763
- . Description d'une nouvelle espèce de ver qui ronge les bois, et les vaisseaux observé au Sénégal. *Histoire Acad. Sci. Paris* 1759: 15-19. 1765; *Mém. op. cit.* pp. 249-279.
- . Observations sur l'augmentation de la Seine depuis l'automne de 1759 jusqu'au commencement de 1760. *Histoire Acad. Sci. Paris* 1763: 19. 1766
- . Précis de l'ouvrage intitulé Familles des plantes. *Histoire Acad. Sci. Paris* 1763: 53-68. 1766
- . [Plusieurs observations intéressantes sur les effets des grands froids à Paris]. *L'Avant-coureur* vol. 7. pp. 153-155. (15 février) 1767
- . Observations sur un épi d'orge rameux. *Histoire Acad. Sci. Paris* 1763: 19. 1766
- . Remarques sur les bleds appelés bleds de miracle et découverte d'un orge de miracle. *Histoire Acad. Sci. Paris* 1765: 50. 1768; *Mém. op. cit.* pp. 613-619
- . Mémoire sur un mouvement particulier découvert dans une plante appelée *Tremella*. *Histoire Acad. Sci. Paris* 1767: 75. 1770, *Mém. op. cit.* pp. 564-572
- . Observations sur un orage accompagné d'une grêle d'une grosseur considérable. *Histoire Acad. Sci. Paris* 1769: 18. 1772
- . Examen de la question: si les espèces changent parmi les plantes, nouvelles expériences tentées à ce sujet. *Histoire Acad. Sci. Paris* 1769: 71-77. 1772; *Mém. op. cit.* pp. 31-48
- . Annonce du Cours d'histoire naturelle. In *Affiches de Paris, Avis divers*. 18 mars 1772
- . *Nachricht von seiner Reise nach Senegal* Transl. by Schreber. Leipzig. 1773
- . *Reise nach Senegal* Transl. by Martini. Brandebourg. 1773
- . Plan de mes ouvrages manuscrits et en figures depuis l'année 1741 jusqu'en 1775, distribués suivant ma méthode naturelle découverte au Sénégal en 1749. Extrait *Journ. Phys. Hist. Nat. Arts & Métiers* [Ed. by Rozier] 18 pp. 1775

- . Diderot's *Encyclopédie, Supplément*, [Ca. 400 articles on botanical and zoological subjects]. Panckoucke, Paris. 1776
Among them are: *Acacia* vol. 1 p. 79+ (*pro parte*, reprint of the *Mémoire*); *Banana* vol. 1 p. 777+; and *Baobab* vol. 1 p. 796+ (*pro parte*, reprint of the *Mémoire*).
- . Premier mémoire sur l'Acacia des anciens et sur quelques autres arbres du Sénégal qui portent la gomme rougeâtre, appelée communément Gomme arabique. *Histoire Acad. Sci. Paris* 1773; 36-38. 1777; *Mém. op. cit.* pp. 1-17.
- . Extrait des observations météorologiques. Faites à la campagne près de Paris, pendant les froids de janvier 1767, avec des remarques sur la cause des inégalités des observations au thermomètre, et sur l'effet du froid sur les animaux, sur les blés, et sur les plantes potagères. *Histoire Acad. Sci. Paris* 1778: 1, 1781; *Mém. op. cit.* p. 425+.
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- . Voyage to Senegal, the Isle of Goree and river Gambia. In [vol. 16: 598-674. 1814] *General collection of voyages and travels in all parts of the world*. Ed. by John Pinkerton. London. 1808-1814.
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- . Voyage d'Adanson, traversée de France au Sénégal 1749, excursion dans l'île de Sor. In [vol. 5: 49-166] *Histoire Générale des Voyages*... Ed. by C. A. Walckenaer. Lefèvre, Paris. 1842.
- . Translation of the *Mémoire sur l'Acacia des anciens*. In Withers, W. *The Acacia tree, its growth, qualities, uses* (pp. 166-176). Longman. London 1842 [From Adanson's account of *Robinia pseudo-acacia* in Diderot's *Encyclopédie*]
- . *Cours d'histoire naturelle fait en 1772 par Michel Adanson. Publié sous les auspices de M. A. Adanson son neveu, avec une introduction et des notes par M.-J. Payer* 2 vol. Fortin Masson et Cie, Paris. 1845. [Zoology only]
- . *Histoire de la botanique et plan des familles naturelles des plantes*, 2ème édition publiée par MM. Alexandre Adanson et J.-B. Payer. Victor Masson et Fils, Paris. [Printed 1857] 1864.

ADANSON, MICHEL—MANUSCRIPTS IN PUBLIC REPOSITORIES (excluding those at Hunt Botanical Library)

ARCHIVES DE L'ACADÉMIE DES SCIENCES, PARIS

Nomination letter as a *Membre Correspondant* 1750, signed by Grand-Jean de Fouchy.

[Dossier Adanson]

Nomination letter as *Adjoint Botaniste* dated 23 Juillet 1759, [Dossier Adanson]

Nomination letter as *Associé Botaniste* dated 25 Février 1773, signed by the Duc de la Vrillière. [Dossier Adanson]

Nomination letter as *Académicien Pensionnaire* in the *Classe de Botanique et d'Agriculture*, dated 6 Décembre 1782. [Dossier Adanson]

Courte note sur les pierres du Sud Ouest de Gorée, dated 23 Décembre 1763. [Dossier Adanson]. One page, plus an original drawing

Expériences sur la reproduction de quelques parties coupées à certains animaux et surtout aux limaçons. [Dossier Adanson]. The manuscript indicates that this memoir was read at the Saint-Martin meeting, 1770. It was never published.

Troisième mémoire pour l'Académie. Remarques sur l'effet de l'épi de maïs à l'égard de plusieurs animaux destructeurs de graines tels que souris, mulots, loirs; tandis que le même épi ne fait aucun tort aux autres animaux domestiques. [Dossier Adanson]

Collection de pièces anatomiques sectionnées de Salamandres et grenouilles. [Dossier Adanson]

Traité d'Optique. Cahiers de Catoptrique et de Dioptrique with notes and figures. [Dossier Adanson]

ARCHIVES NATIONALES, PARIS

Letter from Adanson to the Compagnie des Indes concerning "un arbre à teinture," 24 Février 1752. [Fonds Sénégal Ancien. Colonies série C/6, Sénégal 1713-1763, liasse 1752-1753. Cf. Margadant AD 180. 181]

Mémoires sur le Sénégal, Gorée et Cayenne, 1763. [Colonies Carton 15 série C/6, 1760-1769 (formerly in Ministère de la France d'Outre Mer)]

This is the original handwritten mss. by Adanson, with his own orthography; concerns Gorée, the route of his Senegal voyage, instructions to the Gouverneurs, etc.

Second Mémoire sur Cayenne 15 Juin 1763; troisième et quatrième mémoires, plus lettres des 16 Juillet et 7 Août 1763. [Colonies, série C/14, vol. 26]

Description générale de Gorée et lettre à de Choiseuil, dated 1763. [Colonies, série F/3, 60 (.23), Registre 1004]

BIBLIOTHÈQUE NATIONALE, CABINET DES ESTAMPES, PARIS

Plan de la maison du philosophe Adanson [sic] et du jardin d'expériences, rue Chantereine. XVIIIème siècle. [9ème arrondissement, 34ème quartier, Topographie de Paris, Va 285 XIV]

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Mémoires sur le Sénégal, Gorée et la Guyane. [Fonds Français 6244, fol. 140 to 184 and 188 to 196]. Contains a letter to de Choiseuil dated 7 juillet 1763, (fol.

186-187). This copy has normal spelling and is a transcription from Adanson's original.

Réflexions sur les manières dont on doit considérer les acides, les alkalis et autres qualités chimiques des êtres. [Nouvelles Acquisitions Françaises 5,153, fol 14]. Read to the Académie "23 Aoust 1776," but never published.

MUSÉUM NATIONAL D'HISTOIRE NATURELLE, PARIS

Original maps of lower Senegal. Six sheets prepared for his *Histoire naturelle de Sénégal* vol. 2. Ca. 1752. [Bibliothèque Centrale, Mss 2311]

Ordre des plantes établi par B. de Jussieu pour le Jardin de Trianon. [Bibliothèque Centrale Mss 1169, VIII, fol. 46]. 1759

Original copy annotated by A.-L. de Jussieu who used it for his *Genera plantarum*. Contains additions of Adanson's genera.

Cabinet de M. Adanson réuni au Cabinet du Roy, ou notice de 5,211 objets d'histoire naturelle recueillis pour la plus grande partie au Sénégal, dont ils forment une suite assez complète tant en animaux qu'en végétaux ou minéraux, rangés suivant des méthodes nouvelles dont la plupart n'ont pas encore été publiées 1764. [Bibliothèque Centrale Mss 2311]

Adanson's herbarium, which includes numerous notes about the preparation of his projected *Species plantarum* planned to include 500 species from Senegal. [In Laboratoire de Phanérogamie].

Given to the Muséum in 1928 by G. de Rocquigny-Adanson.

THE ROYAL SOCIETY, LONDON

Blagden letter to Banks. Dated 15 February 1815. [Banks Letters B. 58].

Relates that Mme. Adanson has offered her husband's herbarium to The Royal Society. Requests Banks to enquire about the value of this collection.

Blagden letter to Banks. Dated 18 March 1815. [Banks Letters B. 62].

Mentions that it was impossible to buy Adanson's herbarium for lack of funds.

Journal book of The Royal Society Meeting of 23 June 1763. Vol. 24, p. 787.

Reports the presentation of "a book entitled *Familles des plantes*, second part, by Mr. Adamson [sic] of the Academy of Sciences, printed at Paris in the present year, was presented from the author together with a letter wherein M. Adanson thanks the Society for his election."

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- DEVILLE, P.-F.-A.—*Arnoldiana ou Sophie Arnould et ses contemporains par l'auteur de Bievriana* Gérard, Paris. 1813
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- DIDEROT, D. & d'ALEMBERT, J.—*Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers, par une société de gens de lettres* 36 vol. Paris. 1750+
- Adanson possessed a personal copy of this great work, which he annotated copiously, and added also many leaves of notes and clippings from many sources. In 1954 this set was purchased by, and is now at, the Bibliothèque de l'Institut Français d'Afrique Noire, Université de Dakar, Sénégal. Throughout this volume, this annotated set is designated "Diderot's *Encyclopédie*, Dakar."
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