About

Jared Potter Kirtland (1793-1877)

Digitally Compiled by Edward Kirtland Hine, Jr. ("Ted") – March 2006

Jared Potter Kirtland was the brother of my great-great grandfather Billius Kirtland and was perhaps the most famous and accomplished of the Ohio Kirtlands.

In late 2005 or early 2006 Ted Heineman of Poland Ohio came upon the following 33 page article about the life of Jared Potter Kirtland in the Cleveland Museum of Natural History Library and was kind enough to forward a copy to me which I have digitized. The article appeared in a 1952 edition of The Explorer magazine published by the Cleveland Museum of Natural History and is based on a paper written by Agnes R. Gehr in partial fulfillment of earning a Masters of Arts degree from Western Reserve University in June of 1950.

THE EXPLORER

THE CLEVELAND MUSEUM OF NATURAL HISTORY

Volume Two • Number Seven

JARED POTTER KIRTLAND—1793-1877

Physician, Eminent Naturalist, Civic Leader, Legislator,
Horticulturist, Editor, Journalist

THE EXPLORER

Published for the members of
The Cleveland Museum of Natural History.

25 cents per copy • Free to members.

Editors: William E. Scheele and Patricia Fraser.

Text prepared by Agnes R. Gehr in partial fulfillment of the requirements for the Degree of Master of Arts, Department of American Culture, Western Reserve University, June, 1950.

The portrait on the Cover hangs in the Medical School, Western Reserve University.

JARED POTTER KIRTLAND

Dr. Jared Kirtland was the most eminent naturalist to live and study in the Cleveland Region. The pages of this small magazine cannot tell the complete detail of his life; they can merely suggest that here is a man whose interests and energies were tremendous.

Dr. Kirtland influenced early Clevelanders in many ways, but a group of men called the "Arkites" were closest to his heart. These men were outstanding citizens who had a common interest in the growing field of natural sciences. They met in a frame building that was called the "Ark." In it Kirtland and his friends preserved the scientific collections they gathered from this region.

The Arkites met frequently to discuss every conceivable subject, and in all matters Kirtland was their guide. Particularly when studying nature, the members were a challenge to Kirtland; he goaded their curiosity and encouraged their field work. In admiration of his leadership, the Arkites renamed their organization shortly after the Civil War; it became the Kirtland Society of Natural Sciences.

Many years later, when the industrial aspect of Cleveland had drastically changed the natural history of this area, the membership of the Kirtland Society drifted apart. In 1926, the sole surviving member, Henry W. Elliott, merged the Society with the Cleveland Museum of Natural History. The two were incorporated and thus carried the lineage of the Museum back to 1826, into an era of exciting nature discoveries.

As a beginning biology student, Agnes Robbins Gehr enjoyed looking at the imposing portrait of Dr. Kirtland that hangs in the biology lecture hall at Western Reserve University. Later, when searching for a thesis subject that would lead to her Master's degree, she decided to write about Kirtland. The material she found available and the volume of his work impressed her, as we hope it impresses you, for during the life of Dr. Jared Potter Kirtland he was more than a local celebrity—the man was of national importance. Too few people appreciate the fact.

The publication of this Explorer is due to the generosity of Miss Gehr, the Graduate School of Western Reserve University, and to the Cleveland Foundation.

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ACKNOWLEDGMENTS

Miss Gehr is greatly indebted to Dr. Lyon N. Richardson of Western Reserve University for criticism of the text; and to Dr. George M. Curtis, Professor of Surgery, and Dean John F. Cunningham of the College of Agriculture, Ohio State University, for their valuable suggestions. Thanks are also due to Mr. Harold T. Clark of Cleveland for his kind assistance, to Dr. Frederick C. Waite, for his helpful suggestions, to Mr. George J. Blazier for permission to use materials in the Marietta College Library, and to Yale University and the Western Reserve Historical Society for permission to include several letters in this study.

Chapter I—Jared Potter Kirtland's Childhood Years

"I feel proud that my birthplace was in New England,"[1] wrote Jared Potter Kirtland eighteen years after he had removed to the old Northwest. He had been reading the letters of Abigail and John Adams, and his admiration for the sentiments expressed by them had provoked in him this reminiscent mood of thankfulness for his heritage. In a sense Dr. Kirtland was as much a hybrid as one of his famous cherry trees; although the greater part of his life was spent in the West, he received what might be considered the advantages of a New England boyhood. When he was ten years old, the rest of his family made the trip from old to New Connecticut, leaving him behind in Wallingford to complete his education under the surveillance of his maternal grandfather.

Turhand Kirtland, the father of Jared P. Kirtland, was one of the proprietors and chief agent in the West for the Connecticut Land Company. His ancestors were landed gentry of Buckinghamshire, England, who had suffered a sea change during the first half of the seventeenth century. Nathaniel Kyrtland (1616-1686) came to Lynn, Massachusetts in 1635,[2] and his son, Lieutenant John Kirtland (1659-1716), migrated to the lower Connecticut Valley, settling at Saybrook.[2] Of the ten children of John Kirtland, one (Daniel) was the father of Samuel Kirtland,[2] a missionary to the Iroquois who was influential in securing from the Six Nations a declaration of neutrality at the beginning of the American Revolution. Another son of John Kirtland, also named John, was the father of Constant, who married Rachel Brackett of Wallingford, Connecticut. There Turhand Kirtland was born, the second of their ten children. One of his younger brothers, christened Billius, was to become well-known as a physician. At the time of the defeat of the American Army on Long Island in 1776 Turhand Kirtland, who was in the provisional service of New York, helped to ferry retreating soldiers to the mainland.[3] He became infected with typhoid dysentery, however, and was discharged, returning to Wallingford where he pursued his trade as a manufacturer of carriages and stagecoaches. In 1793, not long after the death of his first wife, Turhand Kirtland married Polly Potter, a daughter of Dr. Jared Potter, who was said to be the best educated physician in Connecticut.

Thereafter, for almost forty years, Turhand Kirtland was engaged in the affairs of the Connecticut Land Company, which in 1795 had bought from the State most of the lands in its Western Reserve in the northeast corner of Ohio. Survey of the territory was begun in the following year under General Moses Cleaveland. In January of 1798, when the land was partitioned among the stockholders by draft, Kirtland, in company with several others, drew the township of Mecca and part of the township of Auburn, in addition to Poland, Burton, and 2,000 acres in Kirtland.[3] Two months later he set out for the new territory in ox-drawn sledges with a party of surveyors and settlers. That

year he accomplished the survey of Burton, and laid out Township Number One, which he named Poland after the nation which had been recently devoured by its neighbors.[4] Besides attending to the sale of his own lands, Turhand Kirtland, until his retirement from active business in 1834, acted as chief agent for the Company on the frontier. It was he who transacted most of the business connected with the final purchase of land by John Young and assisted him in laying out Youngstown.[5] Of equal importance was his role as go-between in matters that involved the conflicting interests of Indians and white settlers. A testimony to his genius for arbitration might be seen in the fact that Turhand Kirtland was appointed by Governor Arthur St. Clair as one of the five justices of the court of quarter sessions for Trumbull County which in those days embraced the entire Reserve.[6]

As has been stated, when Turhand Kirtland gathered up his family in 1803 and began the long journey from Wallingford, Connecticut, to the village of Poland in Ohio, ten-year-old Jared was the only one of the four children to remain behind. His mother was most loathe to part with her child for what she realized might be many years,[7] but she was reassured by the knowledge that he would receive the best possible education at the hands of her father, Dr. Jared Potter. In 1639, four years after Nathaniel Kyrtland's arrival in America, Dr. Potter's antecedents had come from England.[8] His father was the son of the third John Potter to make his home in the New World.[7] Jared Potter was born in East Haven in 1742. He began his studies with a tutor, and at the age of fourteen entered Yale where he won a degree in 1760. He completed his medical studies with the distinguished Rev. Jared Elliot of Killingworth,[8] and in 1773 he moved his practice from New Haven to Wallingford, which he felt was located less precariously should war with England become an actuality. "His memory at this time," says a biographer, was "associated with one of his own favorite remedies—Potter's Powder..."[8] After the outbreak of the American Revolution he was chosen surgeon of the fourteenth regiment and went with it into Canada. In addition he saw action in the battles of Long Island and White Plains. For many years Dr. Potter took as apprentices young men who wished to learn the art of medicine, and his first student was the poet, Lemuel Hopkins, who commenced the medical course in 1772.[9] As a physician Dr. Potter was reputed to be "skeptical of the power of medicine in chronic complaints, and for that reason his practice in such cases was... sometimes almost inert."[8] In all Connecticut there was no more extensive medical library than Dr. Potter's. He was proficient in Latin and French and subscribed to most of the medical journals of his day.[10] When Turhand Kirtland was desirous of obtaining a collection of books with which to endow the embryo Public Library at Poland, Ohio, it was his father-in-law whom he petitioned to draw up a list of suitable titles.[11]

Dr. Potter was greatly addicted to theological speculation, a complaint which he may have caught from the Reverend Jared Elliot. It was said of Dr. Potter's pupils that, however they succeeded in the medical disciplines, they generally left his tuition with minds colored by unorthodox notions.[8] Though by birth a Presbyterian, Dr. Potter had early embraced the faith of the Quakers. He could not stomach slavery and consequently set free the colored boy who had been presented to him as a wedding gift.[12] It is likely that Dr. Potter's beliefs in these matters had no little effect on the mind of his grandson, who would one day become an ardent supporter of the Free Soil cause.

Two of Dr. Potter's daughters married Kirtland brothers. When Billius Kirtland died, his wife and children came to live with her father; and thus young Jared was but one of several grandchildren who grew up under the eye of their grandfather Potter. The good doctor amused himself with the study of natural history and attempted to stimulate in his grandchildren a taste for that pursuit. Jared appeared to be especially gifted in this line, and his grandfather took great pains to instill in him scientific habits of observation. With his cousins Jared helped to care for a large garden and orchard, and was soon investigating the possibilities of improving fruit trees by budding and grafting. Here he was encouraged by his grandfather to keep careful records of his procedure and results. This habit, so early acquired, he kept for the rest of his life; and this meticulousness lent to his investigations much greater importance than attended those of many of his scientific-minded contemporaries. At the age of eleven Jared was engaged in a study of the honey bee and its natural enemies.[13] The next year, 1805, he embarked on a study of the Linnean system of botany in which classification is founded on characteristics of the stamens and pistils of flowering plants.[14] Since it takes into account only a few marked characters of plants, this system is largely artificial, valuable mainly as an aid to the identification of specimens. But in those days it took botanists by storm in Europe

and America. Another decade elapsed before the system of Antoine de Jussieu, which displays the natural affinities of plants, began to come into vogue. Jared Kirtland, who at the age of twelve was already an expert at budding and engrafting, had now begun to experiment with producing new varieties of fruit by crossing. Moreover he was busy helping his cousins care for the extensive orchards of white mulberry trees that provided sustenance for the silkworms whose cultivation was a favorite project of Dr. Potter. The cultivation of silk had been encouraged in the American colonies by the offer of bounties for the rearing of worms, and after the War of Independence, in 1783, this incentive was offered by Connecticut. From that time interest in sericulture had increased and would reach the proportions of a speculative mania in the late eighteen thirties. It was while caring for his grandfather's silkworms that Jared Kirtland made his first important scientific contribution. He had noticed that the female worm, though hatched alone and afterward kept segregated, nevertheless managed to lay eggs. By means of breeding experiments he showed that the eggs thus produced without the agency of fertilization hatched normally. This discovery was especially noteworthy in view of the fact that the world was to wait almost fifty years for the researches of Karl von Siebold on parthenogenesis in insects.

We are told that, as a boy, Kirtland took prizes in Latin, Greek, and mathematics.[15] He pursued classical studies, as they were then called, in Wallingford and Cheshire Academies until 1810.[14] Early in the spring of that year he received word that his father was dangerously ill, and so in May set out on horseback for Poland, Ohio. He was accompanied by Joshua Stowe who fourteen years previously had traveled the same route as commissary to Moses Cleaveland's surveying party.[16] They listened with interest to the debates in the legislature at Albany. There, and throughout the rest of their journey, they found the paramount concern of everyone to be the canal that was to join Lake Erie and the Hudson River.[16] Jared took every opportunity along the way to enlarge his store of information about natural phenomena. While fishing for trout at Lowville, N. Y., he was excited to find the rocks of the region abundantly fossiliferous.[16] There they were joined by Alfred Kelley who was on his way to the village of Cleaveland. The three spent some time at Buffalo where Jared pestered the fishermen to let him have their rejected catch which included varieties he had never before seen.[16] It was growing dark as they reached Conneaut Creek on the fourth of June. Following a faintly glimmering lamp, they came to a cabin where they were put up for the night. Jared undertook to mind the baby and sang lullabies "as effectively as if [he] had been a maiden aunt." The three travelers parted company at Painesville and Jared rode on to Warren with General Simon Perkins.[16] Thence by way of Youngstown another day's travel brought him to his father's house in Poland. There he found his father completely recovered from the tumor that a quack doctor had diagnosed as malignant.

Seventeen year old Jared Kirtland found much to occupy him that summer in Poland, Ohio. He embarked on a study of the flora and fauna of the region, and tended to his father's apiary and orchards. The farmers round about came to the boy to learn the art of budding and grafting and to hear about the new varieties of fruit that were currently finding favor among horticulturists in the East.[17] Not long after his arrival Jared was asked to take the classes of the schoolmaster who had recently died. Years later he told of his first professional teaching experience:

> I took charge of the district school . . . consisting of sixty scholars, which I taught till late in September, in a log-house on the public square. I soon learned that Joseph Noyes, a former schoolmate of mine, had charge of a school of similar size in Youngstown. Mr. Noyes and myself soon established the rule to visit each other's school on every alternate Saturday and counsel each other on school teaching. Reading, writing, spelling, arithmetic, and geography were the branches required to be taught. I have the vanity to believe that, in the first three named, the progress of our classes was as satisfactory as in the classes of the present day . . . Neither found use for the rod.[18]

Early in September he attended a regimental muster in Youngstown which he described in terms that reflect the patriotic fervor of the period:

> A war with Great Britain was anticipated, and the Indians on the frontiers were committing depredations. A thorough military spirit pervaded the country, and a full turn-out of every able-bodied man was evident on the occasion . . . No one at that period was disposed to evade his duties, and, two years afterward, the efficiency and patriotism of that body of men were . . . favorably tested.[18]

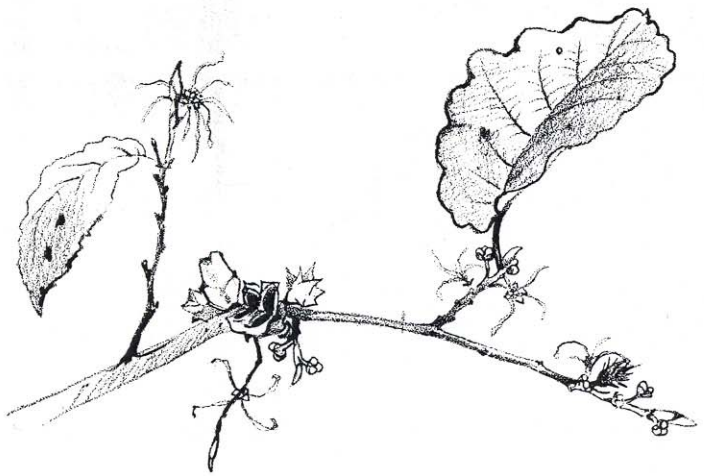
The death of his grandfather in 1811 made necessary Kirtland's return to Connecticut. Dr. Potter had willed to him his extensive medical library and left him funds sufficient for a medical education.

Chapter II—The Medical Career of Jared Potter Kirtland

Part One: His Medical Tuition

The conditions under which Jared Potter Kirtland pursued his medical studies can best be indicated by a brief statement of the general methods employed in his time. Over ninety percent of the American physicians from 1620 to 1820 were educated as apprentices or under the preceptorial system.[1] Under this system, the preceptor, a physician already well established in practice, furnished the student with books and gave him access to his library. The total period of instruction comprised usually about three years, at the end of which the doctor issued to his student a certificate of proficiency. Only a few practitioners possessed medical degrees granted by bona fide institutions, and a large proportion of these men had been trained in Europe. With them Edinburgh had found increasing favor as a place of study since 1726, when a medical faculty was organized there.[1] In America, during the latter half of the eighteenth century, sentiment became manifest for the standardization of medical instruction. There arose a demand for native facilities that would provide a more nearly complete medical education such as was offered by the European schools. When institutional medical teaching was initiated in America, an attempt was made to secure the support of men trained under the preceptorial plan by combining features of that system with those of the English university program. Thus the medical curriculum was sandwiched in between periods of preceptorial instruction.

Jared Potter Kirtland began his medical studies during a period of transition from the older preceptorial system to the institutional program, and his instruction was to include both types of training. Early in 1812 he placed himself under the preceptorship of Dr. John Andrews, of Wallingford, Connecticut. Dr. Potter had hoped that his grandson might have the advantage of preparation at Edinburgh, but war with England made that unfeasible. During the early part of the war, in June, 1812, Jared left Dr. Andrews and began a period of instruction with Dr. Sylvester Wells of Hartford. Wells was one of the earliest to see the importance of "both supporting and counteracting remedies, a doctrine which Kirtland later advanced and then elaborated after some years before the Ohio Medical Convention."[2] While studying with Dr. Wells, Kirtland gained valuable experience in watching the progress of an epidemic that appeared among the troops in Canada and then spread Southward. During this period he renewed his friendship with an old schoolmate, Lyman Foote, who was Professor Benjamin Silliman's chief assistant at Yale. Silliman facilitated the two



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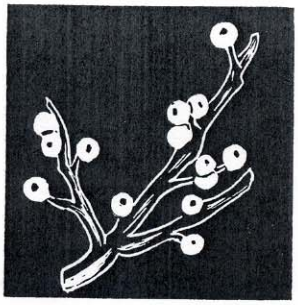
young men's study of chemistry and mineralogy by granting them free use of apparatus and books. Jared also added to his store of botanical knowledge by taking private instruction in that science with Professor Eli Ives, an old friend of his grandfather.

Up to this time Yale had not been numbered among the American institutions that offered instruction in Medicine. In 1798 a department of medicine had been organized at Dartmouth College by the skillful surgeon, Dr. Nathan Smith (1762-1829). In 1811 when a committee was appointed to act with the medical convention to establish in Connecticut a chartered medical School, Dr. Smith was chosen as its head. Instruction began in the Yale Medical Institute in the autumn of 1812, although Dr. Smith was unable to leave Dartmouth until the following year. "In the autumn of the year 1812 I entered as a student in the Medical Department of Yale and was the first individual who matriculated in it," Dr. Kirtland explained in a letter written many years afterward.[3] The Cyclopedia of American Biography, however, gives 1813 as the date of his entrance, as did Dr. Kirtland himself when he wrote that "the first Medical Class formed in the Autumn of 1813 . . . ."[4] This discrepancy might be explained by the fact above stated that Dr. Smith's obligations at Dartmouth did not permit him to assume a full share of responsibility at Yale until 1813. Perhaps during the year 1812-1813 instruction at Yale was relatively informal, making necessary a longer period of attendance for those who matriculated first in the department. At the close of the medical term (probably March of 1814) Jared Kirtland with several others formed "a class for the study of botany and mineralogy, which they pursued under Professors Eli Ives and Benjamin Silliman."[5] Kirtland's "Collection of the Genera of Plants Found in the Vicinity of New Haven in 1814" was presumably a product of these studies.

In May of 1814, he married Caroline Atwater,[6] a sister of Caleb Atwater, who the next year was to settle in Circleville, Ohio, where he served as both minister and lawyer, and was among the first to delve into the archeology of the southern part of that state. During the summer of 1814 Kirtland remained in Wallingford prescribing for the inhabitants and seeking to improve the state of his own health which had suffered during his attendance at Yale.

In the "General Register of Medical Students, 1762-1815" of the *University Archives* of the University of Pennsylvania occurs the following notation: "Jared P. Kirtland, Connecticut, matriculated in 1814."[7] In that year Philip Syng Physick, Caspar Wistar, Benjamin Rush, and Benjamin S. Barton were all prominent members of the medical faculty of that institution. Dr. Barton, an eminent student of Indian languages, also devoted many of his spare hours to the study of natural history, as did many other physicians in that day; and it was under his aegis that Kirtland composed a thesis entitled, "Our Indigenous Vegetable Materia Medica."[2] Not long after his enrollment at the University of Pennsylvania, he passed an examination for a medical degree before the medical faculty of Yale College, and received an M. D. degree there in March, 1815.[5]



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Part Two: Middle Years of Experience

In the spring of 1815 Dr. Kirtland established his practice in Wallingford, Connecticut, also managing to find time to supervise his grandmother's farm[8] and serve as village postmaster.[9] In 1818 he visited his parents in Poland, Ohio, and investigated the possibility of settling there permanently. On his return to Connecticut he found that during his absence he had been elected Judge of the Probate Court of Wallingford in a town meeting, apparently at the instigation of his wife, who was not happy at the prospect of making a new home in the West.[10] With the aid of a clerk, Kirtland filled the office of Probate Judge during the year 1818.[11] The labor involved in discharging the duties of the position must have been considerable, for three towns in addition to Wallingford fell under his jurisdiction.[11] After the expiration of his term of office, he moved to Durham, where he had been invited by the inhabitants to locate as a physician. His practice was soon extensive and became particularly onerous after the outbreak of an epidemic of fever which spread "affecting most of the families in a given neighborhood and then passing on to an-

other locality."[2] In the fall of 1822 the fever reached into his own household and took from him suddenly the smaller of his two daughters. A year later his wife, Caroline, was attacked fatally by the same disease. Under this double blow, Kirtland sank into a state of extreme apathy and depression. He resolved never to practice medicine again. "It is my desire and firm determination," he told a friend, "in the future to detach my affections so much from this world, that the result of no want shall disturb me."[12] Turhand Kirtland travelled to Durham, Connecticut to consult with his son, who had decided to settle permanently in the West. Not long afterward Jared P. Kirtland, with his daughter, Mary Elizabeth, moved to Poland, Ohio.

It was not possible for a man with a disposition so industrious as Dr. Kirtland's to remain long inactive. Already he was beginning to take an interest in his surroundings. He observed the state of agriculture, and in a letter to a friend back East described the level of settlement of the Connecticut Reserve which he found to be "considerably retarded by the cheapness of the United States lands lying south and west, which induce most of the immigrants to pass by. It is my calculation," he wrote, "to resume the practice of Physic, and connect myself with my Brother who is an established merchant here..., carry on some farming and assist my Father in his business."[12] Dr. Kirtland's practice soon became so large that he was forced to associate with him a partner, Dr. Eli Mygatt. Although he had attained considerable renown as a surgeon, he refused to take surgical cases because of the risk which practitioners ran in those days of being charged with malpractice. Dr. Theodatus Garlick, who was perhaps his most intimate friend, described Kirtland's practice in 1830: "At that time there was prevailing in Trumbull County . . . a malignant form of typhoid fever. Besides attending to his own patients, which were numerous, he was frequently called in consultation by other physicians."[13] It had been a similar scourge that carried off his wife and child.

Dr. Kirtland's second wife was Hannah Fitch Tousey, whom he married in 1825. In 1828 he was elected a representative from Trumbull County to the Ohio Legislature and turned over much of his practice to his associate. He was twice re-elected to the legislature, and served in all three terms.[14] At the end of the session 1834-1835 he was forced to decline an invitation to visit Dr. Samuel P. Hildreth, the well-known physician and writer on local history who resided in Marietta. From Columbus Dr. Kirtland wrote, "the state of my health is such that it is necessary for me to hasten to my family."[15] Eventually the two exchanged visits and promised that thereafter they would arrange their affairs so as to be able to see each other "at least once a year." They were soon to become more closely associated through collaboration in the Geological Survey of Ohio, which was undertaken in 1837.

In that same year, like many of his countrymen, Dr. Kirtland suffered financial reverses. He described his predicament to his friend Hildreth:

> My daughter . . . is in a low state of health. . . . To render her in a measure comfortable I have been under the necessity of advancing so large a share of my limited capital that it has taken from me the funds on which I relied for furnishing me with books and resources for pursuing my scientific studies, and probably will compel me to resume my professional business.[16]

The "disarrangement of business" forced Kirtland to renounce his plan of accompanying Dr. Hildreth that summer on an excursion to Missouri, to which he had been especially looking forward. The fall of 1837 saw Dr. Kirtland's entrance on a new career. "You will be somewhat surprised," he told his friend Hildreth, "to learn that I have received an appointment to the Professorship of the Theory and Practice of Medicine in the Ohio Medical College, at Cincinnati—and that I have accepted of the trust. The situation of my finances compelled me to take this step.—I am busily engaged in preparing my lectures."[17] From Cincinnati he reported after several weeks that he was accommodating himself easily to his new sphere of life.

The Ohio Medical College at Cincinnati was established by an act of the Legislature in 1819. The man primarily responsible for its organization was the celebrated doctor, Daniel Drake. Almost from the time of its founding, the College was buffeted by winds of internal dissension. At a meeting of the faculty (March 6, 1822) the two members present voted to dismiss Daniel Drake from his professorship, and from that day Drake did his utmost to revenge his forced exile.[18] During the next decade the college presented a sorry spectacle, with the student body at odds with the faculty, who were in turn wrangling among themselves. To make matters worse, moreover, in 1835 the ostracized Drake established a rival medical school in Cincinnati.

Dr. Kirtland had fought for the interests of the Ohio Medical College during his years in the

Ohio Legislature (1829-1835), where he was abetted by another physician, Marmaduke Burr Wright.[19] These two men, together with John Locke, chemist and geologist, were appointed to the faculty in the same year (1837). By some accounts Dr. Kirtland was chiefly responsible for cooling the strife that had been exhausting the school. On the other hand, the medical historian, Francis R. Packard, says Kirtland "was a bitter enemy to Marmaduke Burr Wright and John Locke, and the chief factor in ousting them from the college."[20] Whatever the truth may have been in this matter, it is certain that the addition of the three men to the faculty did much to strengthen the nearly defunct institution, which had been in great need of new blood. Also it is probable that Kirtland had the best interests of the school at heart. During the session 1839-1840 he was able to report, "Our institution is doing finely. We have 120 (bona fide) Matriculations. Not a word of controversy is heard. All is peace and devotion to the legitimate object of such an institution."[21]

Earlier he had written to his friend Hildreth from Cleveland: "Among the sudden events in this changeable world are the selling of my farm and house in Poland and the purchase of a residence in this city.[22] That year (1839) the Ohio State Medical Convention, meeting in Cleveland under the presidency of Dr. Samuel P. Hildreth, elected Jared P. Kirtland president for the ensuing year. The subject of his presidential address was the relation of diseases to the climate and meteorology of Ohio.

Part Three: Cleveland Years

Dr. Kirtland's activities were becoming increasingly centered in Cleveland. In the first and second Ohio Medical Conventions he had crusaded with Daniel Drake for fair compensation for physicians. He advocated the publication of bills which standardized fees, and he was the first to sign the "Fee Table for the City of Cleveland, Ohio."[23] At a meeting held in Cleveland early in May, 1840, called to organize a county medical society, Dr. Kirtland was chosen president.[24] Three weeks later he sent a jubilant note to Dr. Hildreth:

> I have just bargained for 50 acres of land 5 miles west of Cleveland, fronting at one end of the Detroit road and on the other on Lake Erie, the shore of which is furnished with a profuse spring where I shall build my house and is one of the most desirable and picturesque locations I ever saw. If I get a clear title . . . it will become my future pet, where I shall retire when I complete my labors at Cincinnati. I would add that grapes, cherries, and peaches never yet failed in that vicinity.[25]

Six months later that plan was slightly amended:

> The Farm which I wrote to you about I did not finally obtain as there was a defect in the title . . . , but was so fortunate as to procure another adjoining it, containing 83 acres equally well situated and of a better quality, the title of which is perfect.[26]

In December of the following year Dr. Kirtland wrote of the joys of an agricultural existence:

> Horticulture in a locality . . . where both the soil and climate reward one for his labor is so pleasant that I hope to devote most of my remaining life to it.—Of course I shall not probably return here [Cincinnati] again. . . . I am building myself a stone cottage on my farm. . . . My wife and family have become reconciled to the plan.[27]

Several months later he advertised for rent his Cleveland residence on St. Clair Street,[28] but the time had not yet come when he was to devote himself exclusively to natural science and horticulture.

While teaching in Cincinnati, he had made the acquaintance of Dr. John Delamater, who was reputed to be the best medical teacher in the United States. In 1837, the latter became a member of the Medical Department of Lake Erie University at Willoughby, Ohio, which had been in existence only two years,[29] and it was he who prevailed upon Dr. Kirtland to join that faculty in 1841. Since Dr. Kirtland was committed to remain that year in Cincinnati and did not feel he should try to teach in both places, he did not take up his duties at the Willoughby Medical School until 1842. There he gave the introductory lecture at the opening of the new term on November first.[30] Because Willoughby was only a few miles east of Cleveland, he could live all year at his new home on the Lake in Rockport township, where he opened an office as Counselling Physician.[31] In the *Cleveland Herald* he placed an advertisement describing the nature and extent of his future practice:

> He will investigate important cases of chronic consumption, affections of the heart, and other diseases of the chest, the character of which he examines by the stethoscope and the aid of physical signs.
>
> He will visit patients, but only in the capacity of counsellor and in company with their attending physician. To this rule there will be no exception.[32]

Before Dr. Kirtland joined the faculty of the Willoughby Medical College, things there had not been running smoothly. In 1843 it was decided to move the college to a larger city, with

Cleveland being the choice of the majority. Clevelanders were anxious to have a medical college in their city, and to that end several prominent citizens contributed land and money. On July 6 there appeared the following announcement in the *Cleveland Herald:* "The late faculty of the Willoughby Medical School have resigned their stations in that institution, and have reorganized . . . with the name of Cleveland Medical college."[32] The four men, not wishing to wait until the legislature should grant a charter to the new institution, applied to Western Reserve College for permission to organize as the medical department thereof. On August 4, 1843, the Board of Trustees of Western Reserve College received "a communication from John Delamater M.D. proposing for himself, J. P. Kirtland M.D., J. Lang Cassells M.D., and H. A. Ackley M.D., his associates, asking some action of this board on a proposition of the above named Gentlemen to deliver a course of Medical Lectures in the City of Cleveland, and praying this Board to have such connection with the Gentlemen above named as to award the Degree of M.D. on such candidates as they may recommend."[33] Several weeks later the *Cleveland Herald* published an open letter from Kirtland, Ackley, and Delamater, assuring "young gentlemen who may be inclined to attend Medical lectures at Cleveland, that they may do so with entire safety."[34] During the first two sessions the faculty occupied rented quarters at Ontario and Prospect Avenues.

Since at this time the only other medical school in Northern Ohio was the one located in nearby Willoughby, it was not surprising that the two institutions found themselves trying to outdo one another in enlisting students. During the opening weeks of the medical term "a four-mule team drove about the Cleveland streets with the offer to transport to Willoughby any student and his trunk without charge."[35] The machinations of the Willoughbyites met with little success; at the end of the first two weeks of the session the students at Cleveland assembled to answer "those individuals actively engaged in carrying out their designs to mislead uninformed persons," and resolved that "professors Delamater, Kirtland, Ackley, and Cassells did right in severing connections with the 'Willoughby University of Lake Erie' which was in Notorious . . . union with the Ohio Railroad Company!"[36] The truth of these charges is substantially borne out by an examination of the facts. The president of the Board of Trustees of Willoughby University of Lake Erie was at the same time Chairman of the Board of Directors of the railroad company.[37] The company was anxious to obtain a subsidy from the state treasury, and to this end maintained a lobby in Columbus during the legislative sessions. When there was submitted to the legislature a bill specifically amending the charter of Western Reserve College to permit the establishment of a medical department in Cleveland, the railroad men did everything in their power to secure its defeat. Promoters of canals, which during these years were the natural enemies of the railroads, were enlisted in support of the bill by Dr. Kirtland who years before (1829 - 1835) as a member of the Ohio House of Representatives, had campaigned for the building of canals. From Columbus he wrote his friend Hildreth in January of 1844, "We hope to have the school embraced as the Medical Department of the Western Reserve College by an act of the Legislature this session." Finally, at the end of the legislative session on February 23, the charter of the college was amended to authorize the establishment in Cleveland of a medical department with the power to award degrees.[38]

A building was needed to house the new school, and in the spring of 1845 a site was chosen on the southeast corner of Erie and Federal Streets. That fall each of the medical professors loaned the building fund three hundred dollars, and Dr. Kirtland advanced an additional two hundred dollars to make possible the construction of steps at the entrance.[39] Early in 1846 he was chosen a member of a committee of ways and means charged with the responsibility of securing completion of the building by spring. This was made possible when he and Zalmon Fitch together loaned the sum of $3,510.[39]

On November 4, 1846, Dr. Kirtland delivered the introductory lecture in the new building.[40] There, before his retirement in 1864, he was to give in all twenty courses of lectures on the theory and practice of medicine. In his introductory lecture in 1848 he spoke on the "Coinciding Tendencies of Medicines," a subject especially dear to his heart.[41] Here he stressed the necessity of a complete understanding of the side effects of the remedy employed in treating an illness. Some medicines, he explained, although they possess curative powers, also carry with them dangerous aftereffects. Dr. Kirtland preached prudence in prescribing for an ailment, a doctrine that he admitted was received with coldness by the majority of his classes: "That matters not," he affirmed; "it is not my duty to pamper students' tastes by

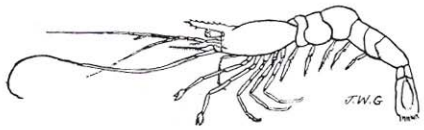
teaching, but it is both my duty and pleasure to fit them to be skillful and judicious practitioners."[42]

One of Dr. Kirtland's particular phobias was quackery in all its manifestations. In this same introductory lecture he delivered a powerful exordium against irregular practitioners and their remedies. By way of illustrating his point, he described an experience of his own:

> On a recent occasion I was called to visit a worthy lady who was rapidly sinking under the combined influences of a severe chronic disease and a popular quack nostrum . . . The husband was shocked at my incredulity as to the safety of the nostrum. To convince me of my error, he gravely read to me the printed affidavits accompanying the article. They stated that six bottles are certain to accomplish a cure. She had already taken four, when death arrested the further progress toward convalescence. He is now whimpering his regrets that she did not swallow the other two . . . .[43]

Dr. Kirtland characterized the practice of homeopathy in these words: "The whole system is an absurdity that has been fostered . . . by credulity. In this country it is spinning out a weakly existence, while it has ceased to be recognized in Europe."[44] The American tendency was from the beginning toward an excessive indulgence in quack remedies. Matters worsened in the 1830's and 1840's, when there occurred a general reaction against the principle of state supervision, and one state after another revoked its legislation which had restricted dubious practices. All medical laws were repealed in Ohio in 1833.[45] By this time the various cults of Hydropathy, Uroscopy, Perkinism, Thomsonianism had taken root in Ohio, and the state was to be "a stronghold of sectarian medicine from 1845 to 1900."[46]

Nevertheless these years saw the beginnings of the public health movement; the American Medical Association was formed in 1847, instrumental in its founding being the Dr. Knight who was Dean of Yale Medical Institution during Jared P. Kirtland's attendance there. Organization came to the medical profession in Ohio in 1846 with the founding of the Ohio State Medical Society, which in 1851 absorbed the preceding Ohio Medical Convention. With its subordinate district and county societies, the new organization repeated the pattern that had been laid down in the Eastern states almost fifty years earlier. Dr. Kirtland was vice-president of the Society during the first year of its existence, and the following year was elected president. His valedictory, read before the Society in June, 1851, bore the title, "Influence of

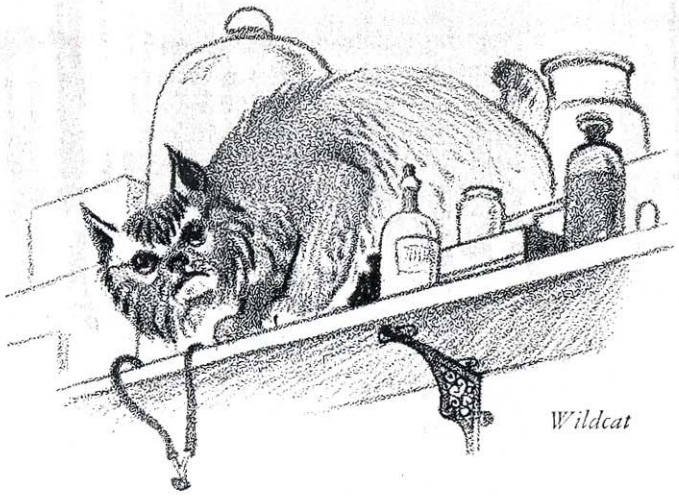


Fresh Water Shrimp

the Diathesis or Epidemic Constitution over the Character of Diseases." It was his suggestion that the progress of disease is governed by laws that are demonstrable.[47] In June of the same year he submitted to the Society a paper "On the Use of Opium in Certain Forms of Nervous Irritability and Coma, which Frequently Attend Typhus Fevers."[47] He attempted to present the sum of his knowledge of a disease which he had had ample opportunity to observe in its epidemic form. There is record of two other papers which he submitted to the Ohio State Medical Society in June of 1859: "An Essay on Detecting and Diagnosing the Simpler Forms of Valvular Diseases of the Heart;" and the use of "Podophyllin and Leptandrin as Substitutes for Mercurials in Diseases of the Digestive Organs."[47]

In general it may be stated that Jared P. Kirtland's contributions to the science of medicine included no startling innovations. By and large his writings were conservative, characterized by their reasonableness and common sense. He was opposed to most of the more rigorous methods of treatment in vogue in his day. His prescription for "bleeding from the lungs connected with a predisposition to tubercles of the lungs" was an avoidance of all violent means such as "bleeding, antimony, cathartics, emetics . . . ." The treatment he advocated was, he was aware, "directly in opposition to the views entertained in former times. Keep the patient, when indoors," he advised, "in a large, well-ventilated room. Let him be out in open air as much as possible . . . . In addition . . . . *Rectified* Cod Liver Oil should be employed twice or thrice daily . . . ."[48] Perhaps Kirtland's most remarkable suggestion, really more of a prognostication, was contained in his report to the Ohio State Medical Convention in 1851 that contaminated drinking water was responsible for the wide prevalence of Typhoid Fever. When the Mayor of Cleveland appointed him to a commission to locate the intake of a tunnel for the city water supply, Dr. Kirtland insisted that it be located where prevailing winds would not carry sewage contamination to the intake mouth.

Dr. Kirtland's reputation as a physician was to a large extent due to his untiring labors in be-



Wildcat

half of the several medical colleges to which he was attached in the course of his teaching career. He came finally to identify his own interests with those of Western Reserve College. In 1851 he reported that there had been no change in the faculty since its first organization except that occasioned by the death of one of its members. "This stableness . . . gives our school a reputation for regularity," he explained with some pride.[49] Certainly the renown of the Cleveland Medical College in ante-bellum years depended to a large part on his reputation as an extremely successful teacher both of medicine and of natural history. In that day the natural history collection, or cabinet, of the college was famous, and Dr. Kirtland often made use of it in his lectures. Occasionally live specimens were given the run of the building, thus lending a rather informal atmosphere to the institution:

> A young wildcat (Lynx rufus) . . . is running at liberty about the Medical College and amuses itself playing with the students, disciplining the neighbors' dogs and capturing rats. When in a good natured mood it manifests it by a loud purring—about as loud and as musical as the sound of a spooling-wheel when in rapid motion.[50]

In October of 1852 Dr. Kirtland was seriously ill and unable to continue his duties at the college. To a niece he wrote describing the complaint: "It was laryngitis and canker like that with which Gen. Washington and Josephine died but that consideration afforded no relief from the horrors of suffocation and difficulties of swallowing."[51] When his health permitted, the Doctor returned to the college and lectured "twice and sometimes thrice a day to make up for lost time."

In April of 1863, in his seventieth year, Dr. Kirtland offered his resignation to the trustees of the Cleveland Medical College, but acquiesced to their plea that he remain on the faculty in the capacity of Dean. Accordingly it was not until the next year that he took formal leave of the College. As Examining Surgeon for Ohio Dr. Kirtland performed his last professional services as a physician. In a letter to a fellow alumnus of Yale he described the circumstances of this appointment:

> At the time Gen'l McClellan was retreating from before Richmond and a heavy rebel force was threatening the invasion of Ohio, deeming it the duty of every one to render all possible aid to his country, I wrote to Gov. Todd that *"though three score years and ten rested on me,"* my aim was as steady and sight as clear as the best of Burden's Sharp-shooters, and that I wished to tender my services as surgeon, nurse in the Hospitals, or in the field in any capacity in which he (Gov. T.) might deem me best adapted.
>
> I was immediately commissioned as Examining Surgeon of recruits for the Old Regiments of Ohio, and spent several months at Columbus in discharging that duty. Subsequently I was detailed under another commission to Camp Cleveland and examined all the drafted men of Northern Ohio collected at that post.[52]

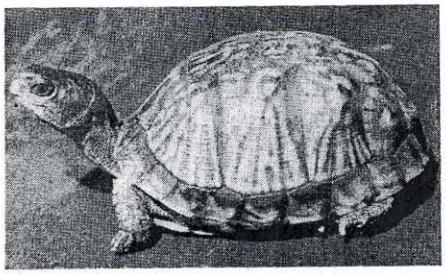
Only after he had discharged this final duty, did Dr. Kirtland at last retire from active life to fully indulge his taste for horticultural and scientific pursuits.

Chapter III — Politics and Public Service

Part One: Kirtland's Career as a Legislator

While Jared Potter Kirtland during all his life reserved his primary enthusiasm for his scientific avocations, he deprecated exclusive occupation with investigations that did not contribute in some way to the happiness and welfare of mankind. He was wont to cite the case of "poor Rafinesque" who died in abject poverty because he had "neglected his regular business entirely and thought of nothing but the objects of nature."[1] In addition to pursuing vigorously his chosen vocation, Kirtland made many matters of public concern his "regular business." It can probably be said without excessive panegyric that, from the standpoint of versatility, he deserves to be named with men like David Rittenhouse and Benjamin Rush. In the preceding chapters an account was given of his term as village schoolmaster in Poland, Ohio; of his probate judgeship at Wallingford, and his postmastership at Durham, Connecticut; and of his service as an examining surgeon during the Civil War. Mention was also made of his career in the Ohio legislature, a subject which deserves fuller treatment.

Kirtland served his first term as representative from Trumbull County to the Ohio General Assembly during the session 1829-30. As an inexperienced legislator he performed the routine job of serving upon a committee charged with disposing of the unfinished business of the preceding session relating to salt.[2] He was also asked to serve upon the standing committee on Medical Colleges and Medical Societies.[3] His third appointment was to the committee charged with reporting on a memorial of the commissioners of the Pennsylvania and Ohio Canal Company respecting construction of the Pennsylvania and Ohio Canal. A month later he reported to the House a bill authorizing the Governor to subscribe for stock in that company.[4] The subject of canals had stimulated his imagination as early as 1810, when he traveled to Ohio and found that the projected Erie Canal was the topic of excited conversation all along the way. In his last term as a legislator, Kirtland was to enter into the thick of the fight over



Box Turtle

canal routes. After the end of his first term, he returned to his medical practice in Poland, Ohio, and was not re-elected to the legislature until 1831. On December 7 of that year he was appointed chairman of the Standing Committee on the Penitentiary.[5] In order to render clear the significance of his labors in that capacity, it is necessary to sketch the situation regarding prisons and prison reform that then existed in America.

At that time there was raging a controversy between the advocates of two systems of prison design and management, the New York plan and the Pennsylvania plan. The main issue involved was how far cellular isolation should be carried—whether it should be perpetual or enforced only at night. The Auburn Prison in New York had been constructed in 1816 to provide for the separation of prisoners only at night. By day they were employed in large workshops in which the rule of silence was strictly enforced. In 1819 the New York legislature authorized the building of a wing at Auburn in which the cells were to be patterned after those in the Walnut Street Jail in Philadelphia in order to try the effect of complete cellular isolation. When the New York authorities later announced that they were abandoning this wing because complete solitary confinement induced insanity, a fierce rivalry had broken out between the advocates of the Pennsylvania and New York systems. The first insisted that the ill effects that attended the free association of convicts could be prevented only by forbidding all

communication between them. The New York faction replied that when the rule of silence was strictly enforced the dangers of contamination were eliminated. In 1826 the Prison Discipline Society of Boston took up the cudgels in behalf of the New York plan and waged a long and bitter battle with the Pennsylvania Society. So great was the heat engendered by the argument that Europe was caught in the conflagration, and in 1831 Beaumont and De Tocqueville came to America to study the two rival systems.

The Ohio Penitentiary had been built in 1818. It was a two-story structure with center hallways on either side of which fifty-four cells were located. There was a dining room and kitchen on the first floor, and on the second, a hospital.[6] There were workshops for the prisoners in the enclosed yard, but these had been virtually destroyed by fire in October, 1830. The most recalcitrant men were confined in five dank solitary cells which had been cut out of the earth under the floor.[6] On December 17, 1831 Kirtland presented to the Ohio legislature a report on the Penitentiary with the conclusion that it "has . . . become a serious evil—an evil which requires immediate remedy." He condemned the institution on the following counts:

> Location. The unevenness of the surface occupied by the buildings and yards enables the convicts . . . to . . . evade . . . the guards . . .
>
> Construction. The cells are arranged so that the convicts can communicate with each other, . . . and mature their plans for mischief. For want of room, the tailors and sick are crowded into the hospital together. . . . There is room for the employment of only ninety men. Consequently, all over that number must be kept locked up in their cells . . . or kept at labor to no advantage.
>
> Discipline. Discipline . . . which permits an indiscriminate intercourse among the prisoners during the day is totally inefficient. . . . The 'old rogues' having made villainy their study . . . gradually initiate the young into all the arts and injustices of iniquity.
>
> Expense. The Keeper's report shows such an excess of expenses over the incomes . . . as must be viewed . . . as a grievous expenditure.[7]

In connection with the last point it should be noted that lucrative trade was carried on by corrupt guards who exchanged articles manufactured by the prisoners for tobacco and whiskey. Thus little of the value of the convict labor accrued finally to the state. Another weakness lay in the high percentage of escapes, many of which were accomplished by prisoners who had been contracted to work outside the penitentiary.

Faced with such a catalogue of evils to be corrected, Kirtland's committee came to the conclusion that "the only remedy that can be advantageously adopted for the correction of this most unpropitious state of the Penitentiary affairs, is to abandon the present buildings and site; erect a new prison on a more favorable location, taking the one at Auburn or Wethersfield as a model; and establish the new system of discipline."[7] The "new system of discipline" as described in the committee's report comprised a set of rules that incorporated the dicta of the Boston Prison Discipline Society, the publications of which organization Kirtland possessed in his own library:[7]

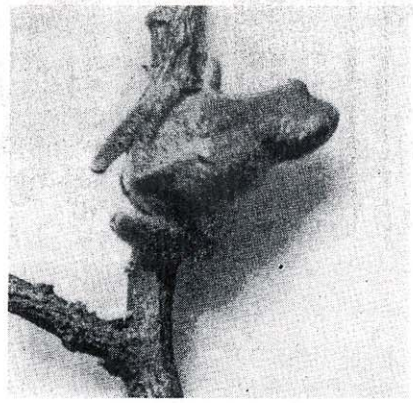
> 1st. Solitary confinement at night
> 2nd. Productive labor
> 3rd. Vigilant inspection day and night
> 4th. A place for everything, and everything in its place—Every convict should have the same cell at night, the same place in the shops, and the same relative position in the column while walking to and from the shops . . .
> 6th. The lock step forming all men into a solid column and requiring them to march with a uniform step . . .
> 8th. Establishing habits of neatness and industry

A most significant feature of the committee's report was its recommendation of a separate cell for each convict to which he would be confined only at night, after a day of productive labor. Religious instruction was also advised for all inmates, and, for the illiterate, instruction in reading and writing was prescribed. Finally Dr. Kirtland presented the following resolution: "that the standing committee on the Penitentiary . . . report to this House a bill providing for the erection . . . of a new Penitentiary . . . on the principle of solitary confinement."[7] His indictment of conditions in the Penitentiary was reinforced by the Report of the Directors of the Penitentiary three days later.[8] On February 3, 1832 a bill for the construction of the new institution was passed on Kirtland's motion.[9] When he was returned to the legislature for a third time in 1834, he was again appointed to the committee on the penitentiary. That year the new building was ready for occupancy. In 1835 the old system of barter was abandoned and a system was inaugurated of contracting the labor of the convicts to manufacturers who employed them in the prison workshops.[10] For accomplishing the destruction of inhumane close confinement and deriving a profit for the state from convict labor, Dr. Kirtland was popularly dubbed "Father of the New Penitentiary."

In the preceding chapter reference was made to how Kirtland enlisted the aid of the canal interests in Columbus when the charter of the Cleveland Medical College was at stake. His great influence with the canal men was a consequence of his activities in their behalf during his last term in the Ohio House of Representatives (1834-35). At that time the construction of canals in Ohio was already under way after almost half a century of planning and surveying. At one time George Washington was the president of a company organized to join the Hudson River with the Great Lakes by means of a canal; and Thomas Jefferson, on his Map of Virginia which he prepared in 1786-87, drew in a canal between the Cuyahoga and the Big Beaver which flows into the Ohio River.[11] Both these dreams—the connection of Lake Erie with the Hudson River and the linking of the Lake and the Ohio River—became actualities during the first half of the nineteenth century. It will be remembered that in 1810, when Kirtland traveled to Ohio in the company of Alfred Kelley, the Erie Canal was the subject of popular agitation. Kelley, who greatly impressed the younger Kirtland, defended the project "with a skill and enthusiasm that excited the admiration of everyone, but which entitled him to the rank of monomaniac in the estimation of the older and conservative portions of his hearers."[12] Twelve years later Kelley became Ohio's chief Canal Commissioner, and, during the legislative session of 1822-23, presented a report of the Canal Commissioners to the Ohio Senate in which he explained that canal navigation would facilitate the marketing of Ohio's coal and manufactures as well as her agricultural products. The predicament of the Ohio farmers, who were not well situated to send their produce by boat to New Orleans, was becoming every year more serious. Prices of agricultural products were so low in these areas

A group of men met frequently in a small structure beside the home of Leonard Case, Senior, on the east side of Cleveland's Public Square, to discuss local natural history and study the collections which they gradually accumulated there. Their small building they called "The Ark," and soon referred to themselves as the "Arkites." From Eckstein Case's "Notes On the Origin and History of the 'Ark'." Published by The Rowfant Club, Cleveland.

This Painting hangs in the Library of the Western Reserve Historical Society, Cleveland.



Tree Toad

lacking access to the natural waterways of the State that the farmers could not afford to buy the manufactured goods which they needed from the East. A large part of the trade in these areas was necessarily accomplished by barter. Opposition to public improvements was very strong, however, and it was not until their advocates joined forces with the friends of public schools that an act was passed by the General Assembly for the construction of navigable canals. This act of 1825 authorized the Canal Commissioners to order work begun upon two main routes: one to run along the line of the Miami and Maumee Rivers between Cincinnati and Dayton; and the other to follow the old Scioto-Muskingum trail from Cleveland on Lake Erie to Portsmouth on the Ohio River. As one author has pointed out, Ohioans, instead of exhibiting a spirit of hard-bitten frontier independence, resorted to collectivism to construct these two trunk canals.[13] Both projects were accomplished by the State, which hired many small contractors to do the job. When Kirtland came on the scene, however, private companies chartered by the legislature were also in the field working on the shorter branch canals. These charters had become much prized political plums and a fierce rivalry existed between private companies for sole rights of construction as well as between the counties for the location of these lesser waterways.

In 1834, in the hope of smoothing matters over, the Ohio House of Representatives voted to select a committee to consider a bill "based upon an equitable plan of internal improvement throughout the state."[14] While Kirtland was one of those chosen to serve on this committee, at the same time he did not lose sight of the interests of his constituents in the imbroglio over charters and other privileges granted to canal interests by the legislature. It may be remembered that during his first term he had reported a bill which authorized the Governor to subscribe for stock in the Pennsylvania and Ohio Canal Company, which was chartered to connect the Ohio Canal at Akron with the Ohio River at Pittsburgh. In 1827, the rival Sandy and Beaver Canal Company was chartered to connect the Ohio Canal at a point further south with the Ohio River below Pittsburgh. When its course is traced on the map, it becomes apparent why Kirtland championed the Pennsylvania and Ohio Canal, for it cut sharply into the southwestern corner of his own Trumbull County. On December 22, 1834, he presented to the legislature a memorial of the Pennsylvania and Ohio Canal Company requesting an extension of the time allowed for completion of the canal, and eight days later reported a bill to so amend the act which had incorporated the company. This bill was bitterly opposed by the representatives from Columbiana, Stark, Carroll, and Tuscarawas Counties which identified their interests with those of the Sandy and Beaver Canal Company. Kirtland's bill was submitted to the above mentioned committee which tacked on amendments that limited the net profit of the Pennsylvania and Ohio Canal and provided for the purchase by the State, after twenty years, of that part of the canal within Ohio.[15] On January 27, 1835, a motion that the Sandy and Beaver Canal Company enjoy the same rights, privileges and immunities as the Pennsylvania Canal Company was easily defeated, and the next day Kirtland's bill was passed by the House. This was a triumph for Kirtland and for the Western Reserve which expected to receive great benefits from the Pennsylvania and Ohio Canal. He lived to see both canals completed and, after the Civil War, superseded by railroads. To make the account of Kirtland's service in the legislature complete, one must mention his membership on a committee headed by Dr. Daniel Drake to which was referred the subject of commercial hospitals for treating travelers who fell ill. Kirtland reported to the legislature that these hospitals were very much needed, and suggested that they be constructed by the national government.[16]

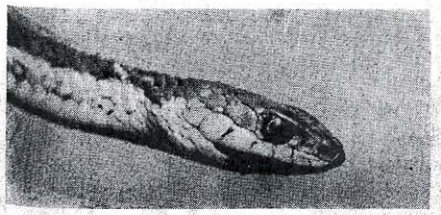
Part Two: Kirtland's Contribution to the Geological Survey of Ohio

Governor Robert Lucas, on December 8, 1835, in his annual message to the legislature, broached

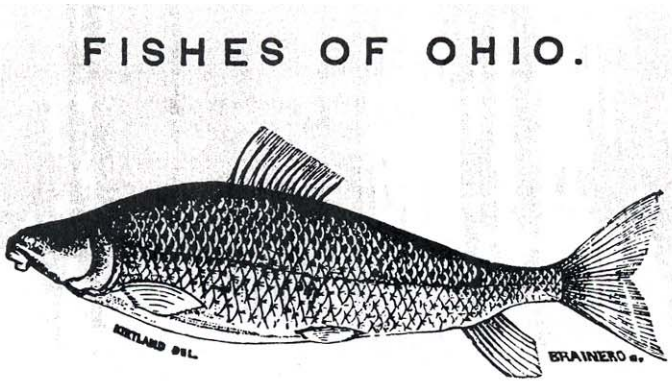
the subject of a geological survey for Ohio. The Assembly responded with a joint resolution appointing a committee headed by Dr. Samuel P. Hildreth to report on the matter. There had been a rash of such enterprises in the eastern and southern states that began in 1823 when South Carolina organized a survey, and state pride as well as economic necessity dictated the adoption of a similar course in Ohio. There the spirit of provincial rivalry had been stimulated early in 1834 when Dr. Daniel Drake of Cincinnati "worked up a sort of Ohio *furore*" by publishing a sketch of Ohio history and putting forward the horse chestnut (Buckeye) as the State Tree.[17] On March 27, 1837 a bill providing for the First Geological Survey of Ohio became law. It stipulated that a geological map of the state be constructed, and required collections to be made of rocks, ores, and fossils. Specimens were to be preserved and catalogued. Governor Vance appointed William W. Mather of New York State as Principal Geologist; and designated as his assistants, Drs. Samuel P. Hildreth, Jared P. Kirtland, John Locke, and Caleb Briggs. Kirtland's special province was to be the natural history of Ohio.

In 1837 Kirtland gave up his medical practice and threw himself into the work of the Survey.[18] Early in 1838 the geologists submitted a report of their progress to the legislature. Kirtland described his share of the job as being the gargantuan task of making out "as full and perfect catalogues of all our animals, from the minutest insect and reptile to the largest mammalia, and all of our vegetables; arranging them according to their classes. . . . Also, to collect and prepare specimens of the various species. . . . If suitable means be taken afterwards to preserve them, they will compose a standard cabinet to which all classes of citizens can resort."[19] He then turned characteristically to the more utilitarian aspects of his subject, and dwelt with enthusiastic detail upon the possibility of domesticating various members of the animal and vegetable kingdoms: "We have no evidence . . . to show that the Bison might not be successfully taught to yield its neck to the yoke as well as the Ox. . . . I am convinced that . . . as great profits might be realized by breeding the Beaver and the Otter as are anticipated from the productions of the silkworm in this country. . . . It is worthy of enquiry . . . whether it might not be made a profitable business to construct artificial ponds . . . for the purpose of breeding the finest kinds of fish."[20] After reporting reluctantly that he had found no reptile that might be employed for profitable use, he discussed the vegetable kingdom, and concluded by noting that he had already "collected and prepared, for the use of the state, numerous specimens."[21]

Included in this first annual report of the survey was an estimate of future expenses that resulted in a general lessening of enthusiasm for the project on the part of the legislature which adjourned on March 19, 1838, without appropriating funds to sustain the survey for a second year. Hard times was the ostensible reason for this change of heart. It is likely, however, that an equally important factor was the legislators' fear that members of the survey might have derived personal profit from their investigation of the mineral resources of the State, although the geologists vigorously denied having indulged in any sharp practices.[22] Dr. Kirtland wrote to his friend Hildreth, "I have recently heard from Prof. Mather that the legislature refused to make an appropriation to continue the Geological Survey . . . I cannot afford to work for the state, without remuneration and at the same time lose my professional business. I believe I shall complete as soon as possible my catalogues of Mammalia, Birds, Reptiles, Fish and Shells—and then resign."[18] In June and July he spent several weeks touring Lake Erie and the Cuyahoga River to collect specimens, and by November was laboring to complete his catalogues of Ohio plants and animals. He found amusement in the fact that at the age of forty-five he was obliged to take lessons in the feminine art of drawing in order to illustrate his descriptions of fish.[23] In the *Second Annual Report of the Geological Survey of Ohio,* which was presented to the legislature on December 18, 1838, he explained that, since the legislature seemed intent on abandoning the survey, he deemed it best to place his then imperfect results before the public. Following his preliminary remarks were descriptive lists of 50



Garter Snake



Catostomus Melanops. Raf.

One of the drawings made by J. P. Kirtland for the First Geological Survey of Ohio. From the Family Visitor.

species of mammals, 223 species of birds, 72 of fish, 2 of crustacea, and 169 species of testacea. The catalogue of Ohio fish was above all a pioneer work. There each species was fully described as to its form and habits, and illustrated by a drawing that had been painstakingly produced by Dr. Kirtland, himself. The potential value of this document for education was not realized due to the state's short-sighted refusal to have it printed. It was subsequently published, however, as "Fishes of Ohio" in the *Boston Journal of Natural Sciences* and in the *Family Visitor,* a bi-weekly newspaper of which Kirtland was one of the founding editors.

A House committee had been appointed to recommend further action on the survey, but, notwithstanding the enthusiastic tenor of this committee's report, only $4,000 was appropriated to cover the debts which had been incurred by the geologists, and further appropriations were not made by the legislature of 1838-39. In order that his investigations and collection of specimens go on uninterrupted, Kirtland had voluntarily forfeited his remuneration and had paid his assistants out of his own pocket, besides. When the survey was abandoned he had many specimens of Ohio mammals, birds, reptiles, and insects, and an extensive cabinet of land and fresh water mollusks. The legislature refused to reimburse him for these collections, which eventually found their way to the Cleveland Academy of Natural History, of which he was the founder and first President.[24]

Part Three: Kirtland's Position in Cleveland and His Civic Pride

After he settled in the vicinity of Cleveland, Dr. Kirtland entered with gusto into the affairs of that city. He kept a sharp eye out for its interests and held an optimistic view of its future. In 1850 he wrote: "Our city is rapidly improving. Four plank roads diverge from it in different directions and each is completed from 12 to 25 miles in extent."[25] In March of that year he reported to the readers of the *Family Visitor* on the discovery of coal in Beaver County, Pennsylvania: "The imagination of our readers may grasp the extent of the influence of this mine... is destined to exert over the iron and copper business of the upper Lakes, and the... business of the West generally, and the city of Cleveland in particular. We confess our inability to conceive of it."[26] Kirtland was ever eager to extol the virtues of Cleveland. In a lyrical piece which he wrote for the *Western Horticultural Review* and titled "Summer on the Lake Shore," he gave free rein to enthusiasm. On Lake Erie, he said, the climate is "so pure... that medication of all sorts and kinds—Allopathy, Hydropathy, Homepathy, and all other *pathies*—are soon banished from remembrance... Italy, with its boasted skies, cannot excel the view of a summer sunset on Lake Erie."[27]

If one is to judge by accounts in the newspapers of his day, Kirtland's civic pride was equalled by Cleveland's pride in him. He was

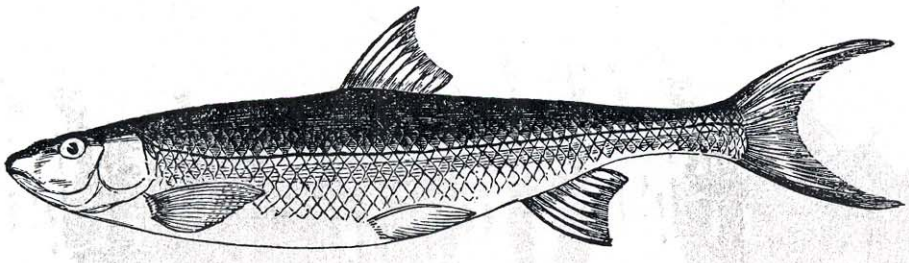
mentioned probably as frequently as any other Clevelander, and seldom in tones other than in the most genuine good will and respect. The least of his affairs were deemed newsworthy. "A few nights ago," reported the *Cleveland Leader,* "somebody entered the garden of Professor Kirtland... and robbed him of several hives of bees and a quantity of honey."[28] The *Cleveland Herald* announced in trite journalese that two copperheads and one rattlesnake would "become martyrs to the cause of science and be prepared by Dr. Kirtland for an interview with posterity." Invitations to lecture were tendered him and his advice in matters of all sorts was sought and given through the editorial columns of the newspapers. In 1849 Cleveland was thrown into a tumult by the approach of an epidemic of Asiatic Cholera which had spread north from New Orleans where it was apparently introduced by Oriental sailors. Dr. Kirtland's advice was asked. He urged the disinfection of all vaults and sink holes with plaster of Paris. "Purify, cleanse," exhorted the editors of the *Daily True Democrat,* "the scourge of nations is on its way." Apparently, however, there were a few who looked with jaundiced eyes upon this tendency to consult Jared P. Kirtland on all occasions; his prescription of plaster of Paris was challenged by a reader who wrote to the editors with some justice that "a recommendation from [Kirtland] is no better than from any other man, unless it will bear investigation."[29] In 1851 Dr. Kirtland was appointed one of a commission of three to report to the city council on how to solve the problem of Cleveland's water supply, the existent springs and wells having proved inadequate. The committee worked for two years, investigating the Chagrin River, Tinker's Creek, and Shaker Run as possible sources of supply, and finally agreed upon Lake Erie as the best source.[30] As was mentioned above, it was at Dr. Kirtland's insistence that the committee recommended the intake pipe be located so as to avoid contamination. In 1851 requests that he enter actively into politics became so frequent that he found it necessary to announce publicly that he would not run for any office.[31]

Part Four: Kirtland's Social and Political Views

Although he did not engage professionally in politics after his final term in the Ohio House of Representatives, Kirtland maintained an active interest in the contemporary scene and expressed himself—sometimes vehemently—on issues of his day. Much of his voluminous correspondence has been lost, but from what remains it is possible to piece together his views. Such a synthesis is interesting because, while also casting light on him as an individual, it reflects the most prominent attitudes held by the professional men and men of substance of the Western Reserve a century ago.

"I have not much faith," he wrote, "in the intelligence of a majority of our population. They will ever be duped by demagogues; agrarian doctrines... will always be popular with them."[32] The anti-bank policies of the Democrats in Ohio during the fifties were responsible for diminishing Kirtland's income, for most of his property was invested in bank stock.[33] It was his opinion that "a warring policy against capital" together with the pressure of taxation was responsible for driving wealth and business out of Ohio. In 1855 he aimed his sarcasm against the Democratic

FISHES OF OHIO.



Leucescus Storerianus---Kirtland---Storeis Minnows.

19

party, which, "in its ardent love for the Dear People, has managed to imposed a triple amount of taxes this season."[34] Kirtland began to entertain a pessimistic view of the future of Ohio whose "Jack-blade population, infested with a destructive agrarian feeling mis-named Democracy," would, he felt, "impair her prosperity for years to come."[35] He described the state of affairs in Ohio in 1853: "The banks are closing up and the capital is now turning to the east and to some of the southwestern states. Still the rabble cry, 'Down with the banks, down with monied aristocrats'... I would leave Ohio in three weeks could I find a state with a pleasant climate where neither slavery nor agrarianism prevailed."[36] Next to those with agrarian tendencies, Kirtland expressed most dislike of Catholics as a group. In a domestic crisis his wife hired an Irish girl whom the doctor described as being "so overflowing with Romanism that two-thirds of her time she is whispering over Ave Marias in some bye-corner... I hope," he continued, "that Being to whom the Catholics belong will take care of them for I certainly do not want them among a Protestant community; ... the Catholic system is a wonderful compound of cunning and iniquity."[37] From such vehement assertions one is apt to get a one-sided view of their author. Although he was often exceedingly tough minded in his attitude toward various elements of the population, in his dealings with individuals Kirtland was both broadminded and generous. He expressed great admiration for the average Western farmer who, though uneducated, possessed practicality and intelligence. One of these, a neighbor, he described as "a plain, uncultivated and unpretending farmer who, like many of our active men in the West, has sprung up without the advantages of education.... Mr. Hotchkiss has not yet learned to eat peas with a fork, yet he is a man of acute... observation."[38]

As has been seen, Kirtland was a staunch advocate of internal improvements, the plank of the Whig platform that gained that party prestige in Ohio. He once described Henry Clay as being "among the most upright and best of our modern politicians," and felt that Clay's one defect was instability; "he should have lived and died firm and unswerving on his high tariff and internal improvement platform."[39] At the same time Kirtland was apparently inclined toward a tolerant view of Thomas Hart Benton.[39] As a consequence of their approval of Clay's plan of encouraging improvements by giving the Western states a part of the surplus from the sale of public lands, most Ohio Whigs were opposed to Benton's land policy, for they naturally identified the cause of internal improvements with high prices for the public lands.[40] As Kirtland apparently favored Benton's policy of cheap lands to encourage settlement, perhaps he was not so anti-agrarian as his caustic characterization of "the Democracy" would lead one to believe. He was quite consistent, however, in his support of the Whig party, following the Harrison bandwagon in 1840, albeit without much enthusiasm. In 1852 he declared that the action of the United States senate in awarding a Lieutenant Generalship to General Winfield Scott "indicated more goodness than he supposed... inhered in the Democratic party."[39] When the Republican party was formed Kirtland rallied to its support. The *Cleveland Leader* reported in September, 1856, that a spirited Fremont celebration was held at his residence where "a liberty pole was erected amidst enthusiastic shouting, and a beautiful flag was... unfurled in the free Ohio air."[41]

The Western Reserve was the breeding place of a great variety of moral and social reforms. Among these was the cause of co-education which Kirtland supported both in theory and in practice; he urged farmers to give their daughters the same education they bestowed upon their sons, and himself admitted qualified women to his medical lectures. The Temperance question was much agitated in Ohio, which by 1829 had thirty branch societies of the American Temperance Society.[42] Kirtland undoubtedly favored the cause of Temperance, for the *Family Visitor,* of which he was an editor, inveighed twice a week against drunkenness. Like his grandfather, Dr. Potter, Jared Kirtland was opposed to slavery on moral grounds. Because of a lack of first hand material, his position on the question during the years before 1848 cannot be stated with certainty, but it is reasonable to suppose that his opposition to slavery was not a sudden development. In Cleveland where he took up residence, Western Reserve College had preceded Oberlin as the center of protest against slavery in the Northwest.[43] As was stated above, Kirtland supported Harrison in 1840, but then many Ohio Whigs of anti-slavery views found themselves carried away by the Log Cabin campaign. I have been unable to discover whether he became actively affiliated with the Liberty Party after 1840, or whether, like many others he was content to drift less conspicuously with the older anti-slavery societies faction. In 1844 he probably found himself pulled between two loyalties, for in

that year when the burning question in national politics was the annexation of Texas, the Liberty party opposed Henry Clay for the presidency because he was a slaveholder. In 1848 the anti-slavery elements on the Western Reserve joined forces and repudiated both the Whig and Democratic nominees, Taylor and Cass. On May 20, 1848, in the *Cincinnati Gazette* there appeared a call for the State Mass Free Territory Convention. Kirtland wrote his friend Hildreth, "Great excitement prevails... in the political hemisphere in these parts. The people are bolting from the nomination of Cass and Taylor in whole numbers. A great meeting is called on Tuesday for the purpose of appointing delegates to a convention to be held at Columbus for the purpose of nominating their candidates."[44] The *Daily True Democrat,* which was founded in 1847 as a radical anti-slavery Whig newspaper, reported that Kirtland had been elected president of this meeting where a "resolution in favor of the call for a national convention to nominate a presidential ticket in favor of free territory, free soil, and free labor was adopted" and delegates were selected to attend the state convention at Columbus.[45] Subsequently it was reported that Jared P. Kirtland was elected chairman of the first session of this convention held in Columbus on June 20.[46] In the Fall he reported to Hildreth how matters stood on the Reserve: "The Presidential Election has wheeled the Democrats as a body into the Free Soil line. In the future the Free Soil Party will be more numerous here than the Whig party has ever been."[47] In 1851 he wrote to an Eastern friend of Ohio's reaction to the passage of the Fugitive Slave law and the zeal of Fillmore's administration in carrying it out: "You may rely upon it that the course of Messrs. Fillmore and Webster... has annihilated the Whig party in Ohio... At the East you know nothing of the deep disgust and abhorrence those late arrests of fugitive slaves... have produced."[48] In 1855 he reported that many more attempts at enforcement of the Fugitive Slave law would lead to civil war. Today rumor has it that Dr. Kirtland's Rockport residence was an important station in the underground railroad, but this tale is probably apocryphal. The response on the Reserve to John Brown's sentence was one of protest and resentment. On the day of the execution Dr. Kirtland dressed the national flag in mourning and hung it at half-mast in front of his house. From the pole fluttered a banner saying, "When our citizens are hanged for attempting to carry out the principles of the Declaration of Independence and the freedom of speech at the Capitol of the Republic is suppressed, it is meet that the people should mourn."[49]

The foregoing account of Kirtland's political views does not pretend to be complete. It is almost impossible to treat the subject for the last part of his life because most of his later correspondence has been lost. From the examples that have been given, however, it is evident that Kirtland exemplified what are generally considered to be outstanding traits of the National Republicans and their descendants, the Whigs; an aristocratic concept of leadership with an intense awareness of its moral obligations; a distrust of popular feeling, and a fear of demagoguery; a paternalistic view of government; a belief in the necessity of a sound currency to solid economic growth. In addition he exhibited a concern with the cause of moral and social reform that had been transplanted from New England to the Western Reserve by men like him.

Jared P. Kirtland

Portrait hangs in the Biology Department of Western Reserve University.

Chapter IV — Natural History and Agriculture

In 1900 Western Reserve University was made depositary of 2,300 volumes from the library of Jared Potter Kirtland. The Librarian of Adelbert College reported that this collection was "particularly strong in horticultural and agricultural literature and periodicals, in conchology, entomology, the older works on natural history, and in local history and travels."[1] This assortment of books, periodicals, and pamphlets is fairly representative of Kirtland's extra-professional interests. A talley of his activities over the years would show that at all times he was engaged in a variety of pursuits. Speaking generally of his avocations, Kirtland's mature life can be divided into three periods. Between 1820 and 1841 he occupied his leisure moments in the investigation of natural phenomena. Most notably he was fascinated by the habits and structural variations of one particular group of fresh-water mollusks. This is not to say that during these years he lost his youthful enthusiasm for horticulture, but rather that he subordinated it to natural history. From about 1841 until 1852 he was an ardent agriculturist without neglecting the other branches of science. During this second period, as a farmer, Kirtland explored the possibilities of the soils of the Western Reserve; and he made public the results of his experiments on the lecture platform as well as in numerous contributions to periodicals. The last twenty years of his long life were naturally characterized by less energetic participation in scientific affairs; but his correspondence with other scientific men increased in volume, and he spent more time with his books. It was during this final period, too, that he interested himself in local history and avidly read the literature of travel and exploration, which found an important place in his library.

The First Period: 1820-1841

In 1818 Kirtland subscribed for the first issue of Silliman's *American Journal of Science and the Arts,*[2] and in later years he contributed several articles to that august periodical. The most important of these, published in April, 1834, was "Observations on the Sexual Characters of the Animals Belonging to Lamarck's Family of Naïdes."[3] In 1829 he had begun to collect and dissect the land and fresh-water mollusks of Ohio.[4] His friends raised their eyebrows when he attempted to obtain specimens in the vicinity of the Scioto River during the winter of 1832; those "efforts were so novel," he explained later, "that they became a subject of ridicule."[5] It was not merely the joy of collecting that spurred Kirtland to investigate minutely these seemingly insignificant forms. At certain seasons of the year he had noticed individuals apparently pairing with others so dissimilar as to be considered of a different species. This was indeed strange behavior. It seemed to him that it could only be explained by the supposition that the forms, though unlike, were members of the same species; and that their structural dissimilarity must be due to the fact that some were male and some female. This hypothesis appeared more likely by the fact that, whenever he observed the mating phenomenon, he found that, in the case of two different forms occurring in proximity, there were about as many of one sort as of the other. At that time it was believed by scientists that the Naïdes, like a great many other invertebrate animals, were hermaphroditic—that each individual possessed both male and female reproductive organs. To declare that the Naïdes were bisexual

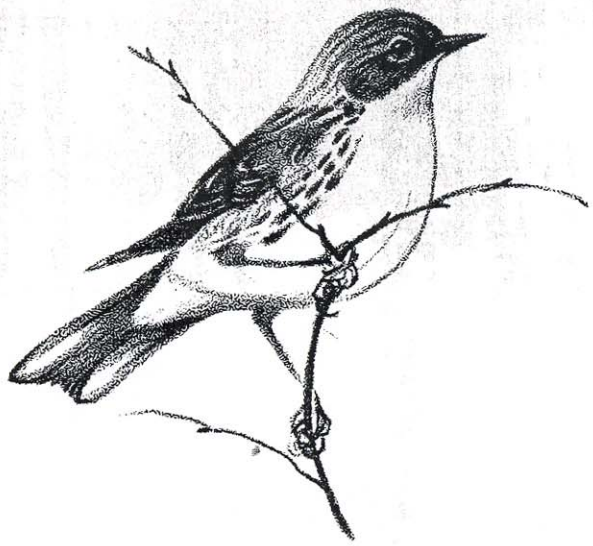
was, therefore, to go in the face of standard authority. Heretofore, when two dissimilar individuals had been discovered, even in the same locality, they had been designated separate species; now, according to Kirtland, it was possible that they were actually male and female forms of the same species. If his conclusion was valid, it would serve to demolish the accepted nomenclature of the Naïdes, in which many eminent naturalists held, so to speak, a vested interest.

Kirtland's view that the fresh-water mussel was bisexual, with male and female each possessing its own peculiar anatomy, was challenged by the American translators of the German *Encyclopedia Iconographia.* In September, 1834, he told Hildreth that he had seen a female of the *Unio cylindricus* throwing off its spawn: "An elliptical opening may be discovered between the folds of the mantle... through which the ova are ejected in small oblong clusters."[6] Kirtland was convinced that many discoveries of new species, especially in Ohio, had been erroneously accredited to Rafinesque. "Knowing the character of Rafinesque," he declared, "I cannot consent to admit any of his claims, however strongly supported by high authority, till they have been thoroughly scrutinized."[7] Lea and Conrad, two of the most prominent conchologists, were in Philadelphia, and there Kirtland decided to go in the autumn of 1835.[8] Conrad, in particular, leaned toward Rafinesque. "No one," Kirtland wrote, "is more anxious to render unto Caesar the things that are Caesar's in matters of science... than I am, yet I cannot readily yield to Rafinesque the merit of prior discovery to all the shells which he claims... We must either take, at this day, his ipse dixit for what he intended in his publication nearly twenty years ago, or reject all his descriptions that are not intelligible."[9] Kirtland advised Hildreth to suspend work which he had begun on an ambitious volume about shells: "Let Lea and Conrad make out their conflicting nomenclatures... It may perhaps be well for us to assume the position of arbiters between them . . . . Conrad is . . . committting so many egregious errors in order to favor Rafinesque that I think he will rather prejudice than advance his claims."[9] In 1840 Dr. Kirtland exclaimed, "Isaac Lea is multiplying new species out of the most trivial varieties at his usual rate."[10] Whereas in 1832 Kirtland's neighbors had looked askance at his hobby of collecting shells, by 1840 it was considered fashionable to dabble in Conchology. There was a spurt of literature on the subject; even Edgar Allan Poe, conceding to the popular taste, wrote on shells. The scientific controversy over the Naïdes was not resolved until 1851. On May 5 of that year, at a meeting in Cincinnati of the American Association for the Advancement of Science, Kirtland offered an exhibit consisting of the shells of both male and female individuals arranged according to age. Louis Agassiz came forward and declared that he, as well as the German scientists, were entirely of Kirtland's view. Isaac Lea also concurred. In volume XXXIX of Silliman's *Journal* Kirtland reported his later discovery that the young of Naïdes, like the common Horse Mussel, *Mytilus edulis,* form a byssus, or thread, by which they are anchored to the sub-stratum.

But at this time Kirtland was not preoccupied exclusively by his Naïdes. During the cold months of 1836 he laid plans for opening a campaign with insects "at their first appearance in the spring." The next two years, of course, he was chiefly engaged in the work of the Geological Survey of Ohio described in a previous chapter. The winter of 1837 he concentrated on ornithology, which science, he declared, was "not less fascinating than conchology." He made his first attempts at stuffing birds, and began an ornithological calendar for Poland, Ohio, and vicinity. Audubon's new work he damned with faint praise: "I am upon the whole pleased with the work, though I think the author has fallen far short of what he assumes to have done, that of giving *a full and correct history* of the *Birds of America.* I am daily observing facts in regard to the habits of many species that he has failed to notice, or which run counter to his statements."[11] Over the years Kirtland had been keeping careful records of his investigations in all branches of natural history, with his motto, "I write that which I have seen." In 1840 he decided to put his gleanings in readable form, a series of articles which he called, "Fragments of Natural History." "I may perhaps offer them to Mr. Silliman," he explained, "but I am perplexed with my style of writing, which is so stiff and unsatisfactory that I dislike the idea of publishing anything."[11]

The Second Period: 1841-1851

For the next ten years of Kirtland's life, horticulture was to take precedence over natural history. The reader will recall that late in 1840 he bought an 83-acre tract on Lake Erie, in Rockport township, five miles west of Cleveland. There he undertook the creation of one of the show farms of Ohio. His land became a rural labora-



The Kirtland Warbler

tory, and the results of his experiments were communicated to his neighbors. Always his first concern was for their prosperity; accordingly his record as an agriculturist was one of unusual altruism. The soil was for the most part a stiff clay derived from the underlying shale and required considerable coddling to make it productive. Kirtland was determined to prove that it could support the fruit trees which had so intrigued him as a boy. One day in June, 1844, he met with a group of Clevelanders who were also amateur horticulturists. They had brought together the finest fruit of their own cherry trees, and were so excited by the sight of the luscious display that they invited passers by to come and view it. Public enthusiasm for the exhibit seemed to its sponsors to warrant the organization of a Cleveland Horticultural Society, and Dr. Kirtland became its first president.[12]

His achievements as a fruit grower—especially of cherries—deserve mention. His interest in the improvement of fruit stock dated from the days when he had had the care of his grandfather's orchards. When he moved to Poland, Ohio, he brought from New England young fruit trees and grafts. In 1824 he and his brother established a nursery in Poland, which they stocked with over one hundred varieties of peaches, pears, apples and cherries.[13] On moving to Cleveland, Kirtland continued to be active in disseminating horticultural information. Nor did his activity rest there; without any material reward he distributed to all interested persons innumerable grafts from his own trees. So generous was he in this way that the public was deluded into thinking his supplies inexhaustible, and frequently he was forced to inform them that he was not running a nursery. During his lifetime Kirtland produced over thirty new varieties of cherries by hybridization, and he was dubbed "Cherry King" by his contemporaries. In later years he told how his achievements with cherries were wrought.[14] First, he explained, a large stock of patience was necessary in the undertaking. He took the seed of the finest cherries and grew seedlings from them, but without good results. Then he planted trees close together to achieve natural cross-fertilization, and from the seeds of these trees raised about 5,000 young plants. Of these he chose the best ten percent, which he planted for fruit, and only a tenth of these were of any value. While he himself never practiced artificial cross-fertilization, he was confident that it could be done. It is interesting to note that he believed that fruit could be improved by raising successive generations from seed "so as to break its native habit by cultivation."[14]

Space does not permit a full account of his activities in agriculture during the decade, 1841-1851. Many were the prizes his own produce took at fairs, state and local; and frequently he was asked to be a judge at such contests. He wrote innumerable articles for agricultural periodicals. His affiliations with agricultural organizations also were too numerous to record here. Mention should be made, however, of his election to serve on the Ohio State Board of Agriculture which was created in 1846. In June, 1845, a State Agricultural Convention had met in Columbus and appointed a committee to elect members of a State Board of Agriculture.[15] Jared P. Kirtland and his brother, Billius Kirtland of Mahoning County, were among the 53 men elected. In 1847 the Ohio General Assembly amended the law and reduced the membership of the board to ten, one of them being Dr. Kirtland. The act of 1846 creating the Ohio State Board of Agriculture had included provisions for encouraging the formation of county agricultural societies, and the Cuyahoga County society was founded in 1847. At that time there were already in existence in Ohio local clubs, patterned after the exclusive horticultural societies in the eastern States and their English prototypes, that were supported by membership fees.[16] In Ohio one of the most flourishing of these organizations was the Oberlin Agricultural and Horti-

cultural Society. On October 1, 1845, Kirtland delivered an address before this society on the occasion of its annual fair.

This speech incorporated several of the ideas that were basic to his philosophy of agriculture. He had no doubt that in the days of Cain and Abel man received directly from God "all the knowledge of the art requisite to cultivate the herb... and a long course of patience to learn the art was not then required..."[17] In modern times, however, the farmer, if he is to be successful, must approach his task not as an artist but as a scientist. Farms in Northern Ohio that had become exhausted could be reclaimed by science:

> The evil consists primarily in a deficient quantity of lime in the soil and . . . a deficiency also of animal and vegetable matter. . . . The only remedy is to supply the soil with those deficient materials. . . . Science ascertains that the amount of lime required for one acre would cost from $25 to $50, but that from one to two bushels of Plaster of Paris . . . would answer. . . .[18] This might cost seventy-five cents. . . . Art pertinaciously exclaims, "We have repeatedly tried Plaster on our wet clay soils without deriving the least benefit." Science tauntingly replies, "You might as well give a drowning man . . . a dose of medicine with the expectation of resuscitating him, as to apply Plaster to wet lands before they have been properly prepared by draining and sub-soil ploughing. First extricate the drowning man from the water. . . . Then, if a spark of vitality remains, administer your cordial medicines, and the latent powers of [life] will be excited to activity."[17]

Kirtland bewailed the farmers' lack of interest in ornamental agriculture and their failure to render their surroundings as attractive as possible; environment, he felt, "exerted an immense influence over character."[17] Speaking of flowers, fruits and vegetables, he doubtless had in mind hybridization when he said that "Art had learned how to multiply the individuals by budding and grafting, but never knew how to produce a new variety till instructed by Science."[17] In the broad sense, he said, "Science keeps the mind active,... allowing no time for idleness or vice. Her pursuits soon establish a taste for knowledge which increases with every new attainment."[17] And this taste should be gratified. He was convinced that the first step toward accomplishing the aims of scientific agriculture was "to extend the standard of general education and extend it universally among the farming class:

> It is a mistaken idea that farmers require a general education different from other businessmen. . . . Let each youth pass through a course of discipline and instruction such as is pursued at our college, and he will become fitted to . . . practice the principles of any profession . . . .
>
> Our daughters should be educated as thoroughly as our sons, and with the same intention, that of giving them strong . . . constitutions, both physical and mental.[17]

Kirtland was elected president of the Ohio State Board of Agriculture for the year 1850, but resigned, and another Clevelander was elected in his place.[19] That year, in September, the Cuyahoga County Agricultural Society held its fourth annual exhibition.

> Professor J. P. Kirtland . . . was called for with enthusiasm by the crowd, and, as usual, willing to aid the public whenever he can, he came forward without hesitation; and, in a few hasty but happy remarks . . . he alluded to the advantages gained by the farmer acquainted with the whole nature of soils . . .; and, in a word, showed that at the present age the farmer's life . . . is the most noble of all and should be aided by all the advantages of science and education.[20]

In November, 1850, he confided to Dr. Hildreth that "malaria has been playing its pranks with me for several years."[21] Because of his weakened condition he asked his son-in-law, Charles Pease, to move in and take charge of the farm, orchards, and flower garden. Henceforth Kirtland devoted more of his leisure to study and research.

Although during the period from 1841 to 1851 his time was taken up for the most part by the management of his farm and by his duties as a physician and professor of medical subjects, he nevertheless found hours when he could indulge his taste for natural history. In 1840 he had been one of the founders of the American Society of Geology and Natural History, and in 1845 he helped to found the American Association for the Advancement of Science. That same year the Congress of the United States chose him as one of a board of managers for the Smithsonian.[22] Early in 1846 Kirtland played host at his Rockport residence to Charles Lyell, the great English geologist, who was then on his second visit to the United States.[23] Dr. Kirtland, with his friend, the zoologist Spencer F. Baird, started out on an expedition to study Ohio fishes, in July, 1848. After a few days, however, he suffered an attack of the intermittent fever which had been plaguing him for several years, and stopped at Caleb Atwater's home for a few weeks to recuperate.[24]

When in Columbus in 1844 attending to the charter of the Western Reserve Medical College, Kirtland mentioned a plan of organizing "in con-

nection with the school an Academy of Natural Sciences, the materials for which are at command."[25] The following year he and several other members of the faculty of the medical school donated to the citizens of Cleveland a cabinet of "natural curiosities." Shortly thereafter a meeting was called to organize an academy to care for the gift, and a room on the second floor of the Medical College at the corner of St. Clair Avenue and Erie Street was reserved for a museum. On November 24, 1845, the membership of the Academy, numbering over ninety, unanimously elected Kirtland president. Among the other Cleveland medical men included in the membership were Horace A. Ackley, Kirtland's partner in private practice; Theodatus Garlick, who was later one of Kirtland's most intimate friends; Erastus Cushing; J. J. Delamater; John S. Newberry; and Samuel St. John. The ladies of Cleveland rallied to the support of the new venture and prepared a benefit supper, from which the proceeds went to support the upkeep of the natural history specimens. On this occasion citizens "nobly partook of the tempting viands and coconut pyramids, the cakes, white as driven snow, and the oyster..."[26] Private meetings of the Academy were held in Kirtland's room at the college. In addition to these the Academy offered public lectures at the Medical College. In December, 1846, a large crowd came to hear him speak on "the Nature and Habits of the Fishes of Ohio."[27] Another time his topic, of interest to ecologists, was "The Influence of Settlement and Cultivation on the Animal and Vegetable Kingdoms in Ohio."[28]

In a previous chapter it was noted that Kirtland's "Fishes of Ohio" was serialized and published in the *Family Visitor,* of which he was one of the editors. This weekly sheet deserves further mention. It was founded in Cleveland January 3, 1850, by Kirtland, Samuel St. John, and O. H. Knapp. In April, 1850, Knapp severed his connection with the paper which then moved to Hudson and, after a short lapse, was printed twice monthly in the office of the *Observer.* Kirtland continued as an editor. As he saw it, the paper's main purpose was to awaken in the public a taste for the natural sciences. He looked upon it as an "auxiliary" to the cabinet at the Medical College.[29] "No paper better deserves extensive circulation," said the friendly *Cleveland Herald* of the *Family Visitor.*[30] Certainly the *Visitor* was a publication of great moral earnestness. National news received fairly extensive treatment. Local poets and philosophers were encouraged to submit their work. Occasionally there appeared short pieces by more renowned authors like Washington Irving, who was represented by a sketch entitled, "The Graves of those we Love."[31] A prominent section of the paper was headed "Temperance." Another column, entitled "Parents and Children," ran homely stories and allegories, and admonitions to virtue. Above all, the pages of the *Family Visitor* abounded with items of useful information and with incitements to self improvement. Prominent among articles of this sort were Kirtland's series, "Fragments of Natural History" and "On the Necessity of Improvement in the System and Modes of Farming in Northern Ohio." So popular was the latter series that sections of it appeared intermittently in the *Cleveland Herald.* Many shorter unsigned pieces can be ascribed to Kirtland with near certainty by virtue of their subject matter and a certain honest but pompous style that characterized his writing. The authorship of a short piece, "Novel Reading Wastes and Exhausts the Sympathies of the Heart,"[32] can probably be attributed to him, for light literature was his *bete noire.* Once while on a journey from Cleveland to Poland, Ohio, he stopped at a public house, and to his disgust found "the bar-room tables abounding with the light trash that the press is disseminating. Two young lads were engaged in reading novels. They were presented with a number of the *Family Visitor,* which we hope may be substituted for *Captain Marryatt."*[33]

The Third Period: 1851-1877

The *Family Visitor* carried a series entitled "The Importance of the Study of Natural History as a Branch of Elementary Education," composed by Kirtland's Harvard University friend, Professor Louis Agassiz. These articles laid stress upon the happy influence which the study of nature wrought upon the intellect, and more especially, upon the moral sense. Mention has been made that, in May, 1851, at a meeting of the American Association for the Advancement of Science, Agassiz had thrown his weight on the side of Kirtland's thesis that the animals of the Naïdes group were bisexual. Of the written correspondence of the two men dating from that time, part has been included in the published volume of *Proceedings of the Cleveland Academy of Natural Science.* Kirtland offered to obtain for Agassiz many animal specimens. In 1852, having gotten together a barrel of fish, but not having

heard from Agassiz about where to send it, Kirtland sent his friend an impatient note:

> Just break off your train of deep study and receive a lecture from me on punctuality . . . .
>
> I have collected for you a keg of fishes which . . . have been secured with a great deal of labor on my part but at no expense on yours. Many weeks since I wrote to you to know how . . . you would have them sent. No answer has been received. Several times I threatened to throw them into the lake . . . .
>
> Now, my good sir, if you wish for these articles and also wish me to continue collecting the smaller species of fish . . . just find time enough to answer my request in regard to their shipment.[34]

Apparently there was a miscarriage of letters, for several months later Agassiz reported: "During the past summer I have repeatedly been on the lookout for a collection which I knew would be invaluable to me, but in vain."[35] Twice during the summer of 1853 Agassiz appealed again for the collection. Actually the fish had been dispatched, but met with a mishap which Kirtland recounted as follows:

> A barrel of fishes . . . , collected with great labor and expense by Dr. Kirtland for Prof. Agassiz, was opened by a blundering person, who, supposing the contents to be spoiled fish, promptly wheeled them to the barnyard and buried them under a compost heap, and reported the MACKEREL as entirely ruined.[36]

The transaction's unhappy denouement speaks none too well for the state of communications in the 'fifties. Agassiz wrote in disappointment, "I can hardly hope that you may take again the trouble of collecting another set of your fishes for me . . . . I must, however, say that I would value highly such a collection."[36] Six months later, in February, 1854, he dispatched a letter most cleverly designed to lure from Kirtland the promise of another shipment of fish:

> In the next number of *Silliman's Journal* you will find an article of mine, in which I have been able to identify some more species of Rafinesque. With reference to *Centrarchus Aeneus* of Ohio, I presume it will turn out to be the same as that from Tennessee, or a new one. . . . Maybe yours is Rafinesque's and mine from Tennessee are new species. From the want of Ohio specimens I could not decide.[37]

Kirtland, with whom the claims of prior discovery on behalf of Rafinesque by the latter's followers had become something of a sore point, volunteered to make another collection for Agassiz. There is no evidence as to whether this shipment reached its destination.

In 1851 Kirtland undertook to study insects in detail. That summer he traveled to New England and described the excursion to Professor Baird:

> At New York I met with the Le Contes and Haldermans, and obtained much light on our Coleoptera. . . . Next I visited Coney's Island, obtained some new insects, and saw many of the fishes of the vicinity; and then went on to Wallingford, the place of my nativity, which I had not seen in 19 years.[38]

Before the medical school opened in the fall, Kirtland lectured to a private class on entomology and conchology.[39] That winter he added to his library several lengthy English works on insects. He was corresponding at this time with John L. Le Conte, the American entomologist; with a man in Dayton who had been a pupil of the French entomologist, Comte Dejean; and with John Bachman, collaborator with Audubon. He wrote vehemently, in January, 1852, "I have . . . determined . . . to steal away from home next spring and, Daniel-Boone-like, seek out a place where I can pursue my studies and collecting incognito . . . I am daily overwhelmed . . . with calls from people for whom I do not care a fig."[40] He was turning over in his mind a plan for "maturing a *Natural History of Ohio,*" the sort of work that he felt ought properly to have been a by-product of the Geological Survey of the State. This projected volume, however, never saw the light.

Early in the spring of 1853, Dr. Kirtland retired to his library and engaged in an intensive study of insects. But, as he complained to the

Jack-In-The-Pulpit

widow of the great entomologist, Thomas Say, "I have no one with whom I can converse on the topic . . . . No one about me . . . . cares about anything except fashions, extravagance, vanity, or money."[41] His family, he reported to another friend, were suffering from a "flower fever" caught by perusing catalogues; to make room for roses, his vineyard in the garden was "exterminated." He gave the appearance of being somewhat disgusted at this frivolity, and complained that too many carriages stopped at his door to be shown around the grounds, with a consequent drain upon his time and energy. On one occasion, however, he was considerably rebuffed when a vehicle went by without stopping; Dr. Kirtland hurried in pursuit, and defiantly pitched into the carriage a great bouquet of roses that he had just picked.[42] During the winter of 1853 to 1854 he indulged in his favorite hobby of the moment, the reading of accounts of arctic voyages. He read of Parry's, Ross', Lyons', Back's, and Richardson's expeditions in addition to descriptions of travel in Africa, Finland, Lapland, and Russia and the Crimea.[43] In April he talked before the Ohio City Library Association on "Migration of Birds," and showed that the known movements of certain birds suggest that "the Arctic Ocean is not permanently closed with ice from the 82nd to the 90th degree of North Latitude."[43]

Later in April, he went to attend a scientific confabulation in Washington, where he bought old books "by cartloads, mostly on natural history, horticulture, and . . . Arctic voyages."[44] While in Washington he called on Titian Peale, who passed on to him "many new and important facts in regard to taxidermy."[44] He came home by way of Philadelphia where many of his scientific acquaintances resided. While there he received a telegram reporting the death of his youngest, and favorite, grandson, Frederick Pease. This news plunged him into extreme melancholia, which increased during the summer months until, as he confided to Baird in late September, he was on the verge of suicide.[45] During the summer he sent a number of mournful notes to his friends. "Formerly I never knew what loneliness and ennui were," he wrote, "but could always find amusement . . . in my library and among my collections. Now I look upon everything of the kind with . . . listlessness and disgust."[46] His despondency was aggravated by the fact that persons of his acquaintance in the East seemed to have broken off correspondence with him. "I have written to Baird, Le Conte, Hallowell, Holbrook, and Agassiz . . . and can get not a word from anyone. Did I lose caste by my visit, or what is the matter?" he inquired.[47] In this morbid frame of mind he reviewed all of his past conduct and scrutinized his letter journals, finally coming to the conclusion that Baird's apparent disaffection was the result of an invitation to visit the Kirtlands "accidentally." In late September, however, the darkness was somewhat dispelled by the visit of an Englishwoman, the Honorable Miss Murray, Chief-Lady-in-Waiting to Queen Victoria. Kirtland was delighted to find that her favorite subjects were botany and conchology. "We found Miss Murray a plain, well-bred lady, of fine scientific attainments, and treated her as such," he wrote. "No parade, ceremony, or show. While at Washington a few days since, she informed President and Mrs. Pierce that her visit to Dr. K.'s was the most pleasant she had made in the U. S."[48] By November Kirtland was busy trying to "break the habits of the persimmon" to obtain new varieties of that plant, and, as winter came on, he began the construction of a small greenhouse.

His friend and neighbor, N. S. Townshend, who was also a Physician and an avid agriculturist, had for some time been "teaching the doctrine of higher education for farmers with unflagging zeal."[49] In 1845 he had suggested that a series of lectures be given for farmers, but this plan did not become an actuality until December, 1854, when a system of independent lectures was inaugurated at Oberlin. During the next two years these lectures were held in Cleveland, and Dr. Kirtland was pressed into service as an instructor. "Lecturing to two classes daily, medical and agricultural, keeps one very busy," he reported in 1856.[50] That year he was elected vice-president of the Ohio Pomological Society. He was contributing an ever increasing number of articles to the *Ohio Farmer,* a publication which was founded in Cleveland in 1851. In May, 1857, he was again in Philadelphia where he read, before the Academy of Natural Sciences of that city, a paper, "On the Larvae of the Thyreus Abottii."[51] In August he was in Indiana, which, he reported, was a region transitional between wilderness and civilization where "objects highly interesting to the naturalist" still abounded.[52] In the course of a meeting of the Cleveland Academy of Natural Science in January, 1859, Kirtland took part in an animated discussion on the natural history of the honey-bee.[53] The following year he was chosen president of a newly formed Beekeeper's Association.[54] For some time Kirtland had been interested

in the honey-bee, and he kept several hives in his garden.

> To such persons as take an interest in cultivating the bee, I would say that . . . I have succeeded to the fullest extent of my wishes. Their skepticism . . . would vanish if they were to see one open my hives, remove every bee, . . . and then capture every depredating worm and moth, sweep out all accumulations of filth . . ., and finally replace the colony without disturbance or loss of a bee; this, too, in the presence of the most delicate individuals, ladies and young persons.[55]

In Ohio the Civil War was responsible for a hiatus in the proceedings of several horticultural and scientific organizations. The Beekeeper's Association lapsed and was not revived until several years after the end of hostilities. Likewise the Cleveland Academy of Natural Sciences became nearly defunct in 1860, and the curators were forced to sell several of the sofas in the museum room of the society. Still "there was a small band of devotees to science meeting occasionally in Professor Kirtland's room at the College."[56] In 1867 the Academy was formally revived, and Kirtland again was elected president.[57] In 1864 he was elected a member of the American Academy of Science to fill the vacancy caused by the death of Benjamin Silliman, the younger. Probably as a result of his readings in the literature of travel and exploration, Kirtland had become interested in the Russian possessions in Alaska as a field for the study of natural history. He had so fired his friend Major Kennicott with enthusiasm for the study of that region that in 1859 the Major had gone there to investigate the possibilities. In 1865, when an expedition to the Behring Sea was fitted out by the Collins Overland Telegraph Co. and the Smithsonian Institution, Kennicott was placed in charge of the group of young naturalists who accompanied the expedition. Included in this group were Lieutenant Charles Pease, Kirtland's grandson, and Henry Wood Elliott, youngest son of his good friend and neighbor, Franklin R. Elliott.[58] At that time the seal industry was a topic of great interest, and there was speculation on the possibilities of the purchase of Alaska from Russia. After that transaction had been completed, Kirtland wrote to Secretary of State Seward urging the importance of survey of the new territory, and his letter to Seward was printed in the *New York Times*.[58]

During the year 1865, although aged 72, Kirtland was very active in horticultural circles. In August he attended a meeting of the Ohio Pomological Society at Sandusky, Ohio; and in September he was in Columbus at the Ohio State Fair.[59] In December the Pomological Society met at Painesville, Ohio, where a "social festival" was given to honor the members of the society. Replying to a toast in his honor, Kirtland reminisced about his early travels along the shore of Lake Erie. At this meeting the Northern Ohio Grape Growers Association was organized, with Kirtland as president. Two years later this organization was reabsorbed by the Pomological Society, which adopted the title of Ohio State Horticultural Society.[60] In July, 1868, the latter society held its second annual meeting at Cleveland.

> At Dr. Kirtland's the society made a brief visit, . . . the good old Doctor bidding them a hearty welcome, but regretting that he had nothing in the fruit line worth showing since the rot had caused a complete failure of his cherry crop, and the blight had made such havoc of his pear trees that he had ceased to pay any attention to them.[61]

For several years he had declined to lecture on any subject whatever, and, with the exception of excursions to attend the meetings of horticultural and scientific organizations, he kept rather closely to his house and gardens. In 1869, however, when he was seventy-seven years old, he undertook an extensive voyage to Florida. In 1871 the Ohio State Horticultural Society on its summer excursion stopped at Dr. Kirtland's residence. They found him "in good health and spirits, and enjoying . . . a lively chat with old friends among his acres of beautiful trees, flowers, and fruits."[62] Late in 1874 the society, meeting in Akron, resolved that "the gratitude of our State is due to Jared P. Kirtland . . . for the gift to the world of some thirty varieties of excellent cherries."[63] To this honor he replied, saying, "my highest aspiration has been . . . to awaken an ambition among our young horticulturists, male and female . . . . If . . . the force of my example shall . . . stimulate to favorable exertion our young members, I shall feel amply rewarded for my efforts."[63] He informed the society that one "insuperable impediment" prevented his attendance at the meeting in Akron—"the burden of over eighty years." In 1875 he was elected a member of the august American Philosophical Society. The Nuttall Ornithological Club elected him a corresponding member in 1876, and he wrote to its secretary, "your letter found me at eighty-three years of age, confined to a sick room, with no very favorable evidences of any improvement in health."[64]

During his last illness he continued an intimate

correspondence with Dr. Theodatus Garlick.[65] Kirtland was determined to view dispassionately the effects of approaching death, and he carefully described its manifestations in himself. The last letter which Garlick received from him, dated November 13, 1877, read as follows:

> No news. Every day growing weaker. My family all attention—kindly watching over me night and day with more anxiety than I feel myself. The great change must soon occur. I have full faith in the Christian hope of future life, but in what form we are to exist we know not. . . . We know not what is beyond the grave. Vast multitudes have gone before us. Love to all. Fare Thee Well.[66]

Dr. Garlick told in mechanistic language how Kirtland managed to accomplish so much even in such a long life:

> With Kirtland time was more precious than gold, neither of which he squandered. He made his amusements contribute to his vast fund of knowledge. Aside from his untiring industry he possessed remarkable physical organization. . . . His chest was large, with plenty of room for his great heart and lungs to work in, which were located near his brain, his neck being short. Consequently his brain was active, and he could accomplish an amount of brainwork that very few men could. . . .[66]

On receiving the news of the death of their president, the Kirtland Society held a special meeting and passed the following resolution:

> **So long as the ocean shall cast a shell upon its shore, or fishes populate the American lakes and give food to man; so long as the forest and field shall teem with fauna and flora, the bird of the air build its nest, and the bee gather its honey; so long as the tree shall bear its fruit, and the vine yield its grape; so long will the people of this land hold in sacred memory . . . the name of Jared Potter Kirtland.**

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4. Brennan, J. Fletcher (ed.), *op. cit.*, 233.
5. *Hildreth Cabinet Library, op. cit.*, February 4, 1835, No. 77.
6. *Ibid.*, September 13, 1834, No. 71.
7. *Ibid.*, October 25, 1834, No. 76.
8. *Ibid.*, November 9, 1835, No. 87.
9. *Ibid.*, May 27, 1836, No. 93.

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10. *Ibid.*, December 7, 1840, No. 122.
11. *Ibid.*, May 23, 1840, No. 119.

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12. Butler, Margaret Manor, *op. cit.*, 95-96.
13. *Farmer's Centennial History of Ohio, 1803-1903,* Ohio Department of Agriculture, Springfield, Springfield Publishing Co., 1904, 33.
14. "How Dr. Kirtland Raised His New Seedling Cherries," *Report of the Ohio State Board of Agriculture for 1864,* Appendix, Columbus, S. Medary, 1865.
15. *Brief History of the State Board of Agriculture,* Columbus, Fred J. Heer, 1899, 3-4.
16. Jones, Robert Leslie, "A History of Local Agricultural Societies in Ohio to 1865," *Ohio Archeological and Historical Quarterly,* Vol. LII, 120-121.
17. Kirtland, Jared Potter, *An Address Delivered before the Oberlin Agricultural and Horticultural Society, October 1, 1845,* Oberlin, James M. Fitch, 1845.
18. Plaster of Paris, ($2CaSO4.H_2O$), is a sulfate of lime. When it is in the presence of moisture and ammonia (which is a product of the decomposition of organic substances in soil), a fixed salt is formed—ammonium sulfate. Another product is slaked lime. $Ca(OH)_2$. Thus when Plaster of Paris is applied to the soil, calcium and nitrogen are held there to the benefit of vegetation.
19. Ohio State Board of Agriculture, *Annual Report,* Columbus, Scott and Bascom, 1851, 273.
20. *Ibid.,* 1850, 157.
21. *Hildreth Cabinet Library, op. cit.,* November 11, 1850, No. 137.
22. *Cleveland Herald,* November 25, 1845.
23. *Ibid.,* March 2, 1846.
24. *Hildreth Cabinet Library, op. cit.,* November 16, 1848, No. 135.
25. *Ibid.,* January 9, 1844, No. 131.
26. *Cleveland Herald,* November 29, 1845.
27. *Ibid.,* December 22, 1846.
28. *Daily True Democrat,* January 26, 1849.
29. *Letter Journals, op. cit.,* to W. D. Hartman, February 20, 1850.
30. *Cleveland Herald,* April 9, 1850.
31. *Family Visitor,* June 13, 1850.
32. *Ibid.,* February 28, 1850.
33. *Ibid.,* March 14, 1850.

The Third Period: 1851-1877.

34. *Letter Journals, op. cit.,* to Louis Agassiz, May 29, 1852.
35. *Proceedings of the Cleveland Academy of Natural Science, 1845-1859,* Letter to Kirtland from Louis Agassiz, February 14, 1853, Cleveland, published by a gentleman of Cleveland, 1874, 182.
36. *Ibid.,* 186.
37. *Ibid.,* 187.
38. *Letter Journals, op. cit.,* to Professor Baird, September 12, 1851.
39. *Ibid.,* to John Bachman, November 13, 1851.
40. *Ibid.,* to a friend, January 24, 1852.
41. *Ibid.,* to Mrs. Say, April 11, 1853.
42. The late Miss Theodora Blake vouched for the authenticity of this tale.
43. *Letter Journals op. cit.,* to S. B. Carrington.. April 13, 1854.
44. *Ibid.,* to Robert Kennicott, May 31, 1854.
45. *Ibid.,* to Professor Baird, September 25, 1854.
46. *Ibid.,* to J. Cassin, July 5, 1854.
47. *Ibid.,* August 1, 1854.
48. *Ibid.,* to a friend, January 5, 1855.
49. Ohio Department of Agriculture, *op. cit.,* 26.
50. Letter to a friend, January 15, 1856.
51. *Proceedings of the Academy of Natural Sciences of Philadelphia,* IX, 148.
52. *Proceedings of the Cleveland Academy of Natural Science, op. cit.,* 131.
53. *Ibid.,* 159.
54. *Cleveland Leader,* March 23, 1860.
55. Kirtland, Jared Potter, "Herbaceous Paeonies and Bee Culture," *Magazine of Horticulture.* Edited by C. M. Hovey, Vol. XXIV. 318.
56. *Proceedings of the Cleveland Academy of Natural Science, op. cit.,* 5.
57. *Cleveland Leader,* April 25, 1867. Two years later the organization changed its name to the Kirtland Society of Natural Sciences, which continued to meet until 1881.
58. *Ibid.,* May 23, 1867. In 1872 the United States government engaged Henry Wood Elliott to make a study of the natural history of the Alaskan Seal. At his urging there was a policy adopted of protection to the mother seal.
59. Ohio State Board of Agriculture, *Annual Reports, 1851-1877.* 1865, Appendix.
60. Ohio Department of Agriculture, *op. cit.,* 33.
61. Ohio State Board of Agriculture, *op. cit.,* 1868, Appendix.
62. *Ibid.,* 1871, Appendix.
63. *Ibid.,* 1874, Appendix.
64. *Bulletin of the Nuttall Ornithological Club,* VIII, 126.
65. This correspondence has unfortunately been destroyed.
66. This letter is incorporated in a letter from Dr. Theodatus Garlick to Colonel Charles Whittlesey, and is included in *Tracts of the Western Reserve Historical Society,* Tract 43, 1888.