Northwest Ohio Quarterly

Volume 14

Issue 3

NEWS AND COMMENT

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Northwestern Ohio

Local history in Northwestern Ohio, as in many other sections of our country, has suffered considerable neglect. The interests of its historians seem to have concentrated on the earlier phases of the history of the lake shore and the principal river valleys. We may find numerous writings on Wayne and his conquest of northwestern Indians and a number on this part of the state in the War of 1812. But adequate studies of the social and economic life of the various communities of Northwestern Ohio are lacking. To point to but one interesting and valuable topic which ought to be developed, the subject of population groups within the area may be suggested. From what parts of the United States or from what countries did the people come? When did they come? Why did they leave the lands of their nativity or previous settlement? What institutions did they bring with them? What were the influences of the various groups upon the cultural, economic, and political life of their communities? This is but one interesting historical problem, but it is in the answer to this and to the many other problems that we find the key to an understanding of our country and its people. To find the answers we must rely upon the development of a local interest in the preservation of all sorts of historical records. The encouragement of such an interest and the leadership in the preservation of such records ought to be a responsibility of local historical societies.

The Trustees of our Society at their last meeting decided on a campaign for new members, necessary to support the enlarged *Bulletin*. This move is timed with the more active interest in our Democracy and its historical foundations which the *Bulletin* will seek to foster. At the same meeting Mr. Edmund T. Collins of Toledo was appointed a committee of one to cooperate with the Committee on Private Research of

Cleveland in protecting archaeological and historical sites from indiscriminate digging.

The problem of Fort Miami is still in suspension, but one encouraging and cheering event may stimulate action. The Ursula Wolcott Chapter of the Daughters of the American Revolution, Toledo, has generously offered its "homesite fund" of more than three thousand dollars for the purchase of the site of Fort Miami, providing the county commissioners raise the balance of the sum necessary to purchase the six-acre plot. This fund, known as the Mary E. Welch Fund, was started in 1895 and enhanced by teas, receptions, lectures, and other money-raising projects.

Unfortunately the present war emergency seems to be affecting some plans for local historical activities and will force a readjustment to a new program. At its second meeting held on April 23, the Fort Defiance Historical Society decided to postpone until after the war its extensive project for a large Fort Defiance festival celebration planned for the week July 4-11. Mr. Ralph Peters, of the committee on the celebration, suggested an alternative program of displays and exhibits. Representatives of the Society were elected for Paulding, Bryan, and Henry counties. These were Mr. Reid Burt of Melrose, Mr. Nat Belknap of Napoleon, Judge John S. Snook of Paulding, and Mrs. Carl King of Bryan. At the close of the business session, Rev. Frank L. Shaffer, of the Defiance Grace Episcopal Church, read a paper entitled "History of Fort Winchester and the Development of the Community"; Mr. Walter May of Oakwood discussed "Historic Fort Brown" and suggested the acquisition of other historical sites after the war; and Mayor Davis B. Johnson of Wauseon spoke on the subject "Importance of Historical Societies."

The Seneca County Historical and Archaeological Association has moved its museum from the old Baldwin home in Tiffin to a new location at 28 Clay Street. According to Dr.

New Home of Museum at Tiffin

A. C. Shuman, its Curator, the new museum is a fifteen-room house which was built in 1856. It was the home of R. W. Shawhan, pioneer business man and builder of the Shawhan Hotel. The structure was given to the Association by Mr. Lynn Troxel of Tiffin. The displays are arranged systematically. There are two natural history rooms, an antique room, an antique furniture room, a library room, a foreign relic room, a farm implements room, and a household utensils room on the first floor. On the second floor are located an art room, a children's room of relics, a war relics room, and a pioneer home room.

The Ottawa County Historical Society reports its museum activities continually expanding. Nearly all of the states of the Union and many foreign countries are represented in the display in the Ottawa County Historical Museum which

consists of pioneer equipment, fire arms, textiles, china and glassware, Indian relics, fossils, and other articles. The Society, of which Mr. E. C. Hostrup is President, in cooperation with the Port Clinton city council, the DeLery Portage Chapter of the Daughters of the American Revolution, and various citizens, established the Historical Museum which is located in two rooms of the City Hall. The city council furnishes financial support. Miss L. May Hesselbart is Curator of the museum.

Mr. Harry E. Kinley, Secretary of the Wyandot National Museum at Upper Sandusky, informs us that his museum has recently installed five new large plate glass show cases. A number of new museum pieces have been received during the past months. At the last meeting of the board of trustees a committee composed of Mr. Ira Sterner, Mr. Earl Brewer, and Mr. J. D. Stevenson was named to cooperate with the Committee on Private Research, located at Western Reserve University, for the preservation of historical sites.

Prof. W. A. Amstutz, of the Bluffton Historical Society, reports that he is working with Mr. H. G. Murray on a listing of names of early settlers buried in the old pioneer cemetery. Such a project has already been started in the Mennonite cemetery at Bluffton.

The Allen County Historical Society at Lima met on April 17 to hear an address by Mrs. Martin M. Sondheimer on her experiences as a German refugee. Mrs. Sondheimer with her husband and their two children left Germany in 1938, going first to Holland, then to England, and later coming to this country. For the past two years they have lived in Lima. Like Defiance, Lima has found the pressure of war too great to permit the centennial celebration mentioned in our last issue, which was to have been observed this spring.

The Hayes Memorial acquired a collection of rare manuscripts important to the history of Northwestern Ohio. The

group of around fifty pieces is composed chiefly of Rev. James B. Finley papers in relation to the Wyandot Mission at Upper Sandusky. The most important item is the manuscript of Finley's *History of the Wyandot Mission* written in his own hand. There are four annual reports of the Mission for the 1830's and a statistical inventory of the property, implements, and stock of about the same time. Miscellaneous papers include letters of Nathan Bangs, Bishop William McKendree, Lewis Cass, Col. John Johnston, and Thomas L. McKenney, an account of the ordination of John Stewart, a Negro missionary who preceded Finlay among the Indians, the official document giving Finley his Indian name, and Finley's translation of the Lord's Prayer into the Wyandot language.

On April 29 the Toledo Dental Society met to observe the centenary of Toledo dentistry. Dr. J. N. Cassells, the first recorded professional dentist in Toledo, arrived in August 1841, and stayed a month. An advertisement in the *Blade* preparing the city for his visit announced: "His mode of plugging teeth with metallic paste which enters the teeth in a soft, putty-like form, without irritation or pain, and becomes perfectly solid in the short space of 24 to 48 hours, is universally acknowledged to surpass anything ever before used for that purpose."

The *Collector,* a magazine for autograph and manuscript collectors, carries an interesting article in the June 1942 issue on James Riley, the founder of the village of Willshire, Van Wert County. Captain Riley was shipwrecked off the coast of Africa in 1815, and captured and enslaved by the Arabs for eighteen months. He was ransomed by William Willshire, British consul at Mogadore, in 1816, the year his *Authentic Narrative of the Loss of the American Brig "Commerce" on the Western Coast of Africa* was first published in London. This account of his captivity passed through several editions and was a best-seller in its day. In a letter of July 3, 1824, repro-

duced in the article, Riley tells of settling in Van Wert County in 1821, and of laying out the town of Willshire in 1822. The letter is an excellent account of life on the frontier of western Ohio.

Ohio

The Western Reserve Historical Society of Cleveland celebrated its seventy-fifth anniversary this year by moving into two fine old homes on East Boulevard N.E. The library in which is preserved a fine collection of Americana, manuscripts, documents, and newspapers, is situated in an old Florentine style home acquired from Leonard Hanna. The museum is next door in the twenty-six-room mansion once the home of the late Price McKinney. Perhaps the two most important individuals in the development of the institution, one of the finest local historical societies in the country, are Dr. Wallace H. Cathcart, Director since 1913, and Dr. Elbert J. Benton, Dean Emeritus of the Graduate School of Western Reserve University, who has served as the Society's Secretary since 1913. President Laurence H. Norton is responsible for the renascent museum of today through the acquisition of the new buildings which house the Society.

The *Museum Echoes,* monthly publication of the Ohio State Archaeological and Historical Society, is carrying a series of articles entitled "This Ohio of Ours," prepared by members of the staff.

The Committee on Early Ohio Paintings recently formed by Western Reserve University, the Cleveland Museum of Art, and the Western Reserve Historical Society has sent out a call for all early Ohio portraits and paintings. Any information available on early paintings should be sent to William S. Dix, Committee on Private Research, Western Reserve University, Cleveland, Ohio. The Committee is eager for an opportunity to see the paintings and to photograph them for permanent preservation.

VIGNETTE OF A PIONEER
THE REVEREND EDWARD HANNIN

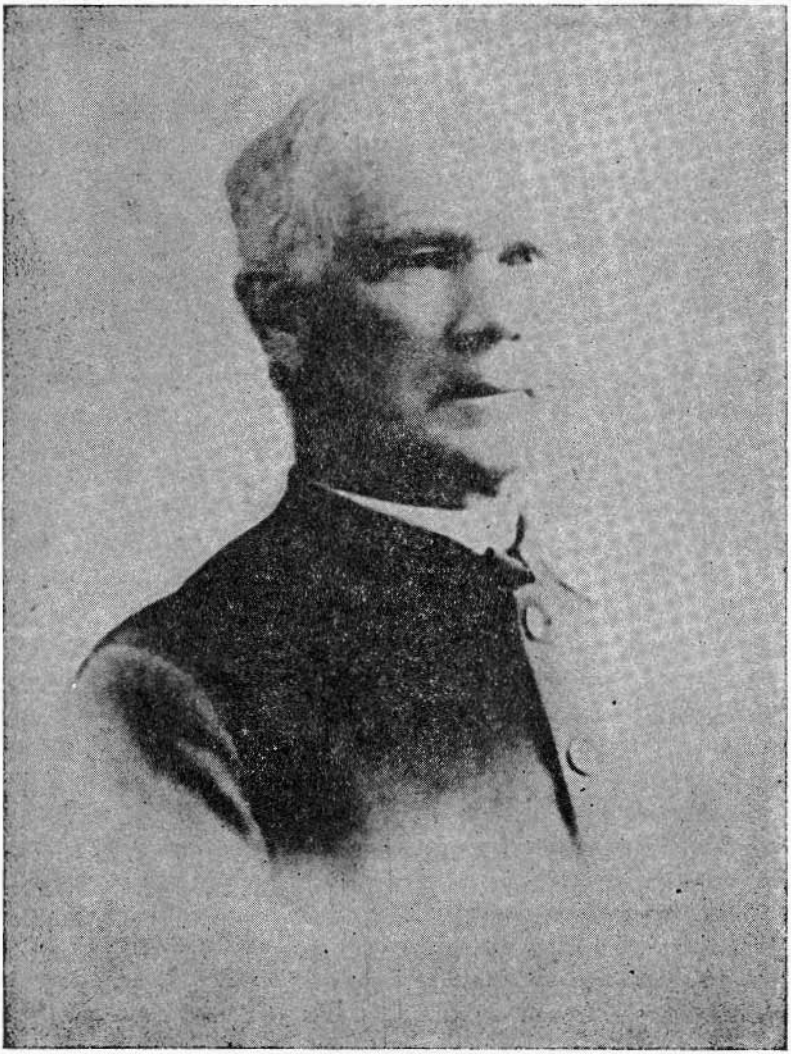
EDWARD FRANCIS MOHLER

> If the world justly honors an explorer who had shown the way to a new continent or even an island on our globe, what reverence is due him who guides men by the uerring light of faith to the realms of eternity?—*James Cardinal Gibbons*

In our all-too-ironic age it is refreshing to renew our spirit at the Wellsprings of greatness. This is a respectful effort to portray a great figure who lived most of his life in northwestern Ohio and whose deeds and personality are a permanent contribution to Ohio civilization.

In County Sligo, Ireland, on December 22, 1826, there was born to Bartley and Margaret (Tighe) Hannin, the third of eight children, a son who was given the name Edward.[1] The Hannins were prosperous farmers and they had the perennial Irish love for education. Bartley Hannin erected on his own land at his own expense, a school for the use of his own and his neighbors' children. Edward Hannin went to that school, later continuing in one of the nearby technical schools. On the completion of courses which gave him some knowledge of engineering and architecture, he was appointed Engineer in the State Department of Public Works.

The Potato Blight of 1845 and the subsequent famine years played a considerable part in the life of Edward Hannin, as they did in the lives of many other Irishmen. When business fell off Edward was dropped from the Public Works rolls. He went to Liverpool and found work there for a time. On returning home with some small savings, he was shocked to find conditions worse. The Hannin family went into conference, and resolved that Edward should go to America, as many Irishmen were then doing, where he might be of more help



The Reverend Edward Hannin
1826-1902
(Reproduced from best obtainable photograph)

to himself, his family, and his neighbors. And so another enterprising young Irish boy set out for the New World.

On May 20, 1849, Edward Hannin arrived in New York, and soon found work as best he could. In the beginning he may not have made much progress, but he soon made friends among his fellow workers. He was quick of mind, pleasant, and a bit of a wit. Then some nameless clerical friend turned Edward's mind toward the priesthood, and more and more this lively young Irishman began to wonder about the service which joins man to God.

Truth to tell, he was poorly prepared to undertake such a life, since all his training and experience had been along mechanical lines. Latin and Greek he had none, yet Latin and Greek he must acquire. Off he went to Geneva, New York, and with the help of friends, some not Catholics, he laid the foundation for a priestly career. Hard work and courage brought many rewards. One particularly fine recompense was the discovery of a definite literary talent which brought joy throughout his life.

Most Reverend Amadeus Rappe, D. D., Bishop of Cleveland, accepted Edward, and sent him to St. Mary's Seminary. Because of the need for priests in northern Ohio, but also because of the exceptional industry and talent which he devoted to preparation, he completed the courses in three years and was ordained June 1, 1856. The young priest was given many things to do; but the first great undertaking which awaited him shaped the remainder of his life, and in turn enabled him to help shape the development of a great city and the lives of many of its people. He was sent to Toledo to establish a new parish.

The construction of Ohio railroads and canals, as well as their extension and operation, had brought to the southern part of Toledo great numbers of Irish workers. In course of time some of them had become lost in unfamiliar, primitive

surroundings. Father Hannin was surprised but not disturbed to find that little preparation had been made for his coming. But he was an organizer. From 1862 to 1867 he was intensely active, building in that short time a church seating 500, a three-story school and rectory, and acquiring an eighteen-acre cemetery in Air Line Junction. The new parish, St. Patrick's, extended from Jefferson Avenue southward as far as Waterville and Grand Rapids.

On the resignation of Bishop Rappe, Father Hannin was called to Cleveland to act as Administrator of the diocese. From 1870 to 1872 that was his work.[2] During a somewhat stormy and disturbed two years, he constantly longed for St. Patrick's; and when the Most Reverend Richard Gilmour, D. D. was designated Bishop of Cleveland, Father Hannin returned to Toledo. Back to the work of developing his parish, of getting to know his people, of making himself of service to all that needed him went Father Hannin. St. Patrick's Institute, a large recreation center, was begun in 1873 and completed the following year. On St. Patrick's Day, 1874, Most Reverend Richard Gilmour, D. D., in the presence of the honorable William Allen, Governor of Ohio, and a great assemblage of guests opened the Institute to the service of the public.[3] How actively and humanly and wholeheartedly Father Hannin continued as a priestly man may best be told from the viewpoint of one who attend his church and school and knew him well.

As a small child in the vague days before I entered his parochial school at Avondale and Thirteenth, I had been hearing about the Reverend Edward Hannin. Almost all those who lived on "God's Hill" thought that few people rated classification with Father Hannin. Many of the stories which passed around were concerned with the fabulous Hannin name. Some of the reputed achievements of this man seemed unbelievable even in that far-off day. A few years close to him were suffi-

cient to prove that with such as he all things were possible, even the impossible.

In the 1890's, entering St. Patrick's School was a step of unusual moment. The school as well as the parish was the life work of one man. To the little people who were then making their first fumbing steps at education, this tall ascetic, haloed with awesome achievements, was a portent to be dreaded, respected, and, maybe at long last, loved.

He might have stepped from the pages of the Old Testament along with Jeremiah and his holy threats and predictions; he might have been one of the nimbus-crowned visions of the Apocalypse. No matter how you cared to measure him, he was not an ordinary personality; his was not the stature of run-of-the-mill humans. Taller, sparer, more vital and alert than most of the people about him; commanding, even domineering; spiritual, exalted of both mind and mein; setting a personal example which stimulated courageous souls to reach high, he lorded it over the less sturdy, lashing them at times toward their own betterment even against their wills.

Imagine the somewhat timorous children of another generation entering into this presence! It had to be done, of course, because the children of his parish had to go to his school. But was it something to be welcomed, to be taken on with the nonchalance of a boy with an "all-day sucker"? To meet this man, to be in day-to-day contact with him, might ruin a child with fright, or it might tumble a great figure into the dust as the prying eyes of observing youngsters detected faults.

Well, the ordeal was over—or it was beginning. A goodly number of us entered St. Patrick's School. During the very first recess period Father Hannin was in the school yard. The things he did and said soon made us feel that he loved children, liked to be with them and play their games, that he was ready to reward as well as punish. And it did not take us long to

discover that the punishment came immediately, effectively, and from right and left hands of equal weight.

A tall, ascetic-looking figure, dressed month in and month out in a long, duster-like coat which gradually grew shabby, he walked among us with military bearing. His shoulders were held well back and his chest was proudly out. First he would run after the girls, showering them with dippers of water to wet down their prissy dignity and make them run for a bit of exercise. Then after having had this bit of elemental fun, he would stump over to the boys' side of the yard, shouting: "Boys, hold your chests so you can carry sacks of flour on them!" He would thwack his own fine chest and add as he paraded in quick, short steps: "This is the way I mean, my children; see how I am doing it!"

Not so terrible after all for someone out of the Old Testament. Diffidently we began to like him. As the days wore on he gave us plenty of other things to think about, and our talk became concatenations of "Father-Hannin-this" and "Father-Hannin-that." We came to know that our lives at his school could never be routine; we had been gathered under the wings of greatness.

Sadly we have been hunting, many of us, for his like but he is not to be found. Too many have been reaching, grasping, even clawing for the abnormalities and complications which blow to bits the simple, legitimate desires of normal men and women.

The quickly shifting panorama of opening week gradually slowed down to an orderly array of school work. Monday morning came around and Father Hannin was in the school wanting to know from Sister Mary Bernard the names of the boys and girls who had not attended Vespers on Sunday afternoon. There were only a few, and they, poor souls, were in the throes of a deep fear. The boys were regretting the pleasures of Sunday afternoon when they had gone down to the Sun

Brothers' training barn to watch the world-famous McCreas polish up their riding acts for the "Big Top"; or maybe Joe. E. Brown (yes, even he of today's Hollywood) who lived around the corner from the church, had come home, and they had watched with open-eyed wonder as he turned innumerable somersaults. These visions faded before the stern words of Father Hannin.

"Line up, boys!" Judgment was at hand. One by one the boys were ceremoniously draped over a chair, their knees tucked in to present a drum-taut pants-seat to the disciplinarian. And a ruler was laid on with a smart commentary such as: "My boy, I'll give it to you (w-h-a-c-k) where nature intended it should be given to you (w-h-a-c-k)." Another lad was speeding toward goodness and light on the straight and narrow path, accompanied by his own very real pain and his classmates' equally real, though smothered, pleasure. The girls, almost hysterical with fear and humiliation, trembling, tearful, and protesting, had to extend their hands. With artfully concealed gentleness the stern old man administered—a slight slap. But the punishment had been given by Father Hannin and their girlish worlds crashed about them. So, dissolving in their woe, little girls came to know the meaning of applied Christianity.

In a world which was beginning to approach the mechanistic and materialistic idolatry which marks the twentieth century, this old pastor was in love with the things of the spirit. To him Holy Writ was not only the recorded Word of God; it was likewise a brilliant collection of literature and a vital message. When he read the selections from the Epistles and Gospels from the pulpit, he had a patriarchial dignity, a glowing face, a voice overflowing with unction such as comes with deep love. The meaning, the rhetorical graces, the rhythm, antithesis, and balance of the Bible he displayed for anyone with half an ear to hear, with half a heart to love.

It was a treat to hear him open the sonorous Gospel of St. John:

> "In the beginning was the Word; And the Word was with God; And the Word was God. The same was in the beginning with God. All things were made by Him; and without Him was made nothing that was made. In Him was life; And the life was the light of men. And the light shineth in darkness; And the darkness did not comprehend it."

Father Hannin anticipated by generations the need of and progress toward social legislation. I have already referred to St. Patrick's Institute, a three-story, brick recreation center. Topped by a statue of the great St. Patrick, standing on a bit of the very rock of Cashel, this project offered a fine hall, billiard rooms, bowling alleys, and a library to attract boys from the streets and keep them from the saloons. Pridefully pastor and parish used it as a center of life and enjoyment. But it passed with time. It was too far in advance of contemporary thought, for one thing; and, for another, plans for Father Hannin's new church began to take shape. The Institute was discontinued as a recreation center and made into a temporary church.

Into the building of that new church, which still stands in magnificent protection over St. Patrick's Parish, Father Hannin put all the drive, vigor, ingenuity, and cajolery that one man could muster. There must be plenty of money; it came from everyone, from everywhere; his money, his people's money, his Protestant friends' money. The impressive granite monoliths along the aisles of St. Patrick's Church bear testimony in the names of many who were not Catholics. Here is a story to the point. One blustery day Father Hannin was stalking along downtown Toledo when a friend met him and asked: "Why are you so cheerful, Father Hannin?" Waving a piece of paper in the air, Father Hannin replied: "Why not,

when I have such good Protestant friends as this one!" The check was for $500 and had been signed by General C. M. Spitzer, one of the city's leaders.[4]

St. Patrick's Church had Father Hannin's personal supervision; his early training was put to good use. As the church grew he delighted in explaining its wonders, and as the day of dedication came closer, he must have His Excellency, Archbishop John Ireland of St. Paul, as orator of the day. Remarkably enough, the Archbishop arranged to come, and he delivered a tremendous oration before some two thousand people who, for the greater part, were the Protestant friends of Father Hannin. To explain the wonders of Father Hannin's church would take more space than is here permitted.

At the door of his great church I can see Father Hannin, clothed in the vestments for Requiem Mass, ready to officiate at a funeral. He had come out front to make sure that the bereaved family was making no vainglorious display of carriages. Six carriages were the limit; if there were more the drivers were ordered to take them away. Not until his order was obeyed, and the extra carriages were diven away did the sevices begin. There was an irony here that he may not have seen—the costly church and the prohibition against funereal glory. There was to come another irony which he must surely have enjoyed hugely in Heaven. Father Hannin's own funeral was one of the most tremendous outpourings of humanity in public and private conveyances that Toledo had ever witnessed. There was not a hack to be had on the day he was buried. By hundreds and hundreds they filled the streets; on and on they came in a great serpentine toward the church.

Some parish wit could contain himself no longer and burst out: "Sure, there be all the carriages Father Hannin ordered away from his church. Every one of them is back for his funeral!"

Father Hannin's friends were both the humble and the mighty, Catholic, Protestant, and Jew. People were the best instruments to be used in the service of other people, and he used them great and small for his purposes. He could go where he would; he could get what he wanted. The seeming finality of "No!" might halt the non-persistent, but it could never satisfy him. When he set out to do good nothing could stop him, nobody could shout him down.

The mighty and the lowly alike were honored when he made use of them. The Honorable William McKinley: "Golden Rule" Sam Jones, Mayor of Toledo and tutor of Brand Whitlock on the way to political greatness; the Very Reverend Ignatius Horstmann, D. D., Bishop of Cleveland; His Excellency Archbishop John Ireland of St. Paul; James Cardinal Gibbons, American labor's determined and understanding friend; Father Matthew, Ireland's Apostle of Temperance; Valentine Ketcham, dean of Toledo's early bankers; Ben Raitz, Chief of Police; the Kinnans, the Waldings, the Secors, the Spitzers, the Newtons—industrialists, businessmen, and bankers; pavers, stevedores, and mail clerks; hod carriers, blacksmith, and plasterers—all these and many, many more were woven into the dreams and deeds of Father Hannin.

Those who look back on St. Patrick's in Father Hannin's time, look back on a world of remarkable achievement in the building of institutions and men. There were huge, rough jobs to be done, and Father Hannin was always in the midst of them. He engaged himself in quieting the barbaric life of a growing city when its rapid, jungle-like spread sheltered and loosed beasts of prey. By sheer might of will he brought a gradual ordering of tempest and uproar into peace and rest that self-respecting citizens might live, play, and work.

During a life which reached more than the Biblical three-score-and ten, Father Hannin was a crusader for many things. He was an advocate of total abstinence. An abstainer himself,

he worked with consistent and unrelenting vigor toward abstinence among his people. First Communion classes took the pledge en masse. Not for a moment would he hesitate to enter any home where drink was causing trouble. He would run the "stuff" down the drain and tonguelash the indulgers. Hilarious parties were less on the bestial side after his scourging visitation.

The stories which have clustered about the memory of Father Hannin run literally into the hundreds. For many of them there is historical foundation. Here is one of the truer. In the 1890's Toledo's harbor was lined with grain elevators, and the endless loading and unloading of grain boats required the sweating toil of trimmers. Payday often meant ructions in the water-front saloons. Father Hannin "covered the water front," and would enter these hangouts to get donations for his church as well as to keep an eye on some of the boys who had a reputation for throwing money and discretion to the winds. On one of these visits Father Hannin was subjected to a bit of boisterous fun and teased again and again to "Be a good fella, Father, and have a bit of a drink with the boys!" Sensing the possibilities of a shrewd lesson and a big donation for the new church, he made a proposition.

"Boys, I will take a drink and provide a drink for every one of you, if you will each make a donation to my new church." Miracle of miracles! Father Hannin was going to take a drink and in a saloon! Money piled on the bar before the happy-hearted, shiny-eyed priest. Everyone was alert for his next move. Even the tipsy were momentarily sobered. Slowly, with such nicety of timing as would have done credit to a great actor, Father Hannin gestured magnificently to the bartender and let them have it where it hurt:

"John, give me and give every one of these fine, generous lads a big glass—of clear, cold water!" He took his own drink,

and swept out, carrying with him not only their donations, but also their undying admiration.

Father Hannin loved children. He took them as he found them and tried to mould them to the highest service. But he treated girls as girls and boys as boys. He was not the sort of modern who would act as though he thought the masculine of "girl" might be "boil." He worked with the children of his school personally; taught them their catechism, played their games, marched them out for display to the citizens of Toledo on every occasion which would warrant it, and some that did not! First Communion Day meant a parade of the children and Father Hannin about the streets of the parish. St. Patrick's Day meant a still greater display of the children. Led by a green-clad drill team and band they marched, and Father Hannin, sleekly dressed for once, was the best marcher of all. None knew better than this practical psychologist that the most successful approach to adult hearts and minds was through the children; none more fully realized that the best way to better adults was through the better children who were to be adults.

His boys and girls could have the best. Their school plays were given in the famous Valentine Theatre, donated for the occasion for the use of Father Hannin's "kids." Their picnics and boat rides were held at places and by means which Father Hannin's many friends provided.

With all his works, practical and idealistic, Father Hannin never had an assistant. He could not be bothered; had to do all the work of the parish himself; would not have anyone else around. Inasmuch as so many of his ideas were original and highly individual, that may have been as well. But this man's long roll of works had to come to an end. It came one day in 1902, while he was saying Mass at the high altar of St. Patrick's. His thin, enfeebled body sagged, and Joseph

Sweeney, server, used his teen-age strength to help his old friend from the sanctuary after Mass.

The news went out that Father Hannin, who had not known illness within the memory of most, was dying, and St. Patrick's Parish became one of the saddest places on earth. Included among the stricken were those who had fought him and his plans. They, too, were silent. His four perennial councilmen, James Connolly, P. F. Whalen, Thomas Degnan, and John Fitzpatrick were lost souls.

After hovering about for several days, Death touched him and he was gone. But his soul and his works and personality nothing can touch. He has left his mark on the City of Toledo.

NOTES

[1] Rev. M. A. McFadden and Edward F. Mohler, *The Reverend Edward Hannin, His Life and Works,* 3.

[2] Rev. George F. Houck, *The Church in Northern Ohio and in the Diocese of Cleveland,* 4th edition, 36.

[3] McFadden and Mohler, *op. cit.,* 11.

[4] *Toledo Blade,* December 15, 1902.

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THE NATURAL GAS ERA IN NORTHWESTERN OHIO

RUSSELL S. MCCLURE

In November of 1884 in the town of Findlay, Ohio, the optimism of a small group of speculators was rewarded. A wildcat well drilled into the rocks of that community found liberal quantities of natural gas, and led the way to further discoveries that soon demonstrated the presence of one of the world's great gas reservoirs. Rapid development of the reserves ensued, and for a time the fortunes of a large section of Northwestern Ohio were enormously augmented by the occurrence of one of the spectacular gas "booms" of all times.

In many sections of the field, oil was a companion product to the natural gas, and in fact was considered in some quarters to be of greater importance than the latter. Inasmuch as the exploitation of the oil resources was carried on as a practically separate development, differing strongly from natural gas in its repercussions on the region, this paper will deal only with the story of natural gas.

Prior to the development of the new-found fuel resources, Northwestern Ohio was yet engaged in a process of metamorphosis from a pioneer to a farming community. Cursed by faulty natural drainage, the area had been notorious as "The Black Swamp." Naturally well drained soils were originally found only in restricted and widely separated areas: Along the banks of the major streams; in occasional sandy rises, or "beach-ridges," laid down in glacial times; and, rarely, along the extremely rocky limestone ridges that are occasionally encountered.[1] Conditions of this sort long precluded any possibility of supporting a large agricultural population on these lands; and the desirability of the area for settlement was further reduced by the prevalence of ague, malaria, and occasional outbreaks of cholera, occasioned largely by the lack of satisfactory sanitation.[2] Reclamation of swampy lands was

undertaken early in the development of the territory, mainly at the initiative of private individuals, but progress on such a gigantic task was necessarily slow. In 1850 the state legislature empowered the counties to provide public ditches in connection with the road-building program; but in the absence of adequate capital reserves the project was only partially completed at the time of the discovery of natural gas.[3]

The development of the small urban centers of the region was likewise retarded. Findlay, Fostoria, Bowling Green, Fremont and Tiffin in 1880 were small, placid country towns. Fremont, the largest, boasted a population of 8,446. Growth depended solely on the slow, but steadily increasing prosperity of the rural hinterland. A majority of the populace in each of these towns was engaged in farm service occupations, either in the sale of supplies or in the collection for shipment or sale of farm produce. Manufacturing proceeded in a small way, a representative center having one or two machine shops, two or three small flour mills, a few woodworking and sash-and-door plants, a few wagon shops, a lime kiln or two, a variety of small shops engaged in the production of agricultural implements, a brick and tile yard—and of course the inevitable cigar factory.[4] In the absence of well developed transportation, each community was relatively self-contained. Poverty and unemployment were rare—as was great wealth.

The people of Northwestern Ohio had long been aware of the presence of gas in the bedrock of the region. Seepages were found to occur in certain outcrops of the native limestone, emanating from joint-cracks in the rock. Evidences of gas were especially notable around Findlay, along the rocky floor of the Blanchard River and two or three of its major tributary creeks. Shallow water wells which penetrated the thin mantle of glacial drift sometimes tapped gas veins and had to be abandoned. The same thing happened frequently in digging ditches and in excavating for building foundations.

One of the first recorded experiences with the gas was that of Daniel Foster, a resident of Findlay, in 1838.[5] In a well dug on his premises at the corner of Main and Hardin Streets, gas appeared in some quantity. The well had to be abandoned as the water was too sulphurous to utilize. In order to obtain at least small recompense for his labors, Mr. Foster inverted a sugar kettle over the well and piped the gas to his house, where he burned it in the fireplace through an old gun-barrel. Others recorded similar experiences, though the use of gas was a rarity. Wood remained the universal fuel. Small boys sometimes entertained themselves with the loud and spectacular explosions they could contrive; and sometimes unsuspected accumulations of gas were exploded accidentally by the unwary. Because of occasional injuries from this source, and because of its extremely unpleasant odor (sulphuretted hydrogen in the gas gave it a characteristic "rotten egg" smell), the gas was for long regarded as a nuisance. Its value as a fuel, despite demonstrations to the contrary, was ignored by the majority.

The first to come to a realization of the possible significance of these indications was Dr. Charles Oesterlin, a resident of Findlay.[6] The presence of sizable reservoirs of natural gas, he realized, would prove of major benefit to the fortunes of Northwestern Ohio. As early as 1864 he endeavored to interest his neighbors in a project to construct containers in which to store the gas, in order that it might be used for illumination. No one could be found who was willing to risk capital in the venture, however, and the project was dropped.

In the period from 1870 to the early 1880's, the spectacular developments in the petroleum fields of western Pennsylvania began to attract nationwide attention. The discovery of immense stores of oil and gas, the large personal fortunes that began to emerge from that field, and the benefits accruing to that region from access to the new resources profoundly

stirred the popular imagination. To increase the value of these discoveries, natural gas, which had theretofore been considered simply a waste byproduct of oil, was found to be ideal for industrial fuel, as well as for domestic lighting and heating. By 1880 this product was being extensively used in Pittsburgh.

Drilling spread in all directions from the Pennsylvania fields, promoted by outlying communities hopeful of sharing in the bonanza. In the Spring of 1884, as a part of this movement, interests in Bucyrus, Ohio contracted with a drilling firm of Bradford, Pennsylvania, to sink a well for exploratory purposes. Inasmuch as popular interest in petroleum had been rising, the newspapers publicized this venture widely; and the news came to the attention of Dr. Oesterlin. His interest was reawakened, and he again began to promote the exploration of the rocks beneath Findlay. By this time the people of Findlay were more aware of the issues at stake; and spurred by a small town rivalry between Bucyrus and Findlay, Oesterlin soon succeeded in attracting the support of a small group of local capitalists. A corporation was formed, and arrangements were made with a firm of Pennsylvania drillers to commense operations in Findlay.[7]

Work was begun on October 20, 1884, on a tract on the east side of Eagle Creek, just beyond the corporation limit of that day. Small volumes of gas were encountered at several horizons as the drilling progressed, enough to furnish ample power for the work. Finally, at 1,092 feet below the surface, in the upper levels of the Trenton limestone series, a very much larger flow of gas was encountered. No exact measurement of the volume was made, but it was later estimated at approximately 200,000 cubic feet per day. For lack of equipment with which to control the flow, it was lighted for a time, and produced a flame twenty to thirty feet in height.

Excitement in Findlay knew no bounds. Though the production of this Pioneer well was small as compared to that of

later giants, the display of power as demonstrated in this first attempt was sufficient to encourage further drilling. By the end of 1885, twelve wells had been completed in Findlay, and early conjectures as to the possible size of the field were revised progressively upward. The largest of these early wells measured 3,500,000 cubic feet daily; and though two of the twelve showed signs of becoming oil producers, all were remarkably steady in their production.

Then, on January 20, 1886, the thirteenth well was brought in.[8] This producer, the famous Karg well, far surpassed any of its older brethern. Shortly after it was completed it registered over fourteen million cubic feet at the casing, and over twelve million cubic feet from a four-inch pipe with which it was fitted. Its strength far surpassed the expectations of the drillers; and because of the difficulty of controlling it with the equipment at hand, it was set afire in accord with common practice.

The Karg well marked the turning point in the development of the field. The tremendous roar of the escaping gas, and the great light cast by the leaping flames (which on a cloudy night could be seen for more than forty miles), made a spectacular display that caught at the imagination of the public throughout the country. Special trains were organized to carry sightseers to Findlay, where it was noted with delight that the heat of the flames was so great as to keep the grass green and growing throughout the winter for a radius of one hundred yards around the well. Findlay did not fail to make great capital of its attractions. By dint of a strenuous advertising campaign, plus a prodigal display of gas lighting in the town, both in the homes and along the streets, large crowds of people, plus a number of manufacturers, were attracted.

Immediately upon the completion of the Pioneer well, the new company had set about laying a pipeline through the streets of Findlay, hoping to employ the new-found resource

in successful competition with the product of the local Artificial Gas Light and Coke company. Soon naural gas was in use, at a very low price. The older company, however, soon saw the value of the new fuel, and began drilling a well of its own in December 1884. Upon completion the gas was turned into its existing lines, but these proved unsatisfactory, and a second pipe-line had to be laid. Then began a period of spirited but unequal competition, which ended shortly with the purchase of the Pioneer interests by the Artificial Gas company. Rates were set well below coal prices, and the company settled down to the business of supplying the domestic requirements of the town.

But the situation was still far from stabilized. As evidences of the great size of the gas reserves multiplied, there arose among consumers a feeling of dissatisfaction with private ownership of so important a resource. Despite the prevailing reasonable rates, the cry of monopoly was raised, and a storm of agitation developed out of the fear that unscrupulous ownership might restrict the benefits of a natural fuel supply. A referendum was held, and a large majority voted for municipal ownership. The municipality obtained permission from the legislature to erect and maintain a city gas plant, and soon was laying yet a third set of pipes through the streets of Findlay. There ensued another brief competitive scuffle, this time between the town and the private corporation. Rates were reduced to a ridiculously low level, it being possible at the climax of the battle to heat a house for $1.05 per year. The affair was finally settled with the purchase of the private holdings by the municipality.[9]

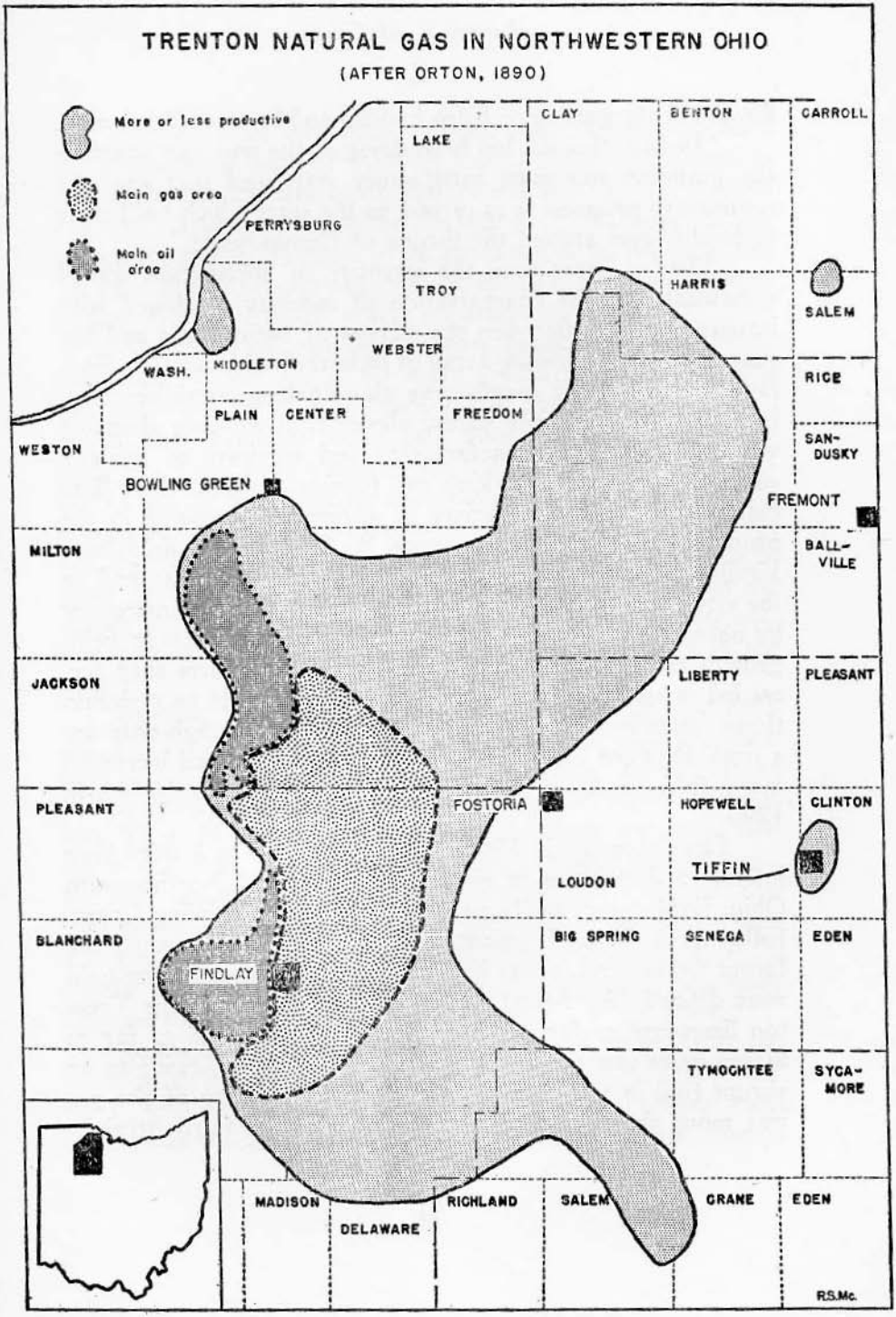
With the change from private to public ownership, there occurred a drastic shift in the utilization of the gas. Rates were sharply cut. It had, of course, been to the advantage of the private owners to provide a fair margin of profit for their shareholders. Hence, their rates, though well below those for

equivalent amounts of coal, tended to restrict gas consumption to domestic heating and lighting requirements, or to use by those small industrial concerns already on the scene. The fuel-cost differential between Findlay and other centers was not sufficiently in favor of Findlay to bear the expenses of plant-transference, and consequently few manufacturers felt inclined to move.

Public management, on the other hand, was interested only in a return sufficient to retire the obligations occasioned in building the new plant, and to cover the maintenance of equipment. It was hoped, however, that substantial benefits would accrue to Findlay in other ways. First, taxpaying consumers would find their net incomes increased each year by the reduction in the cost of fuel and light. Second, sizable gains should derive from the influx of industry, labor, and capital that would be attracted by practically free fuel.

The optimistic assumption that industry would be attracted by free gas proved correct.[10] In 1886, soon after the establishment of municipal ownership, and adoption of the free gas policy, the influx began. In that year there arrived three glass factories, an iron foundry, two woodworking plants, and a cigar factory. This preliminary success further stimulated the rising tide of optimism; and the first months of 1887 saw a large increase in the population of Findlay, coupled with a period of intense speculation. Land values soared. *Harper's Magazine* for July 1888, quotes a Findlay citizen as follows: "Its people have caught the divine afflatus which came with the discovery of natural gas.

"Further, if Findlay had only natural gas she would be the peer, if not the superior, of any municipality on earth—and in all things has no equal, or superior, between the oceans and the lakes and the gulf, and is marching on to the grandest destiny ever prepared for any people, in any land, or in any period, since the morning stars first sang together, and the


TRENTON NATURAL GAS IN NORTHWESTERN OHIO
(AFTER ORTON, 1890)
More or less productive
Main gas area
Main oil area
LAKE
CLAY
BENTON
CARROLL
PERRYSBURG
TROY
HARRIS
SALEM
WEBSTER
WASH.
MIDDLETON
RICE
PLAIN
CENTER
FREEDOM
WESTON
SAN-DUSKY
BOWLING GREEN
FREMONT
MILTON
BALL-VILLE
JACKSON
LIBERTY
PLEASANT
PLEASANT
FOSTORIA
HOPEWELL
CLINTON
TIFFIN
LOUDON
BLANCHARD
BIG SPRING
SENECA
EDEN
FINDLAY
TYMOCHTEE
SYCA-MORE
MADISON
DELAWARE
RICHLAND
SALEM
GRANE
EDEN
R.S.Mc.

flowers in the garden of Eden budded and blossomed for man.

"In fact, this she has been doing in the past two years, in the grandest and most satisfactory way, and that she will continue to progress is as certain as the stars which hold their midnight revel around the throne of Omnipotence."

After a short time the intensity of speculation waned somewhat, but the concentration of industry continued with increasing force. Between the advent of natural gas and the year 1890, the following array of industry had located in Findlay: fourteen glass plants; five clay-working establishments, including brick and tile yards; eleven iron working shops of various types; five manufacturers and servicers of drillers' supplies; seven woodworking and furniture plants; three lime manufacturers; and a variety of enterprises engaged in the production of miscellaneous goods. By 1890, the gas fields near Findlay were showing disturbing signs of weakness; and as the city trustees had failed to provide for such an emergency by obtaining reserves in other portions of the Trenton field, growth came to an abrupt halt. By frantic efforts they succeeded in obtaining new supplies, and were able to maintain those factories that were already in Findlay, though only for a time. Between 1884 and 1890, the population had increased many fold, from an estimated 4,750 in 1884 to 18,553 in 1890.[11]

Developments in Findlay had not failed to inspire keen interest and ambition in rival urban centers of Northwestern Ohio. Exploratory wells were soon drilled in Bowling Green, followed by Lima, Fremont, Fostoria, and Tiffin, among the larger towns, and it was not long until the limits of the field were defined (See Map). Gas was found to exist in the Trenton limestone as far north as Bowling Green, and as far as fifteen miles east of Findlay and Bowling Green. Owing to an abrupt fold in the Trenton, the western boundary of the gas was more sharply defined, extending along a fairly straight

axis between these two centers. Only minor success attended the prospecting south of Findlay, though to the southwest, in the Lima district, and again just to the west of the Findlay "Break," large oil pools were discovered in the course of the search for gas. In fact, oil often appeared in conjunction with the gas; and as the development of the field progressed, some of the earlier gas wells became oil producers.

Of the towns mentioned above, Findlay alone was situated directly over one of the more productive sections of the gas reservoir. Bowling Green lay just north of a large producing area. Fremont found itself about ten miles east of the field, and about fifteen miles from the best gas territory. Fostoria likewise was situated some distance from gas territory, being nearly fifteen miles from the Findlay field, and about five from the later Bradner district. Tiffin seemed at first to be more fortunate, finding gas directly beneath the town; but the supply proved to be small and shortlived, and it became necessary to turn to the larger fields some twenty miles to the west.

Bowling Green was the second center to engage in drilling, and for a time was second only to Findlay in the importance of its discoveries. In January 1885, the Bowling Green Natural Gas Company was organized, made up of local interests. Their first search was conducted on land within the corporation limits. The first well found only a small supply of gas, but was torpedoed in March and the supply increased.[12] This well was not accurately measured, but is believed to have been less than 100,000 cubic feet. The gas was at once utilized in a nearby flour mill, and arrangements were made to introduce the new product as household light and fuel in the town.

In the following twelve months, five other wells were put down by the Bowling G reen Natural Gas Company. Wells number 2, number 3, and number 4 were small, but number 5 was as large as the first. These two were for a time the mainstays

of the company. Fortunately, despite the discouragingly insignificant results of its searches, the company persisted in its exploration. By January 1886, 153 stoves, one furnace, and 134 lights were dependent upon natural gas; but the supply proved to be insufficient in cold weather. The superintendent estimated productinn at only 150,000 cubic feet daily, while 200,000 were needed. The crisis passed, however, after a sixth well was drilled a mile south of Bowling Green in March 1886, and its output surpassed al the rest combined. It was immediatey piped into town. Two others were drilled still further south, in Portage Township, the second of which (number 8) was the most vigorous of all, with an initial production of just under a million feet daily.

The company adopted a policy of setting its price at a level approximately two-thirds that of any other available fuel. Though these rates were perfectly satisfactory to domestic consumers, they were too high to attract industry to the town, particularly in view of the policy then being followed by Findlay. In order to bring industry to Bowling Green, therefore, the municipality was forced to follow the precedent set by Findlay. The legislature granted permission for the project, and, profiting from the earlier experience of the private concern, the municipality immediately leased lands in Portage Township.

As the growth of the town seemed assured, a real estate boom developed, real property prices advanced 100 to 300 per cent., and an influx of foreign capital began. Foremost among the industries attracted by free gas and land were the glass interests.[13] Five factories were established, and were soon employing over 500 laborers. Other interests included woodworking plants, lime-burning establishments, machine shops, and flour and feed mills. The population by 1890 had increased to 3,467, from an estimated 1,650 in 1885.[14]

Fremont, almost immediately upon receipt of the news of the Findlay success, became optimistically excited over its own prospects. At this early date, as a result of experience in the western Pennsylvania fields, it was an accepted hypothesis that petroleum deposits always followed a northeast line. It was theorized that the Findlay discoveries were in a northeasterly extension of the Cincinnati Arch, and should pass directly beneath Fremont as a part of the same geological formation.

Drilling began in May 1885, on the initiative of the local artificial gas company. At a depth of approximately 450 feet, a fair supply of gas was found in the Clinton limestone, but upon access to the Trenton, several hundred feet lower, that rock proved to be practically lacking in gas. Further search confirmed these results. Good wells in the Clinton limestone consistently produced some 10,000 feet per day. Fremont had to content itself with small amounts of Clinton gas for occasional domestic use, but was forced to depend for large quantities upon the Northwestern Ohio Natural Gas Company, a subsidiary of Standard Oil, which extended a pipe-line from the Wood County fields to Fremont.[15]

Among the industries attracted to Fremont after the provision of natural gas for fuel was the Elyria Shear Works, which changed its name to Clauss Shear Works after establishing in Fremont, in 1886. This concern was the forerunner of the present concentration of the cutlery industry in that center. At the same time, the Thompson-Houston Electric Light Company established a branch, which was later bought out by the National Carbon Company. Also on the lines were two drop forge shops, one or two machine shops, and two flour mills. No attempts were made in Fremont at this time that compared with the open subsidization of industry in the gas centers to the west.

Fostoria early made a determined effort to locate gas within its boundaries, but met with failure. The first well drilled found the Trenton limestone practically devoid of gas. A second, just west of the corporation limits, was slightly better; but like the first, the supply was too limited to be of practical value. Further exploration soon established the incontrovertible fact that the closest reservoir of any size was nearly five miles to the west of the town, at the Godsend water tanks.[16]

After the failure to fiind gas beneath Fostoria, the Northwestern Ohio Natural Gas Company introduced gas from its large wells to the west, in Cass and Bloom Townships, for domestic use by the town. Rates were not unreasonable, but were sufficiently high to prevent successful competition with Findlay and Bowling Green in attracting industry. Because of this, the municipality obtained permission from the Legislature to establish a municipal gas plant in Fostoria. Properties were obtained, mainly in Perry and Washington Townships, with a few small tracts in Bloom Township. Wells were soon drilled on these acreages, and a six-inch pipe-line, nine miles in length, was laid, including a "belt-line" around the corporation. Immediately thereafter, gas was offered to manufacturers practically free of charge, with grants of land and in some cases stock-subscriptions thrown in. Before long, the expected wave of prosperity began to materialize.

The production of glass proved to be the most popular use for natural gas, in Fostoria as in Bowling Green and Findlay.[17] By the latter part of 1887, three glass companies had established themselves; and by the autumn of 1890 this number had been increased to seven. Among these producers was the Fostoria Glass Company, long since removed from northwestern Ohio, but which became famous at that time for the manufacture of "Fostoria Ware", an exceedingly high quality table ware. Others dependent on the line in addition to the

glass factories were a milling company, the electric light works, a buggy manufacturer, three lime kilns, two brick-and-tile yards, and several small machine and woodworking shops. The total amount of natural gas used daily in manufacturing in Fostoria was estimated by Professor Orton, State Geologist of that time, at not less than 7,000,000 feet. Of this amount, the glass interests used some 5,500,000 feet. During this period, the population of the town increased from an estimated 3,700 in 1885 to 7,070 in 1890.[18]

Tiffin began to drill in 1885, about a year after the Findlay discovery. The first well, which reached the Trenton limestone in January 1886, was unsuccessful, and the enthusiasm of the prospectors was temporarily dampened. But shortly thereafter, the well of Loomis & Nyman, a local machine shop firm, was drilled in the center of the town. It responded with an estimated 60,000 cubic feet of gas daily, enough to supply three or four boilers, and spirits rose again.[19] Tiffin soon proved to be situated directly above a gas reservoir of undetermined size, and a number of other wells were drilled in the hope of finding really important gas accumulations. Unfortunately, this apparently favorable situation proved only temporary. Though drilling was carried forward energetically in 1886 and 1887, no gas lands were discovered beyond the comparatively restricted and shallow reservoir directly beneath the town. After only a few weeks of open flow, the Tiffin wells without exception began to produce oil or saltwater, or both, instead of dry gas. An occasional well brought in two or three barrels of oil per day, but the amounts were too small to pay the cost of further drilling.

Even before optimistic drillers had become finally discouraged about the prospects at Tiffin, gas had been introduced to the town from Hancock County through the pipes of the Tiffin Natural Gas Company, a subsidiary of the Northwestern Ohio Company. Gas was offered to domestic consumers and

manufactories alike, but the rates were too high to permit Tiffin to compete successfully with other centers in which the fuel was municipally owned. The inevitable result folowed: pubic ownership of a gas supply was urged and adopted almost unanimously. The city gas Trustees at once obtained rights to prospective gas lands, mainly in Bloom and Perry Townships in Wood County. Unfortunately, $20,000 expended on some 1,200 acres in Perry Township was largely lost because of the tendency of the wells there to produce oil and salt water along with the gas. However, from other areas enough gas was obtained to supply a number of industries.

The city laid a pipe-line approximately nineteen miles in length, from the Wood County fields, and at once began to offer free fuel along with "other necessary inducements." By 1890, nearly $250,000 had been expended by the Trustees, but meanwhile the investments had begun to show returns. For by 1890, more than thirty manufactories of various sizes were dependent on the city lines. Three comparatively large glass plants had come to Tiffin, with an aggregate capacity of sixty-five pots, or about two-thirds the volume produced in Fostoria at that time. Other interests on the lines were three brick-and-tile yards, a pulp and paper works, two flour mills, a nail factory, several machine shops, and a number of others. Between 1885 and 1890, due at least in part to the advent of natural gas, the population of Tiffin increased from an estimated 8,000 to 10,801.[20]

Toledo experienced no such prosperity in connection with the Trenton gas fields as did the above-named smaller centers. For a time Toledo was forced to content itself with the services of the Northwestern Ohio Natural Gas Company. Finally, in 1889, permission was granted by the Legislature to establish a municipal gas plant, but here the City Trustees encountered the powerful opposition of the private concern, backed by the immense wealth of the Standard Oil. It can only be stated

here that Toledo succeeded finally in piping gas from the Wood and Hancock County fields, but with an ultimate immense loss to the taxpayers of Toledo. As a result of a long period of litigation, the city's gas bonds failed to sell; and when the dispute was finally settled in favor of Toledo in the courts, it developed that the gas reservoirs were being rapidly exhausted. Hence, except in the field of domestic consumption, plus a few factories already in Toledo that switched to the new fuel, that city gained very little from the discoveries.

The reserves of natural gas had been opened originally by private interests, with the intention of supplying the fuel to domestic consumers for heat and light. Rates were set at approximately two-thirds the cost of possible substitutes, a figure which left a substantial profit to the producer and at the same time represented a real bargain to the buyer. The widespread nature of the reserves, however, prevented the establishment of any practical monopoly. The owners of certain small manufactories, particularly those engaged in lime-burning, soon had drilled wells on their own properties, and demonstrated the superior qualities of natural gas as an inexpensive and convenient industrial fuel. The experience of these producers led to the movement to supply manufacturing industries on a large scale; and after the success of Findlay in attracting enterprise from elsewhere through municipal donations of free fuel, other towns in the area, in order to compete, were obliged to follow suit.

In the industrial use of natural gas, four industries were of outstanding importance. They were glass-making, iron-working, clay-working, and lime-burning. Each of these was attracted because fuel consistently represents a major cost of production in that respective industry.

The glass industry was one of the first to arrive with the expanding development of the Trenton gas fields, and Northwestern Ohio soon boasted a major concentration in this line.

The advent of free fuel had represented an important revolution in the localization of the industry. Prior to the discoveries of natural gas at Findlay, the chief centers of production in the Mississippi Valley had been in western Pennsylvania, West Virginia, and southeastern Ohio. Just as fuel resources in these sections were showing signs of weakness, the Trenton fields were opening up; hence a strong and natural movement of this type of capital and labor toward Northwestern Ohio and Indiana.[21] The move was facilitated by the character of the industry, which required a maximum of manual skill and a minimum of heavy equipment.

At the peak of the boom, there were approximately 500 glass pots in operation in Northwestern Ohio; around 175 devoted to the manufacture of window glass, and more than 300 for the production of table ware, lamps, and chimneys. The total annual consumption of natural gas by this one industry was estimated to be in the neighborhood of 6,750,000,000 cubic feet per year, "an amount sufficient for the fuel demands of a population of 100,000 people for a year."[22] Just as the glass industry was the largest user of gas, however, so was it the source of a great deal of the prosperity associated with the natural gas development. The glass factories provided profitable employment for large numbers of people. Much of the labor was highly skilled and commanded high wages.

An important portion of the natural gas was diverted to the manufacture of iron. Unlike the glass industry, however, large numbers of iron working plants were not attracted to the new fuel, due probably to the difficulty of transplanting anything so massive as a well established iron plant. Findlay was the only center near the field that attracted manufactories of iron products to any substantial degree; and even in Findlay most of the plants were small in size compared to those in such centers as Pittsburgh or Wheeling. In other localities, use of

the gas in this industry was mainly restricted to plants that were on the ground prior to the boom.

Iron processing, per manufactory, proved to be the greediest of all consumers. Measurements were made in Findlay of the amount of gas consumed in the Briggs Works, which operated sixteen puddling furnaces, one heating furnace, and a battery of boilers. At a conservative estimate, the consumption by the mill was indicated to be more than 4,000,000 cubic feet per day. At this rate, this plant alone was using nearly 1,500,000,000 cubic feet per year.[23]

Clay-working was one of two industries on this list that was indigenous to northwest Ohio. Drain tiles had long been in demand in the lake-plain region for use in the reclamation of potentially fertile but low-lying areas. Building brick as well had long been produced, the raw material for these products being abundantly found in the heavy glacial clays of the region. Previous to the advent of natural gas, native timber had been used as fuel for the kilns. The wood, an otherwise wasted by-product of farm clearing, had for many years been plentiful, but bulky and difficult to transport. Gas proved so much less costly, and so much more convenient, that it early usurped the place of wood. Costs of production were sharply reduced, with the result that an expanded output soon found its way into outside markets, underselling the products of other sections. Clay-working became for a time extremely important in the economy of Northwestern Ohio, and one of the major consumers of natural gas.

Lime-burning was the other native industry that derived especial benefit from access to practically free fuel. Local resources of high grade magnesian limestones, extraordinarily free from impurities, had made this industry profitable in the pre-gas era, when wood was the chief fuel. The lime of Northwestern Ohio has long been considered to be of a quality

matching the best in the state. With access to free natural gas, costs were so sharply decreased that lime from Wood, Sandusky, Hancock, and Seneca Counties came for a time to dominate the markets as far away as Buffalo and Cincinnati.

In each industry of the foregoing group, the cost of fuel was a prime consideration in the location of the enterprise. The fact that manufactories in each of these lines were able to use free fuel in their processes was responsible in large measure for their success in this region. The advantage of free fuel more than overcame certain practical disadvantages inherent in their location in Northwestern Ohio at that time; as for instance, remoteness from large markets. In the light of their success and rapid development, the widespread waste and prodigal carelessness which accompanied the use of natural gas was nothing less than tragic. The ephemeral nature of the promising industrial development of 1885-1890 was in large part due to the misuse which hastened the exhaustion of the gas reserves.

Waste through ignorance and carelessness was early in evidence in the story of production in the field. Inexperience, plus lack of complete equipment resulted in the loss of great quantities of gas, particularly in the earlier wells. Some of these were allowed after drilling to run wide open while pipes and proper valves, etc., were sent for. In the period when competition for gas lands was at its height, the practice of subdividing leaseholds into minute parcels resulted in multiplying the number of wells, a situation which hastened the exhaustion of the field.

Beginning early in 1886, when the industrial boom began, the methods of advertising the strength and capacity of the field became a serious drain on its resources. The practice was developed of lighting several of the big wells each night for the edification of tourists and prospective home-seekers. The great Karg well, one of the largest in the field, was allowed

during the first several months of its history to pour out its vast volume unrestrained. A calculation made in 1887 indicated that at the very lowest estimate the waste from that single source alone had, up to that time, been not less than 1,500,000,000 cubic feet. Another source of extravagance was the lighting of the various towns and villages in or near the fields by means of torches placed at close intervals down the principal streets. These were allowed to burn night and day during most of the year—a loss of not less than 15,000,000 cubic feet per month in Findlay alone.[24]

Waste in the use of the gas was also widespread, on the part of both industrial and domestic consumers. The chief explanation for this lies in the fact that only after the greater proportion of the resources had been exhausted were suitable meters introduced for measuring the quantities consumed. Rates were based on the number of burners employed, or available, not on the quantity of gas actually use. This meant that for private dwellings it was often more convenient to open the windows than to shut off the gas. In industry, it mean that inefficient and outmoded furnaces and boilers remained in use long after they needed scrapping, after they had ceased to give economical performance. A very large proportion of industrial equipment was found in a survey to be in poor condition, and would surely have been replaced had the gas been sold by measurement.

The combination of intensive industrial use and prodigal waste proved in a very few years to be too much even for the tremendous accumulations of fuel in the Trenton formation. In Findlay, the Trustees had failed to provide for possible slackening of the supply by leasing lands outside of Findlay Township, being apparently convinced of the inexhaustibility of their local reserves. A policy based on such expectations was bound to end in disaster. As the winter of 1888-89 set in and the heavier drafts occasioned by cold weather were felt, com-

plaints were heard from several sections for want of adequate gas. A check showed salt water, along with some oil, to have invaded the pipes. When it was discovered that the bulk of the trouble had come from the Karg well, which had so far been the mainstay of the line, it became apparent, even to promoters, that the end of the local supply was at hand.

The Trustees managed, by leasing some 8000 acres in the northern part of the county, to gain a reprieve; but the shock checked and sobered the expansion of Findlay. Early in the '90's even the new supply proved insufficient, and the larger factories were dropped from the line. They were followed later by the smaller concerns, and by the turn of the century the gas was utilized only for domestic requirements. With the failure of the gas, there began a general exodus of industry. The larger glass factories soon had moved on to greener pastures, particularly in the Indiana fields; and many of the smaller enterprises had been forced out of business. The same tendency also was strongly evident in other industries.[25]

Other portions of the Trenton field duplicated Hancock County's record. In 1890 Bowling Green saw the end of gas in large volume. Fostoria and Tiffin shortly afterward found themselves unable to cope with the large demands of their own industries. Later, the powerful Northwestern Ohio Natural Gas Company met the same fate. This organization had entered the field early and obtained large contigous areas in the heart of the important Bloom Township field, which it had been able to protect from "over-drilling," and had further used all known techniques of prolonging the supply. But by 1902, though it still had some forty-five producing wells, the fuel obtained was barely enough to provide power for two oil-pumping stations of the Buckeye Pipe Line Company, another Standard Oil subsidiary.

Very few direct evidences of the gas boom remain today. Only in rare instances are the modern manufactories descended

from plants that sprang up or moved in at that time, though a number of concerns are still in operation that had been in the field prior to the gas discoveries. That is not to say that natural gas was unimportant in the development of Northwestern Ohio; indeed, it must be considered a major factor in the evolution toward the present landscape. Its influence, however, has been largely indirect.

First, the attraction of large numbers of people during the gas boom made for a more equitable distribution of the population of Ohio, which prevails today. Until that time, though a potentially productive area, Northwestern Ohio was comparatively sparsely populated. Today it compares favorably with other rural areas in the state.[26]

Second, the sudden influx of large amounts of capital from outside areas made an extensive program of land improvement possible, both in the towns and in the agricultural areas. Each center, during the boom, had carried out a program of civic improvement: streets were improved, sewers were laid, new water plants constructed, the schools expanded, and new homes and stores built. Steps were taken that might have waited for years without the advent of the industrial expansion. Similarly, the rural areas profited. With access to theretofore undreamed-of quantities of capital, it became possible to undertake the improvement and reclamation of farming lands on a large scale. As a result, the productive capacity of the region was multiplied. Finally, the increased industrial and commercial activity during the period necessitated the expansion of the transportation system, and the improvement of existing facilities.

In a word, the gift of natural gas, though itself temporary, went a long way toward providing Northwestern Ohio with the tools necessary to realize a more permanent prosperity based on the surface resources of the region.

NOTES

[1] Roderick Peattie, *Geography of Ohio, Ohio Geological Survey, Fourth Series, Bulletin 27* (Columbus, 1923), 10.

[2] *Commemoratie and Biographical Record of Wood County, Ohio. Its Past and Present* (J. H. Beers & Co., Chicago, 1897), 7.

[3] *Ibid.*, 8.

[4] H. S. Knapp, *History of the Maumee Valley* (Toledo, 1872), 500-615.

[5] *Report of the Geological Survey of Ohio* (Columbus, 1873-93), VI, 109.

[6] *Ibid.*, 110

[7] *Ibid.*, 111

[8] J. A. Bownocker, *The Occurrence and Exploitation of Petroleum and Natural Gas in Ohio, Geological Survey of Ohio, Fourth Series, Bulletin 1* (Columbus 1903), 34.

[9] W. D. Humphrey, *A Brief History of Gas and Oil in Findlay* (Findlay, 1940), 47-50.

[10] *Ibid.*, 54-67.

[11] *Compendium of the Eleventh Census*, 1890, Part I, 319.

[12] *Report of the Geological Survey of Ohio, op. cit.*, 156-162.

[13] Edward Orton, *First Annual Report of the Geological Survey of Ohio* (Columbus, 1890), 152-154.

[14] *Compendium of the Eleventh Census, op. cit.*, 331.

[15] *Report of the Geological Survey of Ohio, op. cit.*, 187-189.

[16] *Ibid.*, 201.

[17] Edward Orton, *First Annual Report, op. cit.*, 190-191.

[18] *Compendium of the Eleventh Census, op. cit.*, 328.

[19] Edward Orton, *First Annual Report, op. cit.*, 187-190.

[20] *Compendium of the Eleventh Census, op. cit.*, 328.

[21] Edward Orton, *First Annual Report, op. cit.*, 268.

[22] *Ibid.*, 272.

[23] *Ibid.*, 272.

[24] J. A. Bownocker, *op. cit.*, 36.

[25] *Ibid.*, 46.

[26] Guy-Harold Smith, "Population Map of Ohio for 1920," *Geographic Review*, XVIII, 427.

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