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UNDERGROUND MINES AND RELATED SUBSIDENCE POTENTIAL WHAT CHEER, IOWA

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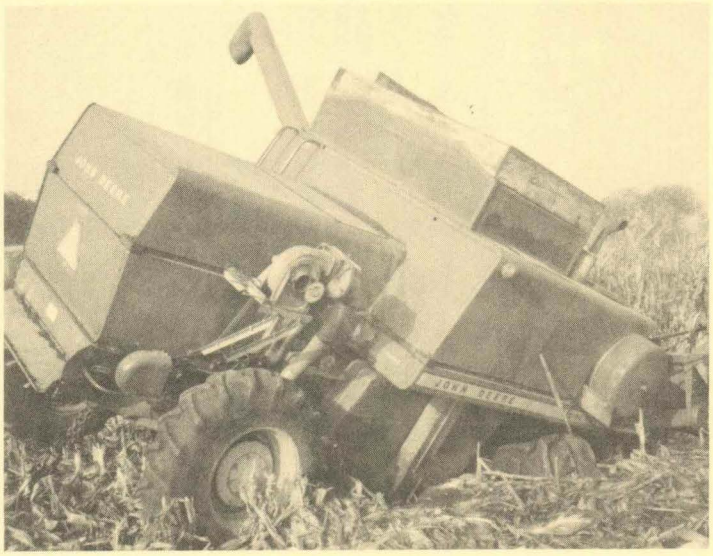

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Cover Photo: Pictured is a JD 7700 combine, belonging to Lyle Molyneux and Sons, that received extensive damage October 8, 1984. The incident occurred around noon when picking corn in a field northwest of What Cheer. The right front wheel fell into a sinkhole in an old mining area. No injuries were reported and after a wrecker pulled the combine out, it was driven home. *Courtesy:* What Cheer Patriot-Chronical, 10-11-84.

UNDERGROUND MINES

AND

RELATED SUBSIDENCE POTENTIAL

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ABSTRACT

A recent mine-subsidence related mishap in the What Cheer, Iowa vicinity is dramatic evidence for concern over the continuing problem of mine subsidence in Iowa. A large portion of the What Cheer community is undermined, however most mines cannot be accurately located. Sixty of the one hundred identified mines in the area are plotted or mapped. Subsidence, or collapse of surface materials into old mines in the What Cheer area, is primarily expressed as sinkholes or craters. Several subsidence events are documented, some with photos. A complete listing of the State Mine Inspectors' Reports is provided.

TABLE OF CONTENTS

Note: References cited in the text are noted using scientific notation (i.e., author(s) and year of publication) and number. This was done because of the extensive list of references used to document the mines. Primarily, these references are the State Mine Inspectors' Reports which are listed and numbered chronologically in the References. In the List of Mines, references are referred to simply by number.

LIST OF FIGURES

LIST OF PHOTOS

INTRODUCTION

In the fall of 1984 while picking corn northwest of What Cheer, Iowa, a combine fell into a mine-subsidence crater (see cover) above an old underground coal mine (What Cheer Patriot-Chronicle, 1984; No. 58). Fortunately, there were no injuries, but damage to the combine was estimated to be about $2,000, (John Molyneux, 1984, personal communication). The crater, estimated to be 6 feet across and 7 feet deep, is above a room of the What Cheer Coal Company D mine, about 70 feet below the surface where the combine toppled. For the Molyneux family, this was not the first time a mine-subsidence problem has interrupted field work near What Cheer.

This and other similar events are cause for continuing concern over the problem of subsidence of the land surface above underground mines in Iowa. Numerous subsidence events have been reported in and around What Cheer. To assist in the evaluation of subsidence events and to serve as a research base, this report was prepared from extant coal mine information. The area of study was restricted to the community of What Cheer and the immediate vicinity.

GEOLOGY

The mining district of What Cheer lies within the largest of several Pennsylvanian-age outliers in Keokuk County (Bain, 1894; No. 49). The Pennsylvanian strata had been deposited on an eroded, high-relief Mississippian surface. Post-Pennsylvanian erosion subsequently reduced the areal extent of these rocks in Keokuk County. The Pennsylvanian rocks of the What Cheer area can be traced westward into northeastern Mahaska County (Iowa Geological Survey, 1969; No. 52) where they are thin and lack mineable coals. Bain (1894; No. 49) suggests that the irregular Mississippian surface provided localized basins where thicker shale and coal were deposited and eventually

preserved, thus accounting for isolated coal producing districts like the What Cheer area.

The coal mined in the What Cheer area was from the Lower Cherokee Group, Des Moines Series (Landis and Van Eck, 1965; No. 53), although the specific seam could not be identified. Recent work by the IGS (see figure 1) suggests that the coal was from either the Floris Formation or the Kalo Formation of the Cherokee Group, Des Moines Supergroup (Ravn et al., 1984; No. 57). Bain (1894; No. 49) states that only one seam was mined. More than one coal seam may be present (M. Patrick McAdams, 1984, personal communication), however local variations in thickness may have made only one seam economically mineable at any given location. Generally, only coals between four feet and seven feet thick were mined. The average thickness of mined coals is estimated to be five-and-a-half feet in the What Cheer area.

MINING

Coal mining in Keokuk County began before 1870, however, significant production was not attained until the 1880s. Reported production increased ninefold from 49,000 tons in 1880 to 463,000 tons in 1881. Production peaked in 1887 with nearly 671,000 tons. A gradual decline followed, and production fell below the 1880 level in 1904 and only averaged 17,500 tons annually over the next decade. Sporadic production continued until the mid-1960s. Underground mining dominated the 90-plus year history of mining in this area.

While mining occurred in four areas of Keokuk County, the majority of mining took place in the What Cheer area. Landis (1965; No. 53) estimated that 93 to 95 percent of the original reserves of Keokuk County were located in this area.

Approximately 100 mines have been identified in the What Cheer area from

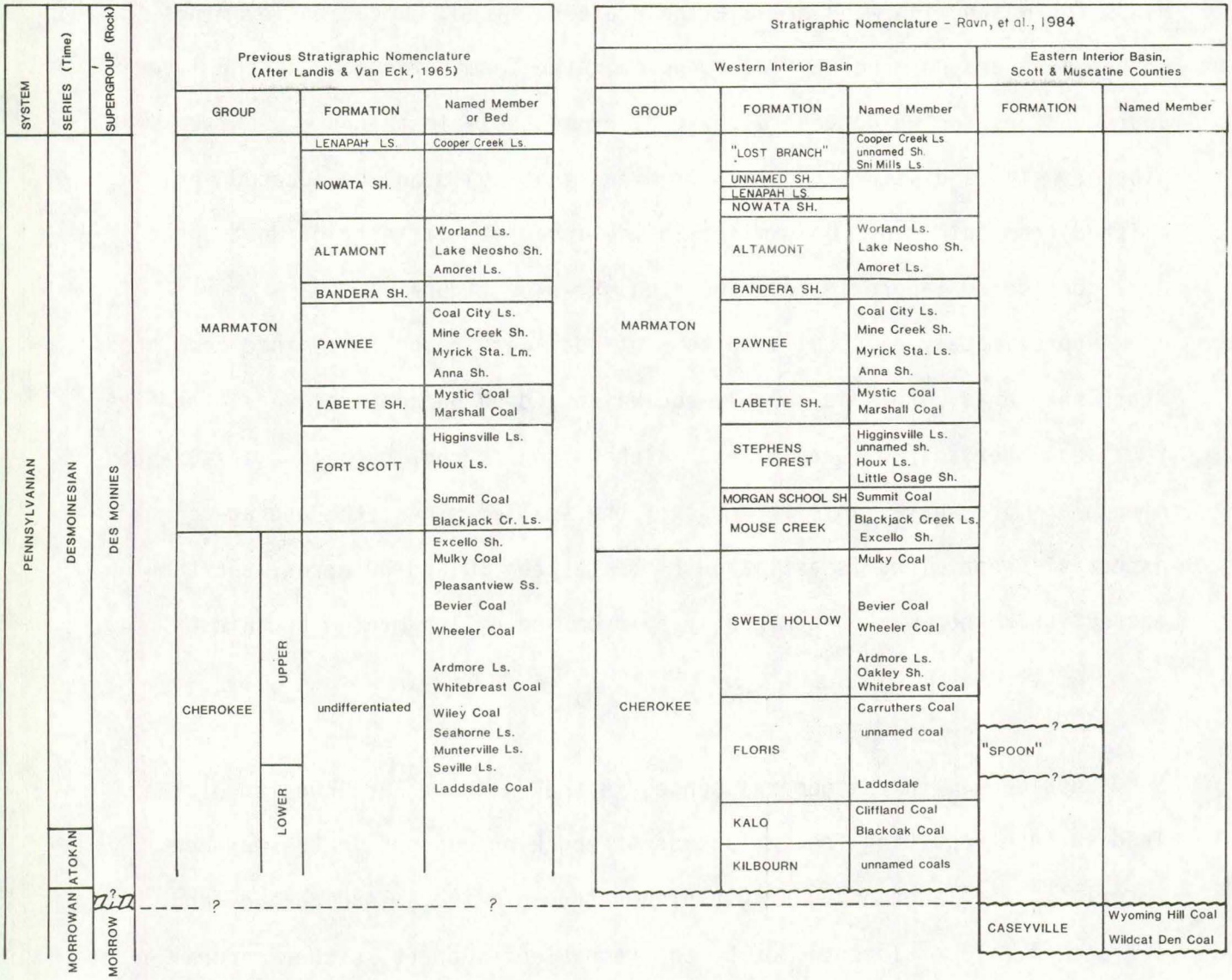

Figure 1. Stratigraphy of the Des Moines Supergroup.

historic records (see List of Mines). Undoubtedly, there were numerous other mines which were not recorded because of minor production or few employees. Of these 100 mines, 60 were located. Their locations are shown on figure 2. Mines for which mine maps are available are outlined. Locations of mines for which there are no mine maps were approximated from references in the literature. Mines for which general, vague, or multiple locations were given were plotted using a distinctive symbol. Mines that could not be located were omitted from this map. Only mines in the immediate vicinity of What Cheer were considered (approximately the area shown on figure 3).

Approximately eight million tons of coal were reportedly mined from the What Cheer area. This is roughly equivalent to 50 percent recovery of a five foot seam over 2 1/2 square miles. Although exact configuration, area, and mine plans are unavailable for most of the smaller mines, the average areal extent of these mines is estimated to be between 10 and 20 acres, and the extraction method was predominantly by room and pillar mining techniques.

SUBSIDENCE

Subsidence, in the general sense, is the "sinking" or lowering of the land surface resulting from a lack of strength or support in the surface materials. Subsidence can result either from placing a load on the land surface (i.e., settlement), or by the removal of support, either natural or man-made, from below the surface. In some cases, subsidence is subtle, and in others it is more dramatic and marked by the collapse of surface material into an opening underground. It is a potentially serious after-effect of underground coal mining. From the many incidents of mine-related subsidence in the United States and Europe it is clear that most areas with histories of underground coal mining have experienced or will experience subsidence.

In Iowa, two mining techniques were commonly employed: longwall mining and room and pillar mining. Longwall mining, the less common method, extracted 85 to 95 percent of the coal. Generally speaking, soon after the coal is removed, subsidence occurs because of the minimal roof support left behind. However, in Iowa, many longwall mines were "cribbed," that is, artificial support was provided for the roof along haulageways. The absence of roof support, therefore, was not uniform. Extraction rates in room and pillar mines was generally 40 to 60 percent, with natural coal pillars providing roof support. These mines collapse over an extended period of time as the roof and pillars fail.

Surface expressions of subsidence over room and pillar workings may be categorized into two general types: "crater-type," or sinkholes and "sag-type," or troughs.

Crater-type, or sinkhole subsidence features are small, round, or elliptical, steep-sided openings which often develop very rapidly. Their depth and dimensions are dependent on the size of underlying mine openings in the following way: they usually develop when small sections of the mine roof give way and the roof material "flows" into the mine. The collapse migrates upward, as more material flows downward and laterally into the mine; eventually the surface is breached. The crater which forms may be deeper than the original thickness of the coal. Craters which develop under or near structures may or may not cause serious structural damage, depending on the type of construction and location of crater with respect to major support components of the structure (DuMontelle et al., 1981; No. 55).

Sag-type, or trough subsidence features are characteristically larger than craters; they are slow-forming, broad, shallow, and often difficult to recognize. They result when the entire roof area of a mine opening moves

slowly downward as a unit because of failure of the pillars. The maximum amount of subsidence is equal to or less than the original thickness of the coal. The horizontal dimensions of the trough may be larger than the dimensions of the mine by a factor which is dependent on depth to the mine opening. The deeper the mine is, the broader the trough or sag will be at the surface. Trough subsidence is a gradual process in which tensional stress is exerted on the outer edge of the trough while compressional stress is exerted on the inner portion. Structures located on or near these stress locations usually sustain serious structural damage, sometimes even complete destruction (DuMontelle et al., 1981; No. 55).

There are a number of factors which are known to contribute to the type and severity of subsidence which occurs. Less competent material, such as soft shale and poorly-consolidated sandstone, above the mine opening may show a tendency to subside rapidly, forming craters, while competent overburden materials such as limestone, or hard shales or "slate" may tend to sag or not show any tendency towards collapse for decades after mining ceases.

Mine floor material which is not capable of supporting pillars or cribbing contributes to the phenomena known as "pillar punching," in which the roof supports push downward into the mine floor, thus removing the roof support. This type of roof collapse generally appears as shallow troughs at the surface.

The type of mine, either room and pillar or longwall, may determine the type and severity of subsidence features at the surface. In Iowa, the most serious subsidence problems seem to be associated with room and pillar mines.

The hydrologic conditions in the vicinity of mine openings may also affect the subsidence potential. Mines that are below a stable water table appear to be less likely to collapse. Where there are fluctuations in the

water table within the mine, the likelihood of subsidence appears to be increased.

The age of a mine may also be a factor affecting the rate of subsidence events. A study by a private consulting firm suggested that the number of subsidence events will accelerate to a certain level as the mine ages, then stabilize after an unknown period of time (GAI, 1977; No. 54).

Obviously, all of the factors which contribute to mine subsidence are inter-related. An assessment of one cannot be made while ignoring the others. Geologic and hydrologic conditions vary regionally as do mining techniques and histories. Although subsidence occurs by similar mechanisms in other areas, the exact nature and severity of the resulting problems will vary.

Subsidence, What Cheer

There have been numerous reported subsidence events in the What Cheer area, several of which are described below.

"At one time, a sinkhole let a house down east of the high school and it had to be raised. The house was later occupied . . ." (Mueller, 1965; No. 51). This incident occurred about 1930 in a block were only an old brick school house remained in 1981. The area is known to be undermined by the What Cheer Coal Co. F mine estimated to be 20 to 40 feet below the land surface.

About fifteen years ago a crater-type subsidence feature appeared in an alley in What Cheer. The hole was bell-shaped: one to two feet in diameter at the surface, but spread out to eight to ten feet in diameter underground. It was estimated to be about ten feet deep. The hole was later filled and the alley repaired, and there has been no evidence of further movement (Elmer Wagner, 1981, personal communication).

Approximately fourteen years ago, two craters opened in the paved road

(County Road G-29) 1/4 mile west of the fairgrounds (north of What Cheer). The craters were 15 to 20 feet in diameter and eight to ten feet deep, and required patching the entire width of the road (Kenneth Bucklin, 1980, personal communication). The county engineer stated that he believed the craters developed in response to lowered water levels in a strip pit located approximately 600 feet south of the road. Inspection of the road by the authors in 1980 revealed several layers of patching. This area overlies the western portions of the What Cheer Coal Co. "Starr A" mine.

An investigation of the area in 1980 also revealed the presence of three craters south of the road in the pasture. Photos No. 1 and 2 show a crater approximately 15 feet in diameter in the pasture. Photos No. 3 and 4 show a larger and deeper crater near a farm pond. This crater is approximately 25 feet in diameter and about five to six feet deep. Photo No. 5 shows typical slumping of the crater walls. These craters are typical of subsidence features observed elsewhere in Iowa.

In addition to the craters, the ground surface of the pasture was very hummocky, which although not definitely subsidence related, is suggestive of earth movements which may be related to the craters observed in the same field. This area is situated near the What Cheer Coal Co. "Starr A" mine. The approximate depth to the mine is 75 feet where six to eight feet of coal was mined.

A short distance southwest of this pasture, near a house built in 1978, is another area of active subsidence. During construction, a crater 20 feet in diameter and about ten feet deep was filled and the garage was built over one edge (Gary Rinderknecht, 1980, personal communication). Cracks with about 1/2 inch vertical displacement subsequently developed in the concrete garage floor. The house showed signs of settling with numerous small cracks and

Photo No. 1 Crater in pasture south of County Road G29, NE, NE, Sec. 9, T76N, R13W. View is roughly southeast.

Photo No. 2 Crater in pasture south of County Road G29, NE, NE, Sec. 9, T76N, R13W. View is roughly northeast.

Photo No. 3 Crater in pasture above farm pond, NE, NE, Sec. 9, T76N, R13W. View is roughly southwest.

Photo No. 4 Crater in pasture above farm pond, NE, NE, Sec. 9, T76N, R13W. View is roughly north.

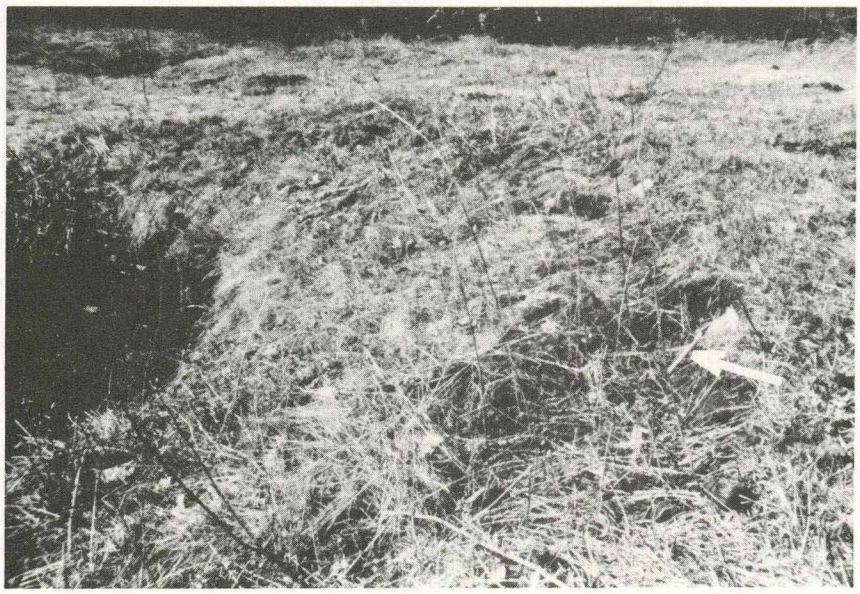

Photo No. 5 Slumping side of crater, NE, NE, Sec. 9, T76N, R13W. Note pen for scale at right. View is roughly west.

Photo No. 6 Water-filled crater, NW, NE, Sec. 9, T76N, R13W. View is roughly west.

several separations developing between interior walls and the ceiling.

Near the driveway and an outbuilding, an 8 by 12 foot dish-shaped depression about 2 1/2 feet deep was observed. Twenty feet from the northeast corner of the house there is a large, water-filled crater about 100 feet in diameter, and of unknown depth, which may be a collapsed mine shaft (Photo No. 6). The water level in this crater has been observed to fluctuate in conjunction with water levels in a nearby strip pit, estimated to be 40 to 60 feet deep. The hydraulic connection between the two probably exists beneath the house. Older residents of the area have reported that when the strip pit was in operation, some old underground mine works were "broken into," presumably along the north and east sides of the strip pit.

Although no caving of the sides of the large water-filled crater has been observed by the residents, field evidence suggests that slumping of the crater walls had taken place, probably just prior to the occupation of the house. Photo No. 7 shows submerged trees about 15 to 20 feet from the shoreline suggesting that the shore line receeded by at least this distance. Photo No. 8 shows the steep banks, an undermined tree, and ground cracks at the edge of the crater, indicating that slumping has occurred relatively recently and will occur again. Further slumping will probably jeopardize the house.

This subsidence activity has occurred in an area where the precise location and extent of the mines are unknown. The area lies just west of the What Cheer Coal Co. "Starr A" mine and east of the Keystone No. 1 mine. Either of these mines could be involved, or a third undocumented mine may lie between the two.

Not all damage to buildings can be attributed to subsidence (Bauer, 1983; No. 56). Many buildings in What Cheer exhibit structural damage which may or may not be subsidence related. Several buildings have stair-step fractures

Photo No. 7 Trees submerged within crater, NW, NE, Sec. 9, T76N, R13W. View is roughly west.

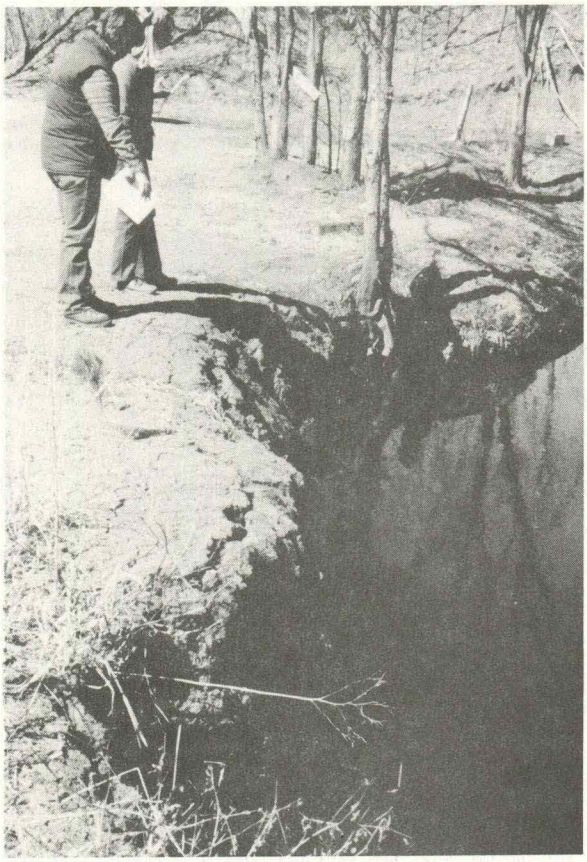

Photo No. 8 Undermined tree, steep bank, ground cracks on edge of water-filled crater, NW, NE, Sec. 9, T76N, R13W. View is roughly northwest.

which are indicative of settling. In many instances these cracks have been patched several times. A building near one of the documented subsidence incidents shows evidence of settling of as much as one foot relative to the street. Along the main street of What Cheer only a few original buildings remain, as the town has been leveled five times by fire and inundated by three major floods. It is also notable that the opera house, a historic landmark, shows no outward signs of damage.

Over an area marked as "old works" on the What Cheer Coal Co. F mine map, there are at least eight identifiable collapse features (craters) on the surface in an area about 100 feet by 50 feet. Photo No. 9 shows the most recent of these which developed in the spring of 1984 (M. Patrick McAdams, 1984, personal communication). Photo No. 10 shows arcuate fractures (beneath pencil in photo) which indicate that the crater has not yet stabilized. The crater is about seven feet in diameter, and varies from two feet to four feet deep.

Another collapse crater (Photo No. 11) approximately two years old (M. Patrick McAdams, 1984, personal communication), appears to have been partly filled. Other, apparently older and, at least currently, stable, craters pockmark the field. The layout of the mine is suggested by the regular spacing of these craters.

In an adjacent area no definite craters are present, however, the ground has an uneven "hummocky" appearance. This type of hummocky surface has been observed elsewhere in Iowa in areas of suspected subsidence.

Another suspected collapse crater occurs outside a root cellar (Photo No. 12). The wall adjacent to the surface crater is badly cracked and the floor is tilted down beneath and toward the crater (Photo No. 13).

In an area which is apparently outside the mapped boundaries of the What

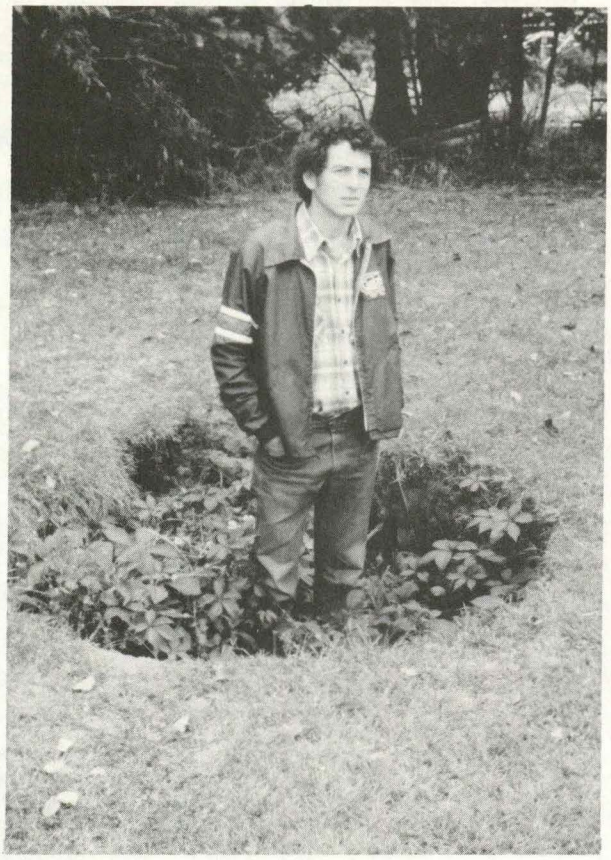

Photo No. 9 Crater above What Cheer Coal Co. F., SW, NE, SW, Sec. 10, T76N, R13W. View is roughly southeast.

Cheer Coal Co. F, a crater-like feature was observed during a field inspection on September 6, 1984. It remains to be seen if the feature is indeed related to collapse or is an incidental surface feature.

Some areas on the west side of town exhibit "irregular" ground topography, tilted foundations (M. Patrick McAdams, 1984, personal communication), damaged buildings, and repeated street repairs. Specific mines cannot be documented for these areas, although the William Blatt and Moline mines are thought to be within a quarter mile of the affected areas.

In areas above the What Cheer Coal Co. "Starr A" and the What Cheer Coal Co. F mines, there have been repeated water main breaks (Vicky Foster, 1984, personal communication). There are other areas, which may or may not be

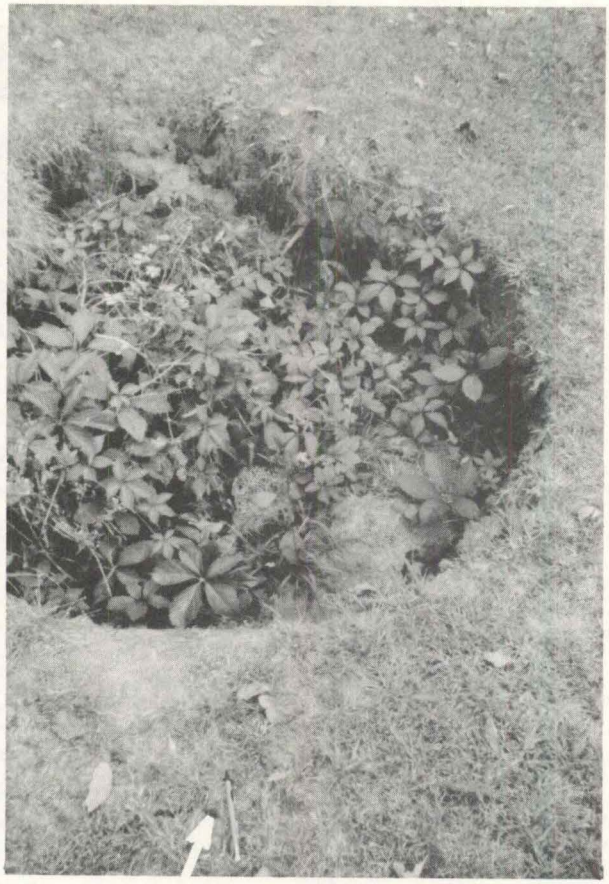

Photo No. 10 Fracture and crater above What Cheer Coal Co. F., SW, NE, SW, Sec. 10, T76N, R13W. View is roughly southeast.

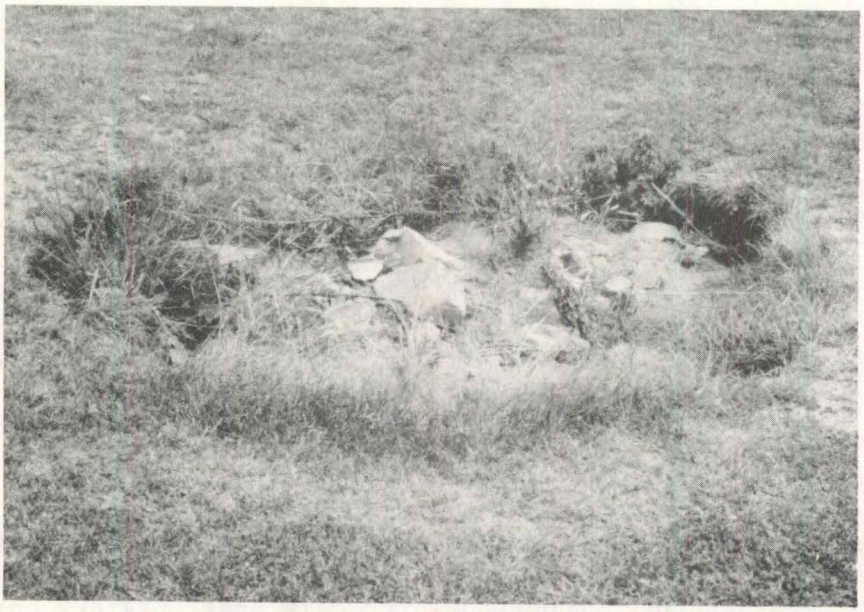

Photo No. 11 Crater above What Cheer Coal Co. F., SW, NE, SW, Sec. 10, T76N, R13W. View is east.

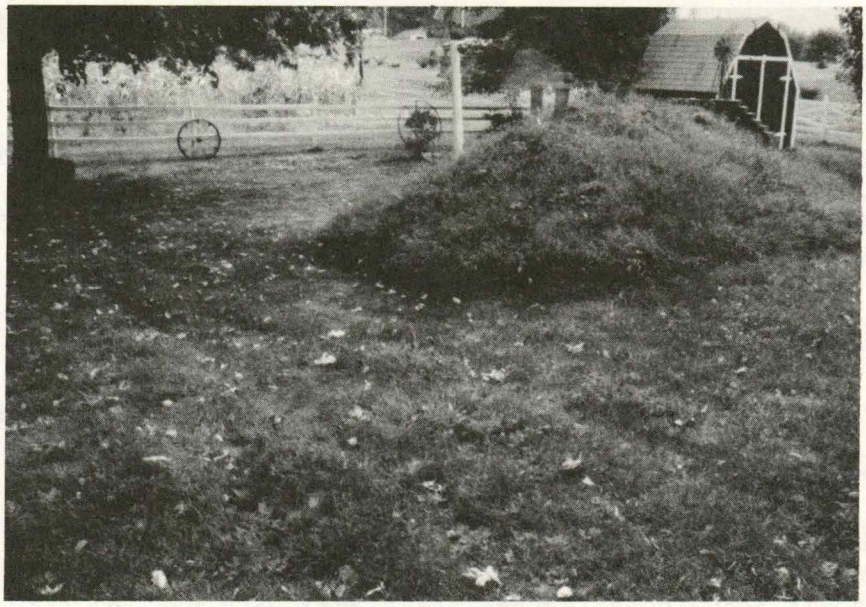

Photo No. 12 Crater at north end of root cellar, above What Cheer Coal Co. F., NE, NW, SW, Sec. 10, T76N, R13W. View is roughly southeast.

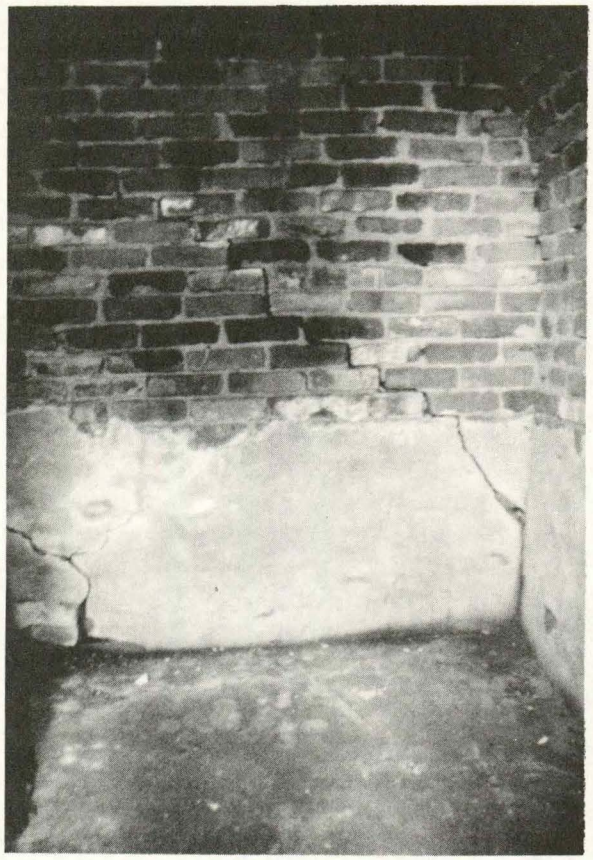

Photo No. 13 Interior of root cellar, north wall, above What Cheer Coal Co. F., NE, NW, SW, Sec. 10, T76N, R13W. View is north.

undermined, which also have had repeated water main problems. Mine maps are not available for the vast majority of identified mines in the What Cheer area.

In the rural areas surrounding What Cheer, as many as a dozen "shafts" per square mile have been reported to have "surfaced," most of which have been filled in the last 75 years. Most of these were reported to have very small disturbed areas on the surface. It is distinctly possible that a number of these openings may have been craters associated with the collapse of rooms, although inadequately filled hoisting or air shafts may have been the source of a few of the craters.

SUMMARY

1) A large portion of the What Cheer community is undermined.

2) Most of the mines cannot be accurately delineated because mine maps are not available.

3) Most mines cannot be located closer than a quarter-mile.

4) Mining may have occurred on more than one seam.

5) Many of the mines may be interconnected.

6) From known shaft depths, the depth to the mines varies from 17 feet to 155 feet.

7) The mines are most likely flooded.

8) Water table fluctuations in strip pits coincided with episodes of crater formation in a nearby road.

9) The area has a history of coal mine-related subsidence events, both in What Cheer and surrounding rural areas.

10) Old foundations, tree stumps, poor foundation support, soil piping, collapse of dug wells, sewer and water main leaks, cultivation practices, and landscape alteration may lead to conditions which can be mistaken for coal mine-related subsidence.

CONCLUSIONS

1) Coal mine-related subsidence will continue to occur in the What Cheer area.

2) The subsidence potential for any given area is difficult or impossible to predict because of the lack of precise information concerning mining history and geologic conditions.

3) Altering water levels in strip pits, or heavy pumping from shallow wells is not advisable.

4) New construction or remedial action to structures damaged by subsidence should be preceeded by site-specific research to determine if the site is undermined, what the depth to mine is, the subsidence history, if mine openings still exist, and other pertinent data.

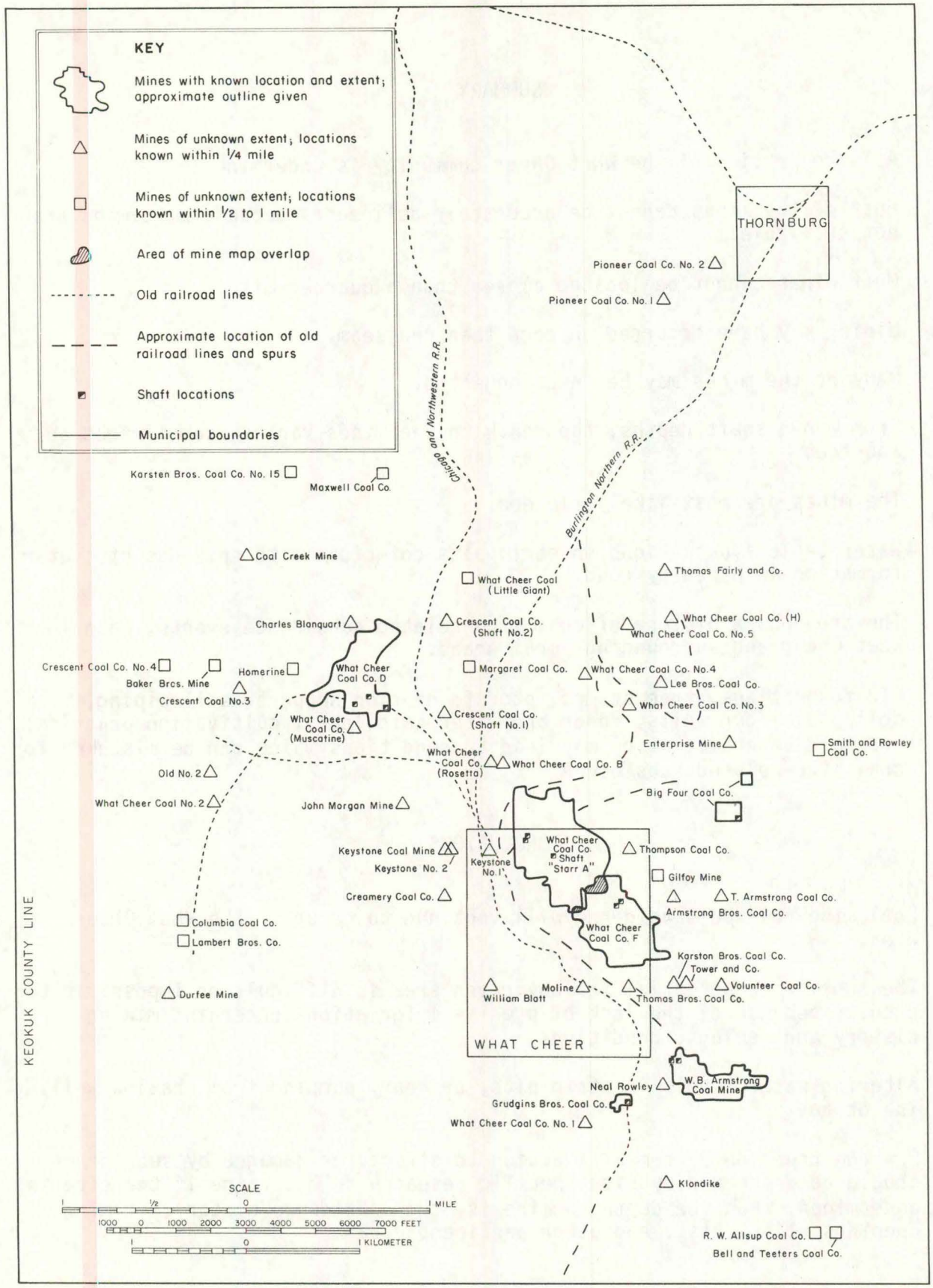

Figure 2. Map of underground mine locations, What Cheer Iowa.

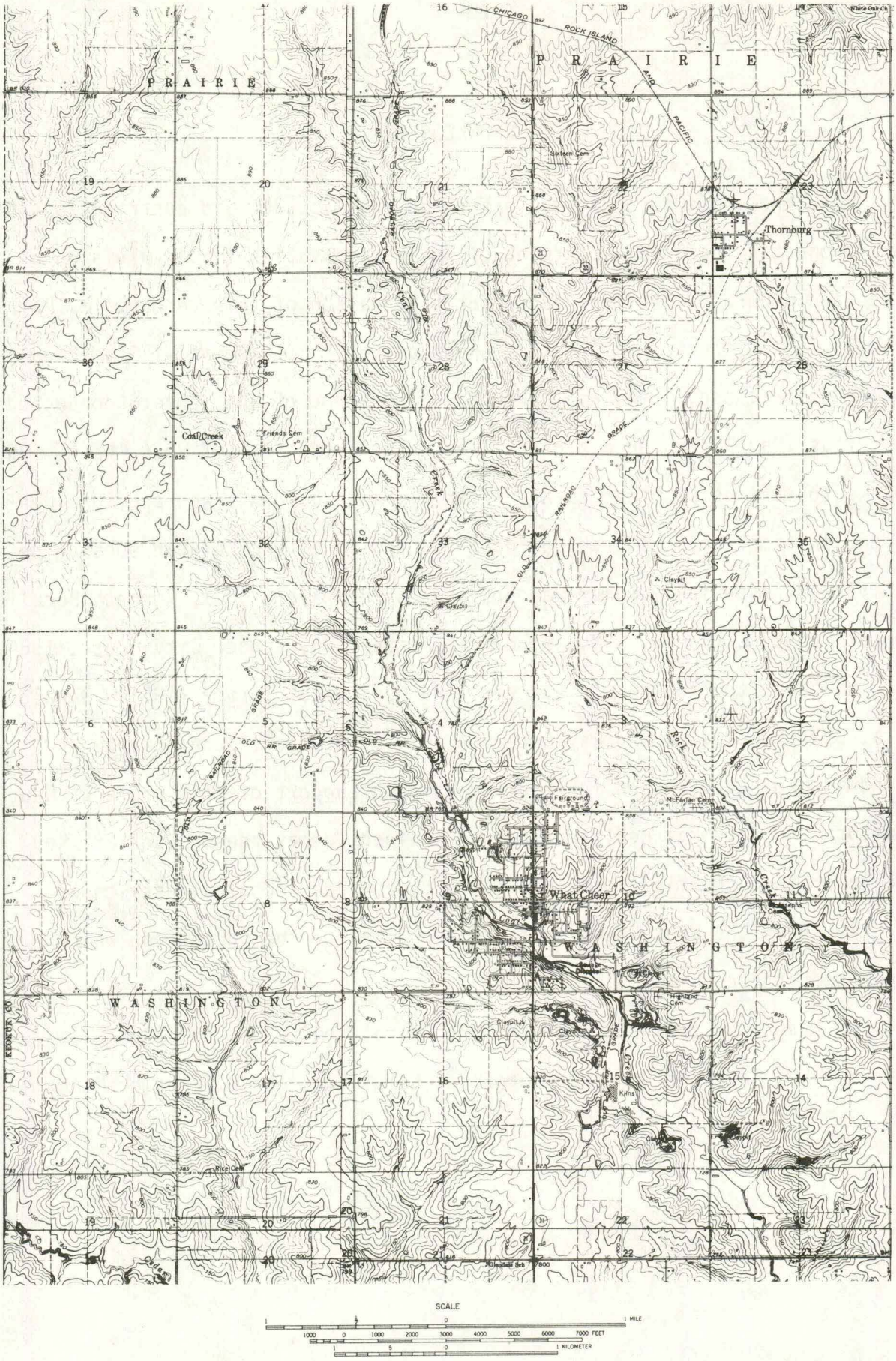

Figure 3. Topographic map of What Cheer and vicinity.

ACKNOWLEDGEMENTS

We acknowledge several people for their assistance and contributions to this project. The Iowa Department of Soil Conservation (DSC), Division of Mines and Minerals, provided funds for publication of this report. M. Patrick McAdams, an instructor in the Department of Earth Science at William Penn College (Oskaloosa, Iowa) and currently a resident of What Cheer, conducted one of us (Van Dorpe) on a personalized tour of the town of What Cheer. Our thanks to various city and county officials and residents who provided pertinent information or sources of data for the mines and related subsidence activities, especially Elmer Wagner, What Cheer Mayor, 1981, Kenneth Bucklin, Keokuk County Engineer, 1980, and Vicky Foster, What Cheer City Clerk, 1984.

We thank the following from the Iowa Geological Survey (IGS): Donald Koch, State Geologist and Ray Anderson, Division Chief, Stratigraphy and Economic Geology Division for their continued support of this project; Laurie Comstock and Mary Pat Heitman typed and helped format the manuscript; Kay Irelan drafted the mine locations map and provided technical assistance.

We thank the What Cheer Patriot-Chronicle for the photograph which appears on the cover.

We thank the following for their critical review of the manuscript: Dan Chargo, DSC; Ray Anderson and George Hallberg, IGS; and M. Patrick McAdams.

LIST OF MINES

1. Name(s): R.W. Allsup Coal Co.

   Location(s): 3 miles north of Delta.

   Opened: pre 1901 Abandoned: post 1901
   Shaft:
   References: No. 11 p. 44.

   Comments: This is the only reference. This mine is located.

2. Name(s): Armstrong Bros. Coal Co.

   Location(s): SW, NE, Sec. 10, T76N, R13W.

   Opened: 1982 or before Abandoned: post 1912
   Shaft:
   References: No. 7 p. 49, 56; No. 11 p. 44, 63; No. 15 p.81; No. 16 p. 51; No. 17 p. 64; No. 49 p. 297, 299; No. 50 p. 288, 483.

   Comments: The depth to the coal seam is estimated in places to be 20' to 25'. Two locations are given indicating references to two separate mines. However, ambiguity exists between the various names. This mine is located.

3. Name(s): T. Armstrong; Thomas Armstrong

   Location(s): SE, NE, Sec. 10, T76N, R13W.

   Opened: 1982 or before Abandoned: post 1912
   Shaft:
   References: No. 7 p. 49, 56; No. 11 p. 44, 63; No. 15 p.81; No. 16 p. 51; No. 17 p. 64; No. 49 p. 297, 299; No. 50 p. 288, 483.

   Comments: The depth to the coal seam is estimated in places to be 20' to 25'. Two locations are given indicating references to two separate mines. However, ambiguity exists between the various names. This mine is located.

4. Name(s): Armstrong Coal Mine; W. B. ("Bud") Armstrong's shaft; also called Soupbone

Location(s): NW, NE, Sec. 15, T76N, R13W.; 1/2 mile southeast of What Cheer; 1/4 mile NE of What Cheer Coal Co. #1.

Opened: 1888 Abandoned: 1893
Shaft: depth(s) 41', 44', 45'; elevation 766'
References: No. 5 p. 86, 106-107; No. 6 p. 68-69, 75; No. 7 p. 49, 56; No. 48 p. 362; No. 49 p. 297.

Comments: Coal thickness varied between 4' - 6 1/2'. A mine map is available. This mine is mapped as "Armstrong Coal Mine." Another "Armstrong Mine" map is available, however it cannot be accurately located.

5. Name(s): Baker Bros.

Location(s): 2 1/4 miles NW of What Cheer on C. & N.W. R.R.

Opened: circa 1900 Abandoned: post 1901
Shaft:
References: No. 11 p. 38, 44, 63; No. 51.

Comments: Possibly known as Phillips and Baker (reference No. 51), a small mine. This mine is located.

6. Name(s): Bell and Teeters

Location(s): 3 miles north of Delta

Opened: pre 1901 Abandoned: post 1903
Shaft:
References: No. 11 p. 44; No. 12 p. 59.

Comments: This mine is located.

7. Name(s): Big Four Coal Co.

Location(s): SE, SE, SE, Sec. 3, T76N, R13W and SW, SW, Sec. 2, T76N, R13W.

Opened: 1920 or before Abandoned: post 1927
Shaft:
References: No. 21 p. 46; No. 22 p. 36; No. 23 p. 81; No. 24 p. 84; No. 25 p. 45.

Comments: Two mine maps are available. These mines are mapped.

8. Name(s): Charles Blanquart

Location(s): SE, SE, Sec. 32, T77N, R13W.

Opened: 1890 Abandoned: circa 1894
Shaft: slope
References: No. 6 p. 66, 76; No. 48 p. 363; No. 49 p. 298; No. 51.

Comments: Coal thickness 5 1/2' in 1891. Possibly known as Blanket. This mine is located.

9. Name(s): John Blatt

Location(s):

Opened: 1888 or before Abandoned: 1889
Shaft: 45'
References: No. 4 p. 85, 96-97, 106-107.

Comments: A small mine having a coal thickness 4 1/2' - 5 1/2'. Possibly same as John Blatt No. 1.

10. Name(s): John Blatt No. 1

Location(s):

Opened: 1884 or before Abandoned: post 1887
Shaft:
References: No. 3 p. 54; No. 4 p. 85, 88.

Comments: Possibly same as John Blatt.

11. Name(s): John Blatt No. 2

Location(s):

Opened: 1886 or before Abandoned: post 1887
Shaft:
References: No 4 p. 88.

Comments:

12. Name(s): William Blatt; Black Diamond

Location(s): SW, SE, Sec. 9, T76N, R13W; approximately one mile east of What Cheer Coal Co. #3 in approximate W. Sec. 2, T76N, R13W.

Opened: 1890 or before Abandoned: post 1901
Shaft: slope in 1899 about 70' depth; 40' depth; 33' shaft in 1894.
References: No. 6 p. 77; No. 7 p. 49, 57; No. 8 p. 48-49; No. 9 p. 34, 39; No. 10 p. 26; No. 11 p. 38, 44, 63; No. 48 p. 361-362; No. 49 p. 298, 299; No. 51.

Comments: In 1891 operated by John Blatt, 6' coal. In 1893 operated by William Blatt. IN 1897 airshafts and other openings were constructed. In 1894 6' coal worked. "Black Diamond" name used for both locations. "William Blatt" name believed to be synonomous with "Black Diamond" after 1893. Either the "Sec. 2" location is in error, or the same company operated two locations. Reference No. 51 places this mine near the southeast edge of What Cheer. This is believed to be incorrect. This mine is located in Sec. 9 only.

13. Name(s): Fred Carl

Location(s): Cory

Opened: 1891 or before Abandoned: post 1891
Shaft: 116'
References: No. 6 p. 76.

Comments: 6' vein worked. Cory may be the location of their mailing address, not the mine's location.

14. Name(s): Carson Bros. Coal Co.

Location(s):

Opened: 1907 or before Abandoned: post 1925
Shaft: shaft prior to 1920; slope post 1921
References: No. 15 p. 81; No. 17 p. 51; No. 17 p. 64; No. 18 p. 80-81; No. 19 p. 54; No. 20 p. 61; No. 22 p. 36; No. 23 p. 81; No. 24 p. 84.

Comments:

15. Name(s): Cedar Rapids Coal Co.

Location(s):

Opened: 1889 or before Abandoned: 1889
Shaft:
References: No. 10 p. 26-28.

Comments: Cedar Rapids Coal Co. operated mines on the B.C.R. & N. R.R. E.M. Trescuth was superintendent, formerly superintendent of What Cheer Coal Co. Possibly Cedar Rapids Coal Co. is successor to What Cheer Coal Co.

16. Name(s): Chew (No. 1); J.S. Chew No. 1; Robert Moffet (No. 1)

Location(s):

Opened: 1884 or before Abandoned: post 1887
Shaft:
References: No. 3 p. 54; No. 4 p. 85, 88, 95.

Comments: Apparently the Moffet mine was called Chew from 1886 on.

17. Name(s): Coal Creek Mine

Location(s): Near Coal Creek in west section 32, T77N, R13W.

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: This is the only reference found. This mine is located.

18. Name(s): Cochran and Chew

Location(s):

Opened: 1886 Abandoned: April, 1890
Shaft: 50'
References: No. 4 p. 88; No. 5 p. 86, 96-97, 106-107; No. 6 p. 65, 68.

Comments: 4 1/2' vein worked; probably abandoned due to destruction of shaft by fire in April either 1889 or 1890.

19. Name(s): Columbia Coal Co.; Columbian Coal Co.

Location(s): On a switch from the C. & N.W. R.R. to Wapaluka; 2 miles west of What Cheer.

Opened: 1896 or before Abandoned: post 1901
Shaft:
References: No. 9 p. 33; No. 10 p. 26-28; No. 11 p. 37, 44, 63.

Comments: In 1897 the mine was supposedly about worked out, however in 1899 it was reportedly one of the three largest, and in 1901 was called a very good producer. The mine is located.

20. Name(s): County Line Coal Co.

Location(s):

Opened: 1932 or before Abandoned: post 1934
Shaft: strip mine
References: No. 28 p. 42.

Comments:

21. Name(s): Cowan

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: A small mine possibly related to What Cheer Coal Co. as J. A. Cohen was superintendent of What Cheer Coal Co. in 1908-1910.

22. Name(s): Creamery Coal Co.

Location(s): SE, NW, Sec. 9, T76N, R13W.

Opened: 1980 or before Abandoned: post 1917
Shaft:
References: No. 17 p. 64; No. 18 p. 80-81; No. 19 p. 54; No. 20 p. 61; No. 50 p. 288.

Comments: This mine is located.

23. Name(s): Crescent Coal Co. (Shaft #1); Crescent Coal Co.; Cory Mine (No. 1)

Location(s): SE, NW, Sec. 4, T76N, R13W.

Opened: 1882 or before Abandoned: 1894
Shaft: 78'; 72', elevation 820'; 140' (Cory Mine)
References: No. 2 p. 17; No. 3 p. 54; No. 4 p. 85, 88, 91; No. 5 p. 82, 85, 96-97, 106-107; No. 6 p. 75-76; No. 7 p. 49, 56; No. 8 p. 48-49, 56; No. 9 p. 33-34, 39; No. 10 p. 26-28; No. 11 p. 44, 63; No. 49 p. 284, 298; No. 50 p. 555; No. 51.

Comments: Many references refer to the Crescent Coal Col and do not distinguish between the various shafts. References to the Cory Mine are No. 2, No. 3, and No. 49 p. 298. Coal thicknesses reported generally 5' - 7' possibly up to 10'. Apparently Crescent Coal Co. took over two mines in 1885, one of which was probably the Cory Mine, which were then exhausted in 1894. The Crescent Coal Co. continued operations with several different shafts until about 1901. One reference quotes four mines in operation in 1901 although at least two of their major shafts were abandoned prior to then. Several references give location data for the Crescent Coal Co. which refer to more than one of their different shafts. This mine is located.

24. Name(s): Crescent Coal Co. (Shaft #2); Crescent Coal Co.; Vulcan

Location(s): SE, SW, Sec. 33,T77N, R13W; SW, SW, SEc. 33, T77N, R13W. Reference No. 48).
R13W.

Opened: 1884 or before Abandoned: 1893
Shaft: 109'; 103', elevation 826'
References: No. 3 p. 54; No. 4 p. 85, 88, 91; No. 4 p. 82, 85, 96-97, 106-107; No. 6 p. 76; No. 7 p. 49, 56; No. 48 p. 362; No. 49 p. 284, 298; No. 50 p. 555.

Comments: This mine is sometimes referred to as a second opening. Coal thicknesses are first reported to be 5' - 7', later 5' - 6'. It was also referred to as an important mine in the district. This mine is located.

25. Name(s): Crescent No. 3; Crescent Coal Co.; Cheyenne

Location(s): NW, Sec. 5, T76N, R13W; 1/2 mile west of What Cheer #4; 3 miles northwest of What Cheer on the C. & N.W. R.R.; from fair corner -- across line fence, at R.R. spur from switch north of What Cheer.

Opened: circa 1894 Abandoned: 1894
Shaft: depth 125'; 126'9"; elevation 845' (reference No. 51)
References: No. 48 p. 362; No 49 p. 298; No. 50 p. 555; No 51.

Comments: Referred to as an important mine in the district. This mine is located.

26. Name(s): Crescent Coal Co. No. 4; Crescent Coal Co.

Location(s): 2 1/2 miles northwest of What Cheer; 4 miles northwest of What Cheer on C. & N.W. R.R.

Opened: 1890 or before Abandoned: 1901
Shaft:
References: No. 6 p. 68; No. 11 p. 37, 44, 63; No. 49 p. 284; No. 50 p. 555.

Comments: Reference No. 49 indicates that 2 mines were sunk northwest of What Cheer. This mine was referred to as the best producer in the last few years before abandonment. There were supposedly 4 mines operating in 1901, the year of abandonment. This mine is located.

27. Name(s): Dalziel

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: A small mine.

28. Name(s): Dixson

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: A small mine possibly the Graham and Dixson Coal Co.

29. Name(s): Durfee Mine; Hildegard

Location(s): Merle Gatton farm, southwest of Lambert Bros.; 1 1/2 miles west of What Cheer; SE, SE, Sec. 7, T76N, R13W.

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: This mine is located.

30. Name(s): Eagle

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51.

Comments:

31. Name(s): Enterprise

Location(s): 1/2 mile north of McFarlan cemetery.

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: This is the only reference found. This mine is located.

32. Name(s): Evers and Egan

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: A small mine.

33. Name(s): Thomas Fairly & Co.; John Fairly and Co.; North Star Mine

Location(s): NW, SE, Sec 34, T77N, R13W; 2 miles north by east of What Cheer; 3 miles north on B.C.R. & N. R.R., 1/2 mile northeast of What Cheer No. 5.

Opened: circa 1888 Abandoned: post 1897
Shaft: 108', 90' depth; 105' elevation 828'
References: No. 5 p. 86; No. 6 p. 76; No. 7 p. 49, 56; No. 8 p. 48-49, 56; No. 9 p. 33-34; No. 48 p. 362-363; No. 49 p. 283, 297, 299.

Comments: The vein mined was 6' thick in 1889 and 1891. In 1894 the coal was at an elevation of 723'. The coal was loaded at Thornburg and the Post Office was Cory in 1891. In 1894 a large tonnage was shipped on the B.C.R. & N. R.R. This mine is located.

34. Name(s): Gilfoy Mine

Location(s): 3/4 mile northeast through town from Barnes St. bridge.

Opened: circa 1882 Abandoned:
Shaft: 70'
References: No. 51.

Comments: Owned by What Cheer Land and Coal Co., which is probably the What Cheer Coal Co. This mine is located.

35. Name(s): Graham and Dixson Coal Co.

Location(s):

Opened: 1902 or before Abandoned: post 1903
Shaft:
References: No. 12 p. 59.

Comments:

36. Name(s): Grudgings Bros.

Location(s): South of What Cheer.

Opened: 1898 or before Abandoned: post 1906
Shaft:
References: No. 10 p. 26, No. 11 p. 44, 63; No. 12 p. 59; No. 13 p. 77; No. 14 p. 66, No. 51.

Comments: May be related to Grudgins Bros. Coal. Co. (below), however there is significant hiatus in years of operation.

37. Name(s): Grudgins Bros. Coal Co.; Grudgins Coal Co.

Location(s): SW, SE, SE, NW, Sec. 15, T.76N, R13W.

Opened: 1932 or before Abandoned: post 1939
Shaft: either a slope mine or a strip mine
References: No. 28 p. 42; No. 29 p. 37; No. 30 p. 33; No. 31 p. 46.

Comments: In the 1932-1933 biennial period this mine was referred to as a strip mine; in the 1934-1935 biennial period this mine was referred to as slope mine. An underground mine map is available, dated 1938, showing a slope mine. This mine is mapped as Grudgins Bros. Coal Co.

38. Name(s): Halliday and Graham

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: A small mine.

39. Name(s): Hodgson

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: A small mine.

40. Name(s): Homerine; Hommerin and Son

Location(s): 2 miles northwest of What Cheer

Opened: 1900 or before Abandoned: post 1901
Shaft:
References: No. 11 p. 44, 63; No. 51.

Comments: A small mine which had connections with the C. & N.W. R.R. This mine is located.

41. Name(s): Karston Bros. Coal Co.

Location(s): SW, SE, Sec. 10, T76N, R13W.

Opened: 1904 or before Abandoned: post 1908
Shaft: 42' (1906 shaft)
References: No. 13 p. 77; No. 14 p. 66; No. 50 p. 288.

Comments: A 6' "slate" roof was more compact here than in the rest of the district. Apparently this mine was adjacent to some older workings, possibly Tower and Co. This mine is located.

42. Name(s): Karsten Bros. Coal Co. No. 15; Karsten Bros. Coal Co.

Location(s): 1/2 mile east of Coal Creek Corner, on the land of John Bayler Sr.

Opened: 1932 or before Abandoned: post 1943
Shaft:
References: No. 28 p. 42, No. 29 p. 37; No. 32 p. 40, 52; No. 33 p. 31; NO. 51.

Comments: There is a lack of references between 1935 and 1940, however the superintendent's name is the same, John Karsten; therefore the mines are probably the same. This mine is located.

43. Name(s): Keystone Coal Mine; Samuel Pasco; Pasco Brothers

Location(s): NE, NW, Sec. 9, T76N, R13W.

Opened: 1890 Abandoned: post 1891
Shaft: slope
References: No. 6 p. 66, 75; No. 51.

Comments: A 6' seam was worked. This mine may be related to the other Keystone mines. However different dates and references are given. This mine is located.

44. Name(s): Keystone No. 1; Keystone Coal Co.

Location(s): NW, NE, Sec. 9, T76N, R13W.

Opened: 1888 or before Abandoned: February, 1891
Shaft: 49' or 47'
References: No. 5 p. 85, 96-97, 106-107; No. 6 p. 65; No. 49 p. 297.

Comments: Coal mined was 6' - 7' thick. This mine may be related to the Keystone Coal Mine/Samuel Pasco/Pasco Brothers as S. Pascoe is the proprietor of this mine. However, a different location, references, and overlapping dates may indicate separate mines. This mine is located.

45. Name(s): Keystone No. 2

Location(s): NE, NW, Sec.9, T76N, R13W.

Opened: 1894 or before Abandoned: post 1894
Shaft: slope
References: No. 49 p. 297.

Comments: This mine may be related to the Keystone Coal Mine/Samuel Pasco/Pasco Brothers as they are both slope mines with the same given location. However references and dates given may indicate separate mines. This mine is located.

46. Name(s): Klondike

Location(s): S, Sec. 15, T76N, R13W.

Opened: 1898 or before Abandoned: post 1899
Shaft:
References: No. 10 p. 28; No. 51.

Comments: In 1899 this mine was one of the three largest. This mine is located.

47. Name(s): Joe Kunz

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: A small mine, possibly part of Moffat, Milbourn, and Kuhns Coal Co.

48. Name(s): George Ladd

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: A small mine.

49. Name(s): Lambert Bros. and Co.

Location(s): Northeast of Durfee Mine on C. & N.W. R.R.; 1 3/4 miles west of What Cheer; section 7 or 8, T76N, R13W.

Opened: circa 1898 Abandoned: post 1903
Shaft:
References: No. 10 p. 26; No. 11 p. 44, 47, 63; No. 12 p. 59; No. 51.

Comments: This mine is located.

50. Name(s): Lee Bros. Coal Co.

Location(s): North center Sec. 3, T76N, R13W.

Opened: 1907 or before Abandoned: post 1912
Shaft:
References: No. 15, p. 81; No. 16 p. 51; No. 17 p. 64; No. 50 p. 289, No. 51.

Comments: This mine is located.

51. Name(s): E. Lundy and Sons Coal Co.; (formerly) Klein Coal Co.

Location(s): North of W. Birney St. bridge.

Opened: 1964 Abandoned: 1965
Shaft:
References: No. 44 p. 10, 11, 14, 16.

Comments: Took over Klein Coal Co. with Silvers Coal Co. No previous reference to Klein Coal Co.

52. Name(s): Margaret Coal Co.

Location(s): One mile north of What Cheer.

Opened: circa 1900 Abandoned: post 1901
Shaft:
References: No. 11 p. 38, 44, 47, 63; No. 12 p. 59.

Comments:

53. Name(s): T. Mason

Location(s): East of What Cheer.

Opened: 1900 or before Abandoned: post 1901
Shaft:
References: No. 11 p. 44, 63; No. 51.

Comments:

54. Name(s): Maxwell Coal Co.

Location(s): One mile east of Coal Creek.

Opened: 1902 or before Abandoned: post 1910
Shaft:
References: No. 12 p. 59; No. 13 p. 77; No. 14 p. 66; No. 15 p. 81; No. 16 p. 51; No. 50 p. 289; No. 51.

Comments: This mine is located.

55. Name(s): E. Mayer and Son

Location(s):

Opened: 1894 or before Abandoned: post 1897
Shaft:
References: No. 8 p. 49, 56; No. 9 p. 34.

Comments:

56. Name(s): Moffat, Milburn and Kuhns Coal Co.; Moffat Milburn and Kuhne Coal Co.

Location(s):

Opened: 1904 or before Abandoned: post 1906
Shaft:
References: No. 13 p. 77; No. 14 p. 66.

Comments:

57. Name(s): Moline

Location(s): SW, SW, Sec. 10, T76N, R13W.

Opened: 1894 or before Abandoned: post 1894
Shaft:
References: No. 49 p. 297.

Comments: This mine is located.

58. Name(s): John Morgan Mine; John E. Morgan

Location(s): SW, SW, Sec. 4, T76N, R13W.

Opened: 1888 Abandoned: circa 1894
Shaft: slope 40' depth
References: No. 5 p. 85, 106-107; No. 6 p. 76; No. 48 p. 363; No. 49 p. 297, 299; No. 51.

Comments: In 1891 they mined a 5 1/2' seam. This mine is located.

59. Name(s): Hugh Murray

Location(s): North of What Cheer

Opened: 1900 or before Abandoned: post 1903
Shaft:
References: No. 11 p. 44, 63; No. 12 p. 59; No. 51.

Comments:

60. Name(s): Nelson Clay Products Co.; Nelson Coal Co.

Location(s):

Opened: 1958 Abandoned: post 1963
Shaft: strip mine
References: No. 41 p. 8, 10, 12; No. 42 p. 9, 12, 14; No. 43 p. 14, 18, 22; No. 51.

Comments: In 1963 the mine name is listed as Nelson Clay Products Co. rather than Nelson Coal Co.

61. Name(s): Newcomb Bros. Coal Co.

Location(s):

Opened: 1920 or before Abandoned: post 1925
Shaft:
References: No. 22 p. 36; No. 23 p. 81; No. 24 p. 84; No. 51.

Comments:

62. Name(s): Old No. 2

Location(s): 2 miles west of fairground corner; north side of H. Beeman farm.

Opened: prior to 1880 Abandoned:
Shaft: 111'
References: No. 51.

Comments: James Chew is listed as superintendent, indicating a possible relationship between this mine and the Robert Moffet/J.S. Chew mine. This mine is located.

63. Name(s): J. M. Olive; O. W. Olive

Location(s): On the B.C.R. & N. R.R.

Opened: 1898 or before Abandoned: circa 1901
Shaft:
References: No. 10 p. 26-28, No. 11 p. 47, No. 51.

Comments: According to references not listed above, this name also refers to a mine operated in Delta in 1895 and 1897 and in 1903. It is possible that the "Olive's" were superintendents of a mine in Delta prior to being superintendents in the What Cheer area, followed by a return to Delta; or, the local postal address was changed to Delta from What Cheer a couple of times.

64. Name(s): D. Peacock

Location(s): South of What Cheer.

Opened: 1900 or before Abandoned: post 1901
Shaft:
References: No. 11 p. 44, 63; No 51.

Comments:

65. Name(s): Perry and Walker

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: A small mine.

66. Name(s): Phillips Coal Co.

Location(s):

Opened: 1932 or before Abandoned: post 1935
Shaft: strip
References: No. 38 p. 42; No. 29 p. 37; No. 51.

Comments: Possibly also known as Phillips and Baker (reference No. 51), a small mine.

67. Name(s): Pioneer No. 1

Location(s): NW, NE, Sec. 27, T77N, R13W.

Opened: 1894 or before Abandoned: circa 1894
Shaft: slope
References: No. 49 p. 298, 299; No. 50 p. 555.

Comments: The 1984 reference refers to the "original mine" which was a "small slope . . . slope abandoned." This mine is southwest of Thornburg. This mine located.

68. Name(s): Pioneer No. 2; Pioneer Coal Co.

Location(s): SE, SE, Sec. 22, T77N, R13W; at Thornburg; 5 miles north by east of What Cheer; 2 miles north of North Star; in 1895 on the B.C.R. & N. R.R. 2 1/2 - 3 miles north of What Cheer.

Opened: 1888 or 1889 Abandoned: 1899
Shaft: 110'; 133'; 93'
References: No. 5 p. 85, 106-107; No. 6 p. 66, 76; No. 7 p. 49, 56; No. 89 p. 48-49, 56; No. 9 p. 33-34, 39; No. 48 p. 363; No. 49 p. 298, 299; No. 50 p. 555.

Comments: In 1888 and 1891 7' was worked, in 1893 and 1894 6' was worked. Several additional shafts were reported from 1890 to 1897. This accounts for the various reported shaft depths. Only general locations can be determined; i.e. south of North Star No. 1; north of No. 1 (assumed to be Pioneer No. 1). This mine is west of Thornburg. This mine is located.

69. Name(s): Neal Rowley

Location(s): 1/2 mile south of southeast edge of What Cheer; 1/2 mile below Thomas Bros.

Opened: 1888 or before Abandoned: post 1895
Shaft:
References: No. 5 p. 86; No. 8 p. 48-49, 56; No. 49; No. 51.

Comments: Reference No. 49 refers to a different Rowley mine not in the What Cheer area. Other references refer to a mine in Sec. 15, T76N, R13W. This mine is a small mine. An airshaft was added in 1895. This mine is located.

70. Name(s): Shirlow and Sons Coal Co.

Location(s):

Opened: 1913 or before Abandoned: post 1914
Shaft:
References: No. 18 p. 80-81; No. 51

Comments:

71. Name(s): Silvers Coal Co.; (formerly) Klein Coal Co.

Location(s):

Opened: 1964 Abandoned: 1966
Shaft: strip
References: No. 44 p. 10, 11, 14, 16.

Comments: Took over Klein Coal Co. with E. Lundy and Sons Coal Co. No previous reference to Klein Coal Co.

72. Name(s): Smith and Rowley

Location(s): One mile east of What Cheer No. 3, next to Black Diamond; approximately Sec. 2 T76N, R13W.

Opened: circa 1891 Abandoned: post 1894
Shaft:
References: No. 6 p. 76; No. 48 p. 362.

Comments: This mine is located.

73. Name(s): Standard

Location(s):

Opened: 1888 or before Abandoned: April, 1890
Shaft: 45', 47'
References: No. 5 p. 82, 84, 96-97, 106-107; No. 6 p. 65.

Comments: This seam varied from 4 1/2' to 6', averaged 5 1/2'.

74. Name(s): Thomas Bros. Coal Co.; John Thomas

Location(s): SE, SW, Sec. 10, T76N, R13W; southeast edge of What Cheer city limits (1895); a new mine on C & NW R.R. above Crescent (1897).

Opened: circa 1892 Abandoned: circa 1901
Shaft: slope; depth 33', elevation 728'.
References: No. 7 p. 49; No. 8 p. 48-49, 56; No. 9 p. 33-34, 39; No. 10 p. 26-28; No. 11 p. 47; No. 49 p. 297-299; No. 51.

Comments: Apparently in 1897 this mine sunk new air and other shafts and was called a new mine in 1897. This mine is located.

75. Name(s): Thompson Coal Co.; John Thomas

Location(s): NE, NW, Sec. 10, T76N, R13W; 1/2 mile northeast of What Cheer; on B.C.R. & N. R.R. (1899).

Opened: 1893 Abandoned: post 1899
Shaft: 44'
References: No. 7 p. 49, 57; No. 8 p. 48-49; No. 9 p. 34; No 10 p. 26-28; No. 49 p. 297; No. 50 p. 555.

Comments: In 1884, 6' of coal was worked. This mine is located.

76. Name(s): Toward Coal Co.; Toward Bros.

Location(s): 2 miles south of What Cheer on the C. & N.W. R.R. (1887).

Opened: 1886 or before Abandoned: post 1897
Shaft:
References: No. 9 p. 33-34, 39.

Comments: In 1897 an air shaft and other shafts were sunk.

77. Name(s): Tower and Co.

Location(s): SW, SE, Sec. 10, T76N, R13W; east of Thomas slope mine.

Opened: 1894 or before Abandoned: post 1894
Shaft: 53' depth, elevation 748'
References: No. 49 p. 283, 297, 299.

Comments: In 1894 the coal was at an elevation of 695'. This mine is located.

78. Name(s): Volunteer Coal Co.

Location(s): SE, SE, Sec. 10, T76N, R13W; 1 1/2 miles northeast of What Cheer.

Opened: circa 1900 Abandoned: post 1908
Shaft:
References: No. 11 p. 44, 47, 63; No. 12 p. 59; No. 50 p. 288.

Comments: In 1901 there was a B.C.R. & N. R.R. connection. In 1903 Thomas Thompson was superintendent indicating a possible relationship with the Thomas Thompson/Thompson Coal Co. This mine is probably the mine which supplied fuel to the Volunteer Brick and Tile Co. (reference No. 50). There may be two mines, one east of What Cheer and one northeast of What Cheer, however this is unclear. The mine east of What Cheer is located.

79. Name(s): Walker and Wilson

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: A small mine.

80. Name(s): Wappeluka No. 2.

Location(s): On county line, west of Durfeeville.

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: This is the only reference found.

81. Name(s): What Cheer Clay Products

Location(s):

Opened: 1936 or before Abandoned: post 1939
Shaft: strip
References: No. 30 p. 33; No. 31 p. 46.

Comments: Listed as a coal company in the State Mine Inspectors' reports.

82. Name(s): What Cheer Coal Co.; Starr Coal Co.; Little Giant

Location(s): 2 miles northwest of post office.

Opened: 1882 or before Abandoned: post 1886
Shaft: 61'
References: No. 2 p. 17; No. 35 p. 15; No. 51.

Comments: In 1883 this mine consolidated with Starr A, B, C, Rosetta, and Muscatine under Starr Coal Co. In 1886 the mines of the Starr Coal Co. and the Granger Coal Co. were acquired by the What Cheer Coal Co. This mine is located as What Cheer Coal Co. (Little Giant).

83. Name(s): What Cheer Coal Co.; Starr Coal Co.; Muscatine

Location(s): SE, NE, Sec. 5, T76N, R13W.

Opened: 1882 or before Abandoned: post 1894
Shaft: 80', elevation 792'
References: No. 2 p. 17; No. 35 p. 15; No. 49 p. 297; No. 51.

Comments: In 1883 this mine consolidated with Starr A, B, C, Rosetta, Little Giant under Starr Coal Co. In 1886 the mines of the Starr Coal Co. and the Granger Coal Co. were acquired by the What Cheer Coal Co. This mine is located as What Cheer Coal Co. (Muscatine).

84. Name(s): What Cheer Coal Co.; Starr Coal Co.; Rosetta

Location(s): NW, SE, Sec. 4, T76N, R13W.

Opened: circa 1882 Abandoned: post 1894
Shaft: 70', elevation 787'
References: No. 2 p. 17; No. 35 p. 15; No. 49 p. 297; No. 51.

Comments: In 1883 this mine consolidated with Starr A, B, C, Muscatine, Little Giant under Starr Coal Co. In 1886 the mines of the Starr Coal Co. and the Granger Coal Co. were acquired by the What Cheer Coal Co. This mine is located as What Cheer Coal Co (Rosetta).

85. Name(s): What Cheer Coal Co A.; Starr Coal Co. (Shaft A)

Location(s): NE, NE, Sec. 9, T76N, R13W.; on B.C.R. & N. R.R.

Opened: November, 1879 Abandoned: post 1889
Shaft: 75', 70'; airshaft 85'
References: No. 1 p. 22-23; 74-75; No. 2 p. 15-17; No. 3 p. 54; No. 4 p. 85, 88, 90; No. 5 p. 85, 96-97; 106-107; No. 49 p. 298; No. 50 p. 555; No. 51.

Comments: In 1882 this mine connected with the B shaft. In 1883 this mine consolidated with Starr B, C, Rosetta, Muscatine, Little Giant under Starr Coal Co. In 1886 the mines of the Starr Coal Co. and the Granger Coal Co. were acquired by the What Cheer Coal Co. In 1888 a "new" shaft 70' deep was sunk and they worked 6' of coal. The "old" shaft was 75' deep and they worked coal 6' to 8' thick. One airshaft was 35' from the hoist; one escape shaft was 759' from the hoist. A mine map is available. This mine is mapped as What Cheer Coal Co. Shaft "Starr A."

86. Name(s): What Cheer Coal Co. B.; Starr Coal Co. (Shaft B)

Location(s): NW, SE, Sec. 4, T76N, R13W; one mile north of Shaft A.

Opened: circa 1879 Abandoned: 1888
Shaft: 53'
References: No. 1 p. 74-75; No. 2 p. 15-17; No. 3 p. 54; No. 4 p. 85, 88, 90; No. 5 p. 96-97, 106-107; No. 49 p. 298; No. 50 p. 555.

Comments: In 1882 this mine connected with A shaft. In 1883 this mine consolidated with Starr A, C, Rosetta, Muscatine, Little Giant under Starr Coal Co. In 1886 the mines of the Starr Coal Co and the Granger Coal Co. were acquired by the What Cheer Coal Co. An air shaft added in 1886 or 1887 was 345' from the hoist. In 1888, 6' of was coal worked. This mine is located.

87. Name(s): What Cheer Coal Co. C.; Starr Coal Co. (Shaft C)

Location(s):

Opened: 1882 or before Abandoned: post 1887
Shaft:
References: No. 2 p. 15-17; No. 3 p. 54; No. 4 p. 85, 88, 90; No. 50 p. 555.

Comments: In 1883 this mine consolidated with Starr A, B, Rosetta, Muscatine, Little Giant under Starr Coal Co. In 1886 the mines of the Starr Coal Co. and the Granger Coal Co. were acquired by the What Cheer Coal Co. In 1886 or 1887 a second shaft was sunk.

88. Name(s): What Cheer Coal Co. D.; Starr Coal Co. (Shaft D)

Location(s): NE, Sec. 5

Opened: circa 1884 Abandoned: post 1889
Shaft: 80'
References: No. 3 p. 54; No. 4 p. 85, 88, 90, 91; No. 5 p. 85, 96-97, 106-107; No. 50 p. 555.

Comments: In 1886 the mines of the Starr Coal Co. and the Granger Coal Co. were acquired by the What Cheer Coal Co. In 1888 5 1/2' of coal was worked and the mine was about finished. A mine map is available. This mine is mapped.

89. Name(s): What Cheer Coal Co. F.; Starr F (formerly owned by What Cheer Land and Coal Co.); Granger Coal Co. (Shaft F).

Location(s): SE, NW, Sec. 10, T76N, R13W.

Opened: 1884 or before Abandoned: 1889
Shaft:
References: No. 3 p. 54; No. 4 p. 94; No. 5 p. 96-97, 106-107; No. 35 p. 15; No. 49 p. 297; No. 50 p. 555.

Comments: In 1886, 6' of coal was mined. In 1886 the mines of the Starr Coal Co. and the Granger Coal Co. were acquired by the What Cheer Coal Co. This mine subsequently became What Cheer F. This mine is mapped as What Cheer Coal Co. F.

90. Name(s): What Cheer Coal Co.; Granger Coal Co. (Shaft G)

Location(s):

Opened: 1884 or before Abandoned: post 1886
Shaft:
References: No. 3 p. 54; No. 35 p. 15; No. 50 p. 555.

Comments: In 1886 the What Cheer Coal Co. acquired this mine along with several others.

91. Name(s): What Cheer Coal Co.; Granger Coal Co. (Shaft H); Broomhall H Shaft; Broomhall

Location(s): SW, SE, Sec. 34, T77N, R13W.

Opened: circa 1882 or before Abandoned: post 1894
Shaft: 125'; elevation 818'
References: No. 2 p. 17; No. 3 p. 54; No. 4 p. 91, 165; No. 35 p. 15; No. 49 p. 297; No. 50 p. 555; No. 51.

Comments: In 1886 the What Cheer Coal Co. acquired this mine along with several others. In May 1886 the ". . .Broomhall H shaft. . . owned by the Granger Coal Co. . . . was worked longwall." There were two shafts in 1883. This mine is located as What Cheer Coal Co. (H).

92. Name(s): What Cheer Coal Co. No. 1

Location(s): NE, NE, Sec. 15 T76N, R13W.; NW, SW, Sec. 15, T76N, R13W.; one mile south of town.

Opened: 1888 or before Abandoned: post 1894
Shaft: 55', 70'
References: No. 5 p. 82, 84, 96-97, 106-107; No. 6 p. 68, 75; No. 7 p. 49, 56; No. 48 p. 362; No. 49 p. 270, 297, 298; No. 50 p. 555.

Comments: In 1888 coal thickness was reported to be 4' - 6' averaging 5 1/2', in 1893 the mine was 75' deep and the coal was 5' thick; in 1894 a measured section revealed a 70' shaft and 5 1/2' coal seam. In 1888-1889 an air shaft was added; and in 1890 a shaft was destroyed by fire. The NE, NE, Sec. 15 location may be in error as the other two locations given are approximately the same. This mine located.

93. Name(s): What Cheer Coal Co. No. 2

Location(s): SW, SW, Sec. 5, T76N, R13W.; 2 miles west of What Cheer; about 2 miles northwest of What Cheer.

Opened: 1888 Abandoned: post 1891
Shaft: 120', 126; elevation 839'
References: No. 5 p. 84, 106-107; No. 6 p. 75; No. 48 p. 362; No. 49 p. 297; No. 50 p. 555.

Comments: In 1888 the coal was reported to be 6' thick; in 1891 the coal was 4' to 6' thick. In 1894 the mine was reported to be worked out. This mine is located.

94. Name(s): What Cheer Coal Co. No. 3; What Cheer Coal Co. No. 3G

Location(s): SE, NW, Sec. 3, T76N, R13W; about 2 miles northwest of What Cheer

Opened: 1888 or before Abandoned: circa 1890
Shaft: 120'; 125'
References: No. 5 p. 84, 96-97, 106-107; No. 6 p. 65, 67, 68; No. 48 p. 362; No. 49 p. 297; No. 50 p. 555.

Comments: In 1888 the coal was reported to be 5' to 6' thick, averaging 5 1/2'; an 1894 source reports the coal at 4' thick. A possible abandonment date is given as June, 1890. In 1894 the mine was reported to be worked out. This mine is located.

95. Name(s): What Cheer Coal Co. No. 4.

Location(s): NE, SW, Sec. 3, T76N, R13W; NW, SE, Sec. 3, T76N, R13W; NW, NW, Sec. 3, T76N, R13W; on B.C.R. & N. R.R.; about two to three miles north of What Cheer.

Opened: 1890 Abandoned: post 1897
Shaft: 135', 136', 152'
References: No. 6 p. 66, 75; No. 7 p. 49, 56; No. 8 p. 48-49; No. 9 p. 33-34; No. 48 p. 361-362; No. 49 p. 297; No. 50 p. 555.

Comments: In 1891 coal was reported to be 6' thick; in 1893 coal was reported to be 4' to 5 ' thick; in 1894 coal was reported to be 5' thick. A shaft location was given to be one mile north of What Cheer. Three locations are given for this mine. It is possible that they all may be correct as the What Cheer Coal Co.'s workings were extensive. One location was chosen to represent the mine. This mine is located.

96. Name(s): What Cheer Coal Co. No. 5; formerly Carl mine

Location(s): SE, SE, Sec. 34, T77N, R13W; 1/2 mile west of What Cheer Coal Co. No. 2 or No. 4.

Opened: 1892 or before Abandoned: post 1894
Shaft: 120', 117'; elevation 852'
References: No. 7 p. 56; No. 48 p. 361-363; No. 49 p. 296-297; No. 50 p. 555.

Comments: In 1893 coal was reported to be 5' thick; in 1894 coal was reported to be 6' thick. This mine is located.

97. Name(s): What Cheer Coal Co.

Location(s):

Opened: 1907 or before Abandoned: post 1910
Shaft:
References: No. 15 p. 81; No. 16 p. 51.

Comments: Probably the same What Cheer Coal Co. as the What Cheer No. 1, 2, 3, etc., however a hiatus of reference years necessitates a separate listing.

98. Name(s): What Cheer Fuel Co.

Location(s):

Opened: 1902 or before Abandoned: post 1903
Shaft:
References: No. 12 p. 49.

Comments: Possibly a name change for What Cheer Coal Co.

99. Name(s): Woodhead and Dempster

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51

Comments: A small mine. Possibly same as Woodhead and Dutemple.

100. Name(s): Woodhead and Dutemple

Location(s):

Opened: Abandoned:
Shaft:
References: No. 51.

Comments: A small mine. Possibly same as Woodhead and Dempster.

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