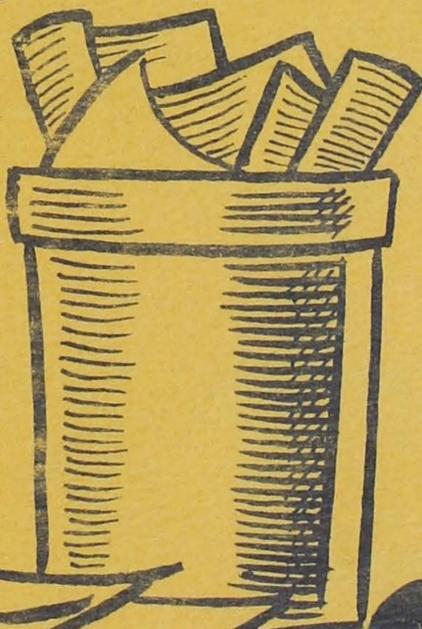
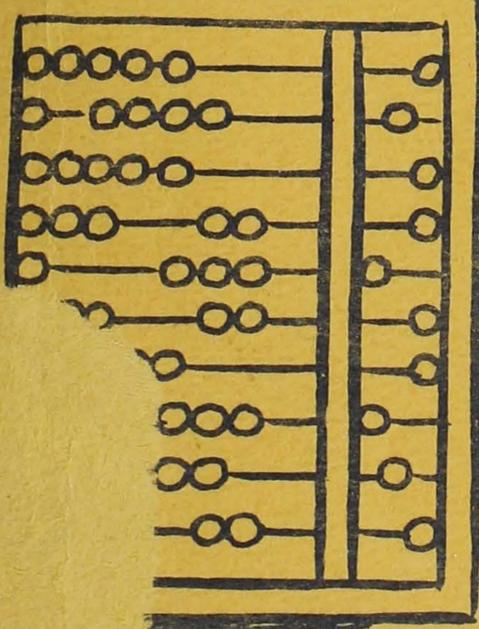
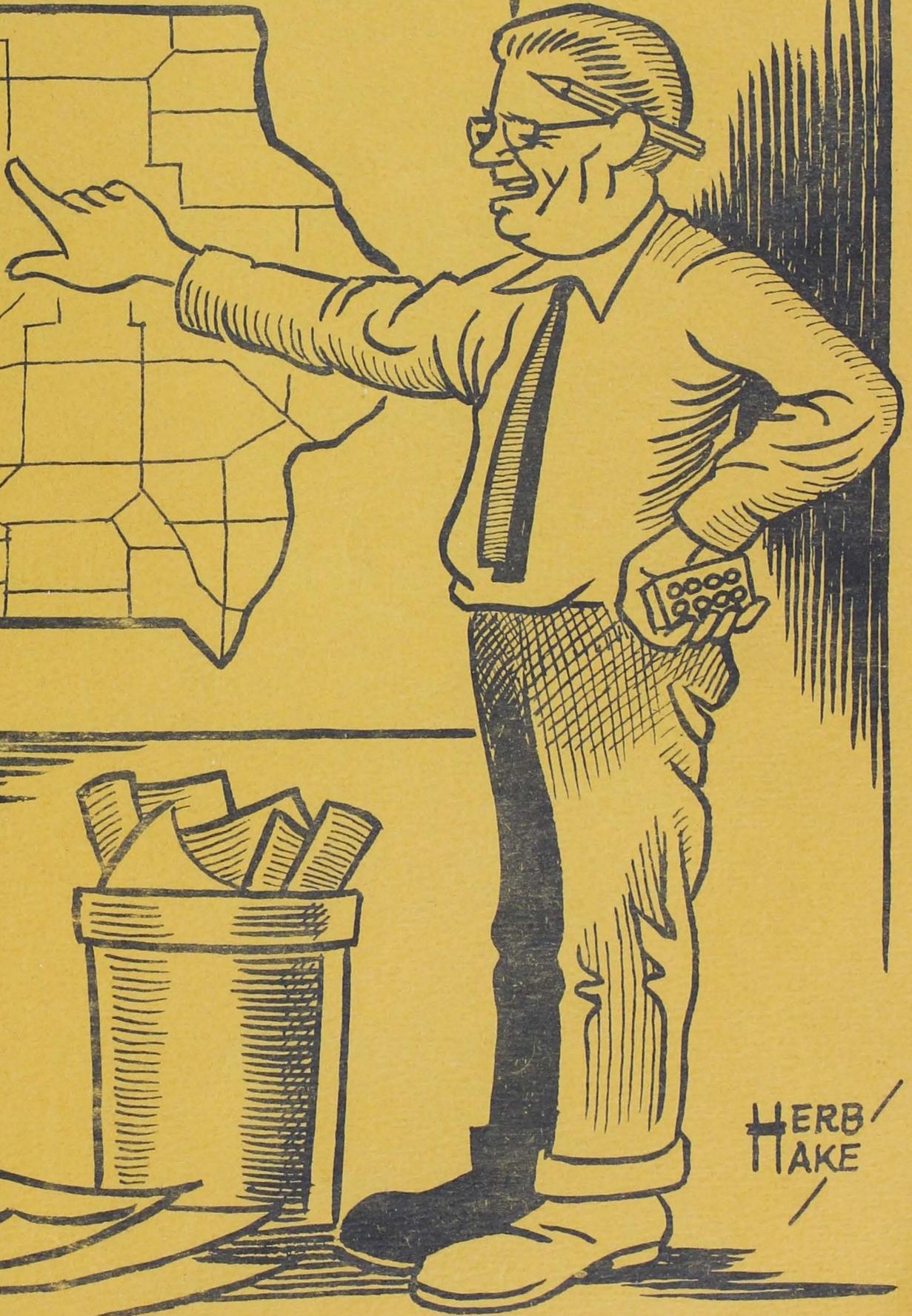
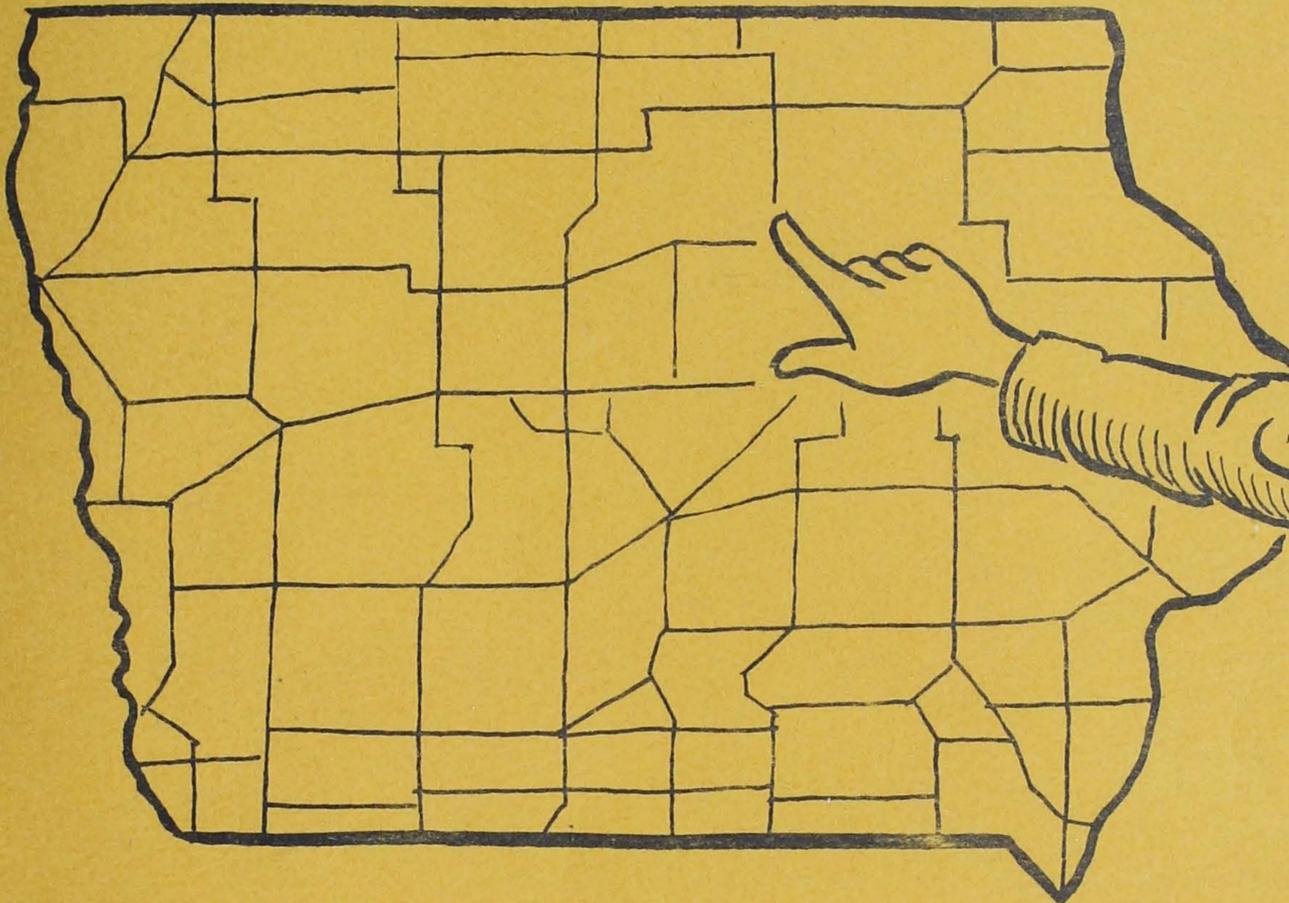


ROAD MAP MATH

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1976



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TAKE

PUBLISHED AND DISTRIBUTED BY

State of Iowa
Department of Public Instruction
Planning, Research, and Evaluation Division
Grimes State Office Building
Des Moines, Iowa

REVISED BY

Explorations in Iowa History Project
Price Laboratory School
University of Northern Iowa
Cedar Falls, Iowa

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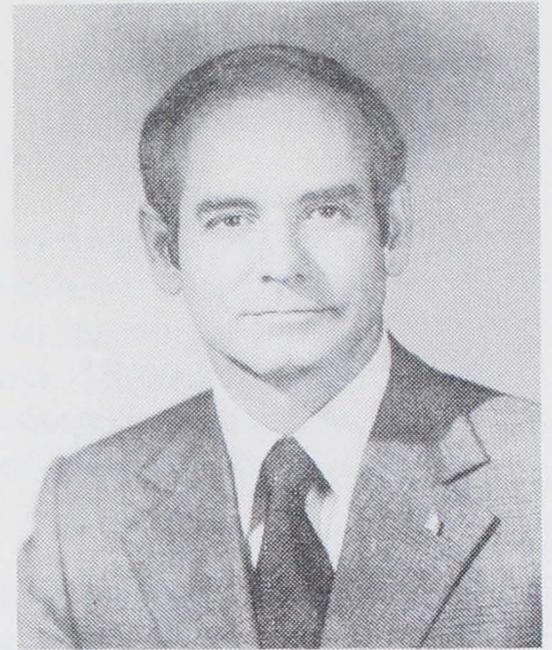
State of Iowa
Department of Public Instruction
Planning, Research, and Evaluation Division
Grimes State Office Building
Des Moines, Iowa

1976



Office of the Governor

STATE CAPITOL
DES MOINES, IOWA 50319



ROBERT D. RAY
GOVERNOR

Dear Student:

I hope that you will enjoy reading Road Map Math and that you will discover it to be a booklet which is both fun and informative.

Here in Iowa, we believe that a sound network of roads and highways has a great deal of value. Our farmers use our roads to help transport their crops and livestock to market. Businesses and industries depend upon our highways to ship their products to their destination. Families use our roads so that they can visit friends and relatives in other communities. And, of course, Iowans use the many other transportation modes which we have in our state as well.

Road Map Math is a booklet which will help you to learn about the geography of our state, as well as the location of some of Iowa's historical sites and recreational areas. And, by acquiring a good understanding of our Iowa transportation map, you will find that your travels in our state will be more interesting and meaningful.

After working with Road Map Math, I am sure that you will share my appreciation for the good work which the Departments of Public Instruction and Transportation and the University of Northern Iowa Price Laboratory School did in its preparation.

Best wishes for success as you use Road Map Math during your studies this year.

Sincerely,

A handwritten signature in black ink that reads "Robert D. Ray".

Robert D. Ray
Governor

RDR/cd

TO THE TEACHER USING HIGHWAY MAP MATH

Highway Map Math has been a tremendously popular instructional program. Originally developed for low-achieving seventh-grade mathematics students, it has been adapted for students in grades four through twelve. Teachers have found it helpful in teaching language arts, place geography, and map reading as well as mathematics concepts. Through its use, both students and teachers have extended its activities. They have researched highway, traffic, and consumer problems. Many have completed a wide variety of enrichment activities.

First printed and distributed in 1968, Highway Map Math deserved revision to show changes in Iowa's transportation system. Not only have new highways been opened, but some old ones have been re-numbered. Some pages in the booklet required up-dating due to Iowa's new auto licensing system, lower speed limits, and population changes. Rising auto costs and increased gas mileage by compacts made necessary new data for computation problems.

This new version of Highway Map Math contains most of the original activities. Some of the problems have been expanded, while others have been consolidated. New data have replaced obsolete information. More activities focus on the student's home town and its location. Additional pages reflect the increasing popularity of motorcycles and bicycles. Sections of historic maps promote student awareness of transportation progress. Finally, highway and word mazes have been added as enrichment activities.

Herb Hake, noted Iowa historian and artist, designed the cover of this edition. His sketches of autos and bikes as well as Iowa landmarks are featured throughout the booklet. Highway and traffic signs plus map inserts have replaced the pictures of vintage automobiles illustrated in the original.

Suggested Uses

Highway Map Math is a truly flexible program. Teachers may use all of the activities or choose those best suited to their students. Some pages can be changed by substituting place names (towns and cities) more familiar to the students. Similar activities can be developed to use with or in place of those given in the booklet. The activities may be assigned to an entire class or used in small groups. Highway Map Math may be individualized with each student progressing through the program at his or her own pace. While the materials may be best distributed to the class one or two sheets at a time, the students may make a booklet of the completed activities.

Highway Map Math activities may be duplicated by making Thermofax spirit masters or using the pages as offset press masters.

TEACHER NOTES



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Department of Transportation

Planning and Research Division

THE IOWA TRANSPORTATION MAP

When the first automobile appeared in Iowa, we realized that our roads needed improvement. In 1904, the first Highway Commission was organized to build better highways. Thomas McDonald of Iowa State College (now ISU) was its first chief engineer. Nine years later (1913), the State Legislature authorized a five-member Highway Commission consisting of two ISC faculty and three members appointed by the Governor. To expand its service, the Highway Commission published its first highway map in 1919. At that time Iowa boasted 21 miles of paving. From then until 1975, the Highway Commission continued this map service. A year-by-year collection of these maps tells the story of Iowa's roads, from "getting out of the mud" to building one of the nation's finest highway systems.

In 1974, the Iowa General Assembly (State Legislature) formed the new Department of Transportation (DOT). To reflect the new unified approach of Iowa's transportation problems, the DOT created a new transportation map. The map shows Iowa's primary and secondary roads, along with railroads and airports. It provides population data and information about several transportation-related State agencies. Also, it shows the location of cities, towns, counties, state parks, historic landmarks, rivers, and lakes.

The new transportation map required considerable research by the DOT's Planning and Research Division. First, the researchers used the data maintained by the DOT to plot the State and U.S. highway routes. Then, the county engineers from each of Iowa's 99 counties supplied information about the location and condition of county roads. The DOT's Railroad and Aeronautics Divisions identified the rail lines and airports, while the Public Transit Division outlined the intercity bus routes. Data describing recreational areas, rivers, streams, lakes, and interesting landmarks resulted from a joint effort by the Iowa Development Commission, the Iowa Conservation Commission, and Citizens Advisory Groups.

City engineers or public works departments in Iowa's cities cooperated in developing the city map inserts. They forwarded data to the DOT and approved the city maps before they were printed. The Motor Vehicle Division and the Iowa State Patrol furnished information of help to motorists, and locations of patrol offices. Population data is obtained from the U.S. Bureau of the Census. The mileage chart, along with mileage figures for each highway route, is based on records maintained by the Department of Transportation.

A map is made up of many individual pieces. Each one is called a plate and the series of plates is called a library. The library for Iowa's 1977 Transportation Map contains over 45 plates for the front side of the map and 37 plates for the back side. Each plate contains a specific piece of information. These 82 plates are combined into eight plates (four each side) for printing. Each plate represents those items on the map that are colored red, yellow, blue, or black, or any combination thereof.

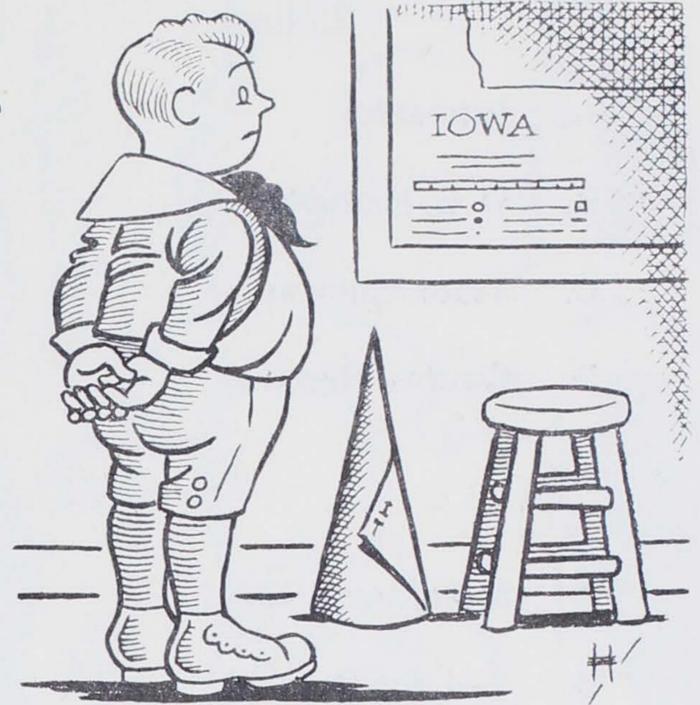
Cartech, Inc. of Quincy, Illinois and St. Louis, Missouri does the art work and printing of the maps. This firm, with large presses, prints one million (1,000,000) transportation maps in less than a week at a rate of 10,000 maps per hour. Then machines fold the maps so that motorists can open them easily. Folding often takes longer than printing.

The Transportation Map represents a new concept in highway maps and a new approach to transportation problems. It contains many items of value, but its chief purpose is to describe Iowa's transportation network of which Iowans can be justly proud.

Robert D. Studer, Director
Office of Transportation Inventory

USING THE LEGEND OF A MAP

Directions: Answer the following questions using the map legend to help you.



1. One inch on the map equals approximately _____ miles.

2. How many interchanges are there on Interstate 80 between LeClaire and the West Branch interchange?

3. How many Amtrak lines go through Iowa? _____

4. How many rest areas are located along Interstate 35 from the Minnesota line to the junction of 35 and Highway No. 3?

5. How many secondary roads are shown in Keokuk County? _____

6. Locate and list any five county seat cities or towns in Iowa.

1) _____	4) _____
2) _____	5) _____
3) _____	

7. Locate and list any five state parks with camping facilities in Iowa.

1) _____	4) _____
2) _____	5) _____
3) _____	

8. Locate and list any five state institutions in Iowa.

1) _____	4) _____
2) _____	5) _____
3) _____	

9. How many disposal stations are there on Interstate 35 between Des Moines and the Minnesota line? _____

10. What is the speed limit in Iowa on State and U. S. highways? _____ MPH

USING THE LEGEND OF A MAP

B. Directions: Choose the type of highway in Column I to indicate the type which links the pairs of towns listed in Column II.

Column I		Column II
A. Interstate	_____	1. Newton and Iowa City
B. U. S. Highway	_____	2. Albia and Knoxville
C. State Highway	_____	3. Dunlap and Charter Oak
D. County Highway	_____	4. Fort Dodge and Webster City
	_____	5. Guthrie Center and Jefferson
A. Multilane Divided	_____	1. Clinton and DeWitt
B. 2-Lane Divided	_____	2. Edgewood and Littleport
C. County Paved	_____	3. Des Moines and Indianola
D. Gravel	_____	4. Mt. Pleasant and Iowa City
	_____	5. Baxter and Colfax

C. Directions: Choose the type of landmark in Column I which is located in or near the cities in Column II.

Column I		Column II
A. State Patrol Office	_____	1. Anamosa
B. State Institution	_____	2. Calmar
C. State University or College	_____	3. Clermont
D. Historical Site	_____	4. Denison
	_____	5. Le Claire
	_____	6. Mt. Pleasant
	_____	7. Orient
	_____	8. Rockwell City
	_____	9. Sheldon
	_____	10. Toledo

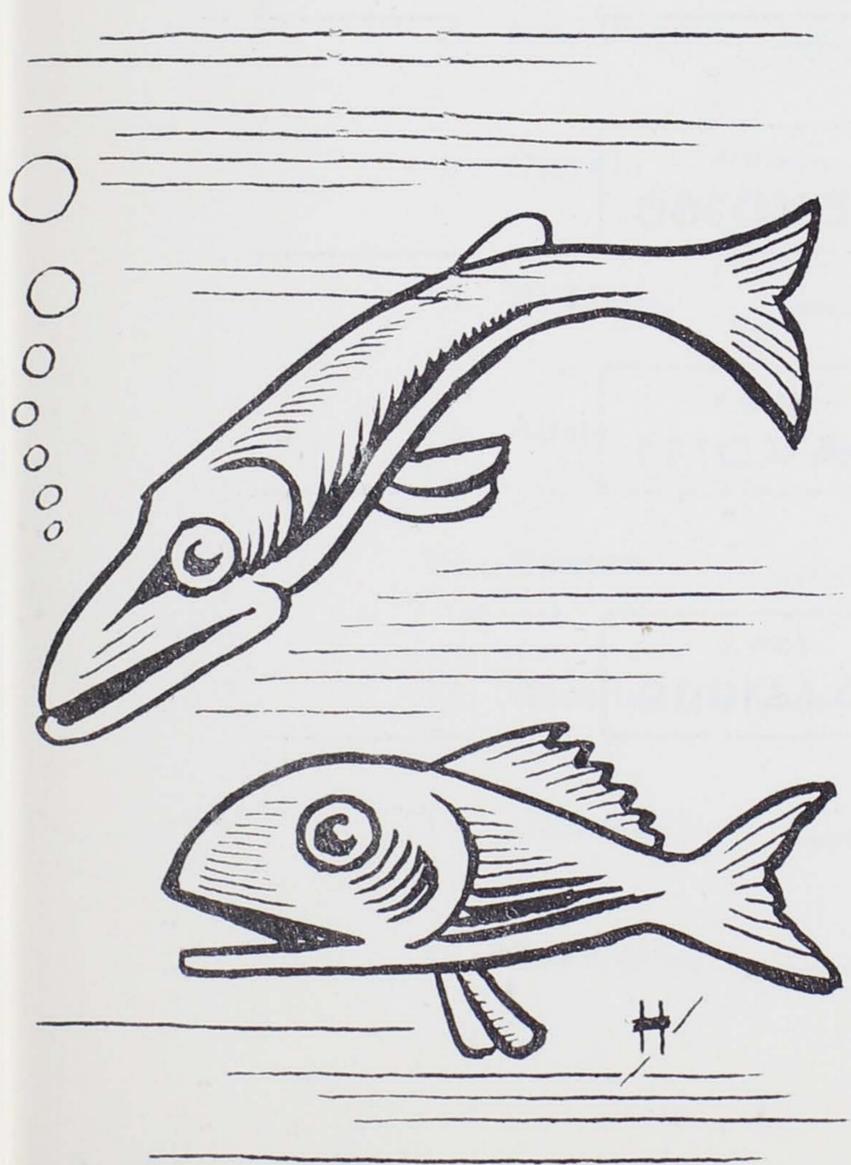
STATE PARKS and RECREATION AREAS

Directions: How many of our state parks and recreation areas have these?

- 1. Electrical hookups _____
- 2. Water _____
- 3. Camping _____
- 4. Boating _____
- 5. Fishing _____
- 6. Swimming _____
- 7. Historical Landmarks _____



Directions: What state parks are located near the following towns?



- | | | | |
|--------------|-------|---------------------|-------|
| 1. Creston | _____ | 5. Oskaloosa | _____ |
| 2. Lake View | _____ | 6. Allerton | _____ |
| 3. Winterset | _____ | 7. Strawberry Point | _____ |
| 4. Eldora | _____ | 8. Hampton | _____ |

LICENSE PLATES

Directions: Below are license plates from different Iowa counties. What counties are the plates from?

LICENSE PLATE	COUNTY	LICENSE PLATE	COUNTY
IOWA 7 7 FAN019	_____	IOWA 9 0 GSA223	_____
IOWA 1 4 AWD136	_____	IOWA 8 1 FXC344	_____
IOWA 6 1 DXB253	_____	IOWA 6 8 EID666	_____
IOWA 9 9 HMB005	_____	IOWA 2 ABR327	_____
IOWA 8 7 GPB466	_____	IOWA 2 5 BND166	_____
IOWA 8 4 GJC199	_____	IOWA 1 3 AVD111	_____
IOWA 9 1 GVD000	_____	IOWA 1 AAM999	_____

WE FIND HIGHWAY JUNCTIONS

Directions: Using the location column on the population chart, find the following towns and cities and then locate them on the map; also list the highways which form junctions in those towns.

TOWN	JUNCTIONS
Example: Winterset	169 and 92
1. Spencer	_____
2. Hampton	_____
3. Independence	_____
4. Mason City	_____
5. Humboldt	_____
6. Rock Rapids	_____
7. Manly	_____
8. Corning	_____
9. Sigourney	_____
10. Waukon	_____
11. DeWitt	_____
12. Lucas	_____
13. Blairsburg	_____
14. Leon	_____
15. Waverly	_____

WE FIND HISTORICAL SITES

Directions- Name a historical site located in or near each of these cities or towns.

CITY/TOWN	HISTORICAL SITE
1. Agency	_____
2. Andrew	_____
3. Bellevue	_____
4. Clarion	_____
5. Clermont	_____
6. Council Bluffs	_____
7. Dubuque	_____
8. Grundy Center	_____
9. Independence	_____
10. Iowa City	_____
11. Le Claire	_____
12. Manson	_____
13. Marquette	_____
14. Montrose	_____
15. Orient	_____
16. St. Donatus	_____
17. Sioux City	_____
18. Sutherland	_____
19. Webster City	_____
20. West Branch	_____

USING THE DISTANCE TABLE

Directions: Find the Distance Table on the back of the map and use it to find the distance between the following cities.

CITIES	DISTANCE	CITIES	DISTANCE
1. Charles City and Muscatine	_____	14. McGregor and Spirit Lake	_____
2. Centerville and Algona	_____	15. Newton and Burlington	_____
3. Knoxville and Davenport	_____	16. Mason City and Davenport	_____
4. Ames and Ottumwa	_____	17. Estherville and Sabula	_____
5. Rock Rapids and Mount Pleasant	_____	18. Muscatine and Forest City	_____
6. Sioux City and Winterset	_____	19. Oskaloosa and Cedar Rapids	_____
7. Fort Madison and Indianola	_____	20. Shenandoah and Keokuk	_____
8. Fairfield and Council Bluffs	_____	21. Indianola and Clarinda	_____
9. Iowa City and Atlantic	_____	22. Winterset and Dubuque	_____
10. Leon and LeMars	_____	23. Decorah and Fort Madison	_____
11. Storm Lake and Clinton	_____	24. Carroll and Sioux City	_____
12. Fort Dodge and Missouri Valley	_____	25. Fairfield and Sioux City	_____
13. LeMars and Oskaloosa	_____		

FIGURING MILEAGE

Directions: Given below are the names of two towns, and following is the highway route we are to use to get from one town to another. With this information, add up all the numbers between the stars to arrive at the correct mileage.

TOWNS	HIGHWAYS	DISTANCE
1. Corning to Harlan	34 and 59	_____
2. Fairfield to Ft. Madison	34, 218, and 2	_____
3. Oelwein to Decorah	150 and 52	_____
4. Emmetsburg to Webster City	4, 3, 169 and 20	_____
5. Iowa Falls to Estherville	20, 69, 3, and 4	_____
6. Winterset to Jefferson	169 and 30	_____
7. Decorah to Forest City	9	_____
8. Centerville to Washington	2, 63, 34, 1, 78, and 1	_____

WHICH ROUTE IS SHORTEST?

NORTHERN ROUTE

SOUTHERN ROUTE

PROBLEM 1: Check the shortest route from Independence to Maquoketa.

A. East on 20 from Independence to highway 38. South on 38 to 64. East on 64 to Maquoketa.

(Mileage) _____

B. East on 20 from Independence to highway 13, south on 13 to 151; then east on 151 to 64; then east on 64 to Maquoketa.

(Mileage) _____

C. East on 20 to 61, then south on 61 to Maquoketa.

(Mileage) _____

PROBLEM 2: Check the shortest route from Hampton to Charles City.

A. North from Hampton on 65 to 18. East on 18 to Charles City.

(Mileage) _____

B. From Hampton go east on 3 to 218. North on 218 to Charles City.

(Mileage) _____

C. East from Hampton on 3 to highway 14. North on 14 to Charles City.

(Mileage) _____

PROBLEM 3: Check the shortest route from Ottumwa to Monroe.

A. West from Ottumwa to 5 to Knoxville. North from Knoxville on 14 to Monroe.

(Mileage) _____

B. North from Ottumwa on 63 to Oskaloosa, west on 92 from Oskaloosa to Knoxville then north on 14 to Monroe.

(Mileage) _____

C. West from Ottumwa on 34 to highway 14, then north on 14 to Monroe.

(Mileage) _____

MORE WHICH ROUTE IS SHORTEST?

PROBLEM 1: If you want to travel from Webster City to Spencer, which of these is the shortest route? (Put a check by the correct letter and then write the mileage for EACH one to support your answer.)

- A. Go west from Webster City on 20 to 71, then north on 71 to Spencer.
(Mileage) _____
- B. Go west from Webster City on 20 to 169, turn north on 169 to highway 18, then go west to Soencer.
(Mileage) _____
- C. Go west from Webster City on 20 to highway 4, then north on 4 to 10. West on 10 to 71, then north on 71 to Spencer.
(Mileage) _____

PROBLEM 2: If you want to travel from Perry to Carroll, which of these is the shortest route?

- A. North from Perry on 144 to highway 30, then west on 30 to Carroll.
(Mileage) _____
- B. West from Perry on 141 to highway 4, north on 4 to 30, then west on 30 to Carroll.
(Mileage) _____
- C. West from Perry on 141 to 71, then north to Carroll.
(Mileage) _____

PROBLEM 3: If you want to travel from Leon to Griswold, which of these routes is the shortest?

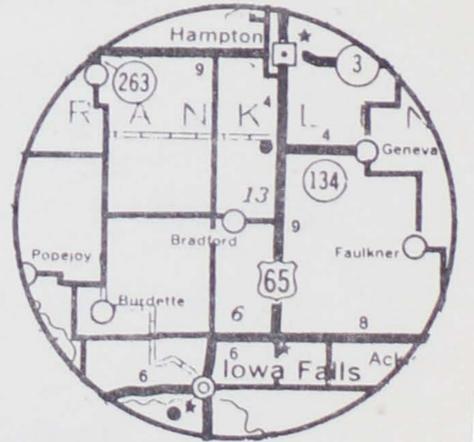
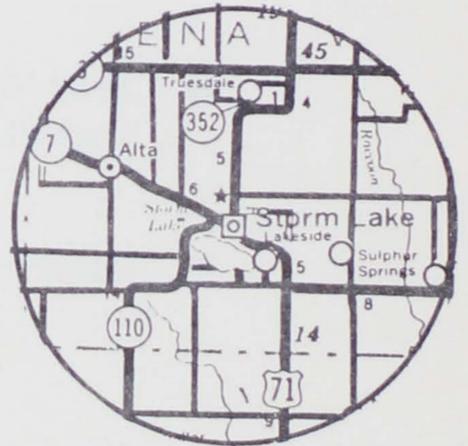
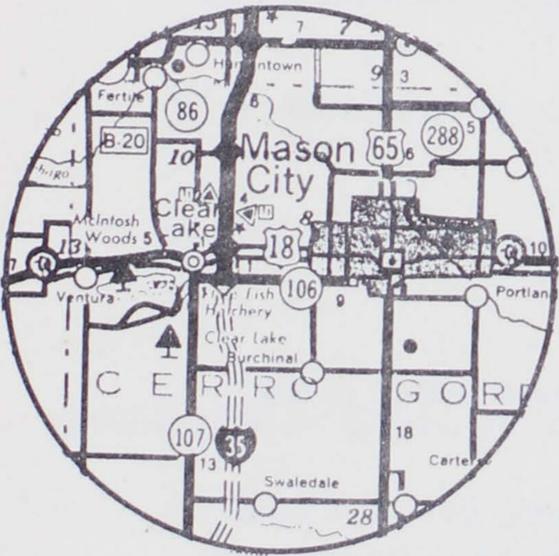
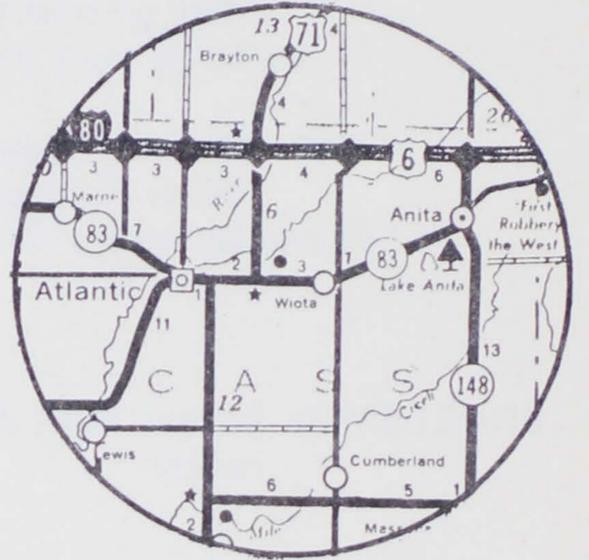
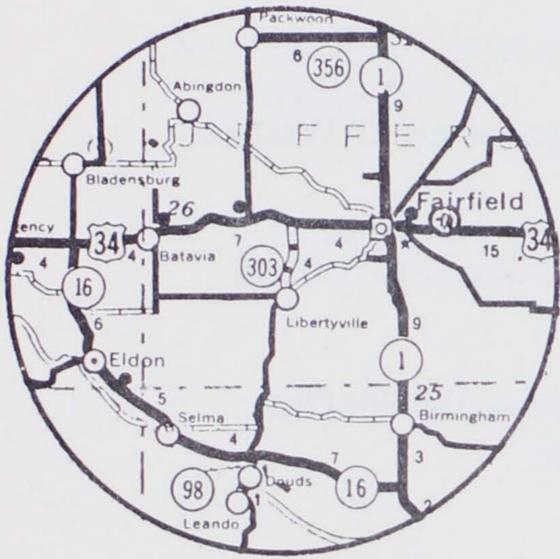
- A. North from Leon on 69 to 34. West on 34 to 71. North on 71 to 92. West on 92 to Griswold.
(Mileage) _____
- B. West on 2 from Leon to 71. North on 71 to 92. West on 92 to Griswold.
(Mileage) _____
- C. North on 69 to 92, then west on 92 to Griswold.
(Mileage) _____

WHICH CITY/TOWN IS LARGER?

Directions: Read the map inserts and legend. Then circle the larger in the following pairs of cities and towns.

You may check your estimate by using the city index which shows the population.

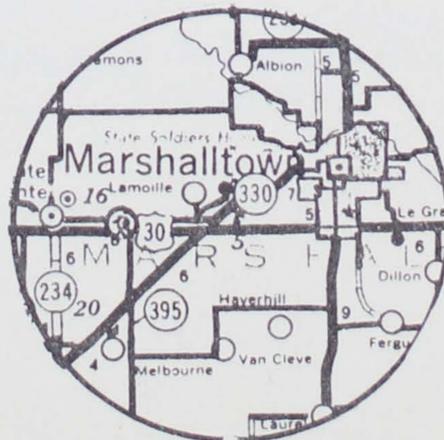
How many of your estimates were correct?



1. Anita or Atlantic
2. Hampton or Iowa Falls
3. Clear Lake or Ventura
4. Eldon or Fairfield
5. Clear Lake or Fairfield
6. Marshalltown or Mason City
7. Anita or Melbourne
8. Alta or Storm Lake
9. Alta or Atlantic
10. Storm Lake or Hampton

Cities and Towns
POPULATION INDICATED BY TOWN LOCATION SYMBOL AND PROMINENCE OF TYPE

Des Moines 100,000 and over	Clinton 25,000—50,000
Sioux City 50,000—100,000	Keokuk 10,000—25,000
Cherokee 5,000—10,000	Eldora 1,000—5,000
STATE CAPITAL	Lawler 0—1,000
<i>Scale of Miles</i>	
1 inch = approximately 13 miles	
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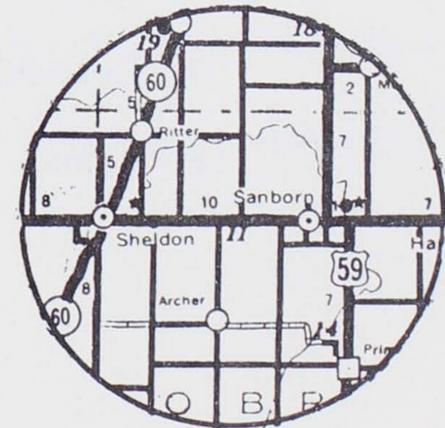
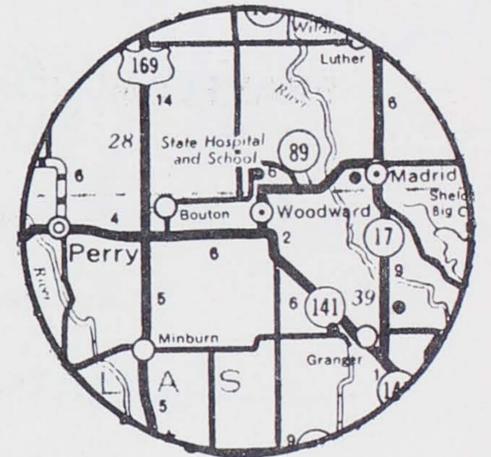
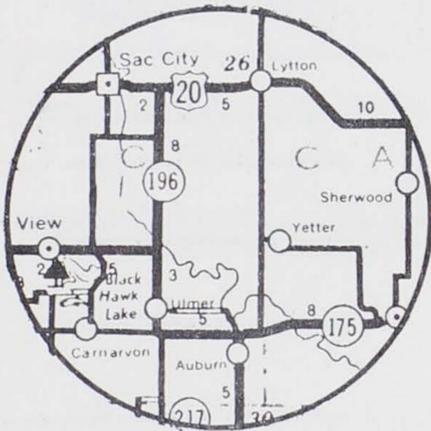
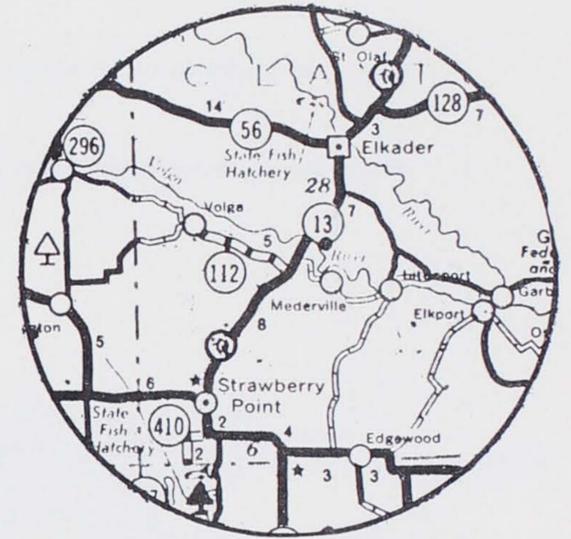


MORE WHICH CITY/TOWN IS LARGER?

Directions: Read the map inserts and legend. Then circle the larger in the following pairs of cities and towns.

You may check your estimate by using the city index which shows the population.

How many of your estimates were correct?



1. Archer or Sanborn
2. Sac City or Yetter
3. Evansdale or Hudson
4. Edgewood or Elkader
5. Decorah or Waukon
6. Perry or Woodward
7. Strawberry Point or Lytton
8. Perry or Sheldon
9. Elkader or Evansdale
10. Madrid or Storm Lake

IOWA'S LARGEST CITIES

Directions: List the twenty (20) largest cities in Iowa, in ORDER, according to population.

1. _____

2. _____

3. _____

4. _____

5. _____

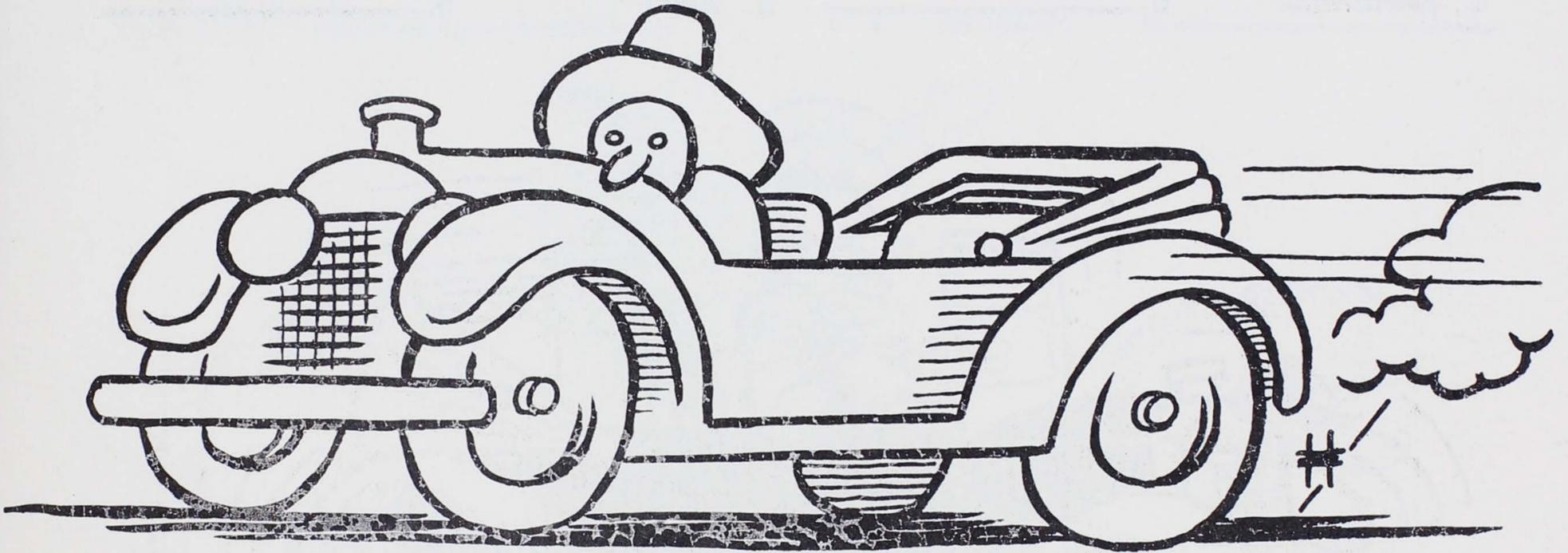
11. _____

12. _____

13. _____

14. _____

15. _____



6. _____

7. _____

8. _____

9. _____

10. _____

16. _____

17. _____

18. _____

19. _____

20. _____

ARRANGING IN ORDER

Directions: Arrange the following cities and towns in order, according to their population.
Arrange from smallest to largest.

GROUP 1

- A. Hillsboro 1. _____
 B. Minden 2. _____
 C. Afton 3. _____
 D. Vining 4. _____
 E. Northwood 5. _____

GROUP 2

- A. Kent 1. _____
 B. Collins 2. _____
 C. Nemaha 3. _____
 D. Panora 4. _____
 E. Webb 5. _____



GROUP 3

- A. Linn Grove 1. _____
 B. Elk Run Hts. 2. _____
 C. Rome 3. _____
 D. St. Olaf 4. _____
 E. Quimby 5. _____

GROUP 4

- A. Modale 1. _____
 B. Grafton 2. _____
 C. Victor 3. _____
 D. Lost Nation 4. _____
 E. Iowa City 5. _____

ARRANGING IN ORDER II

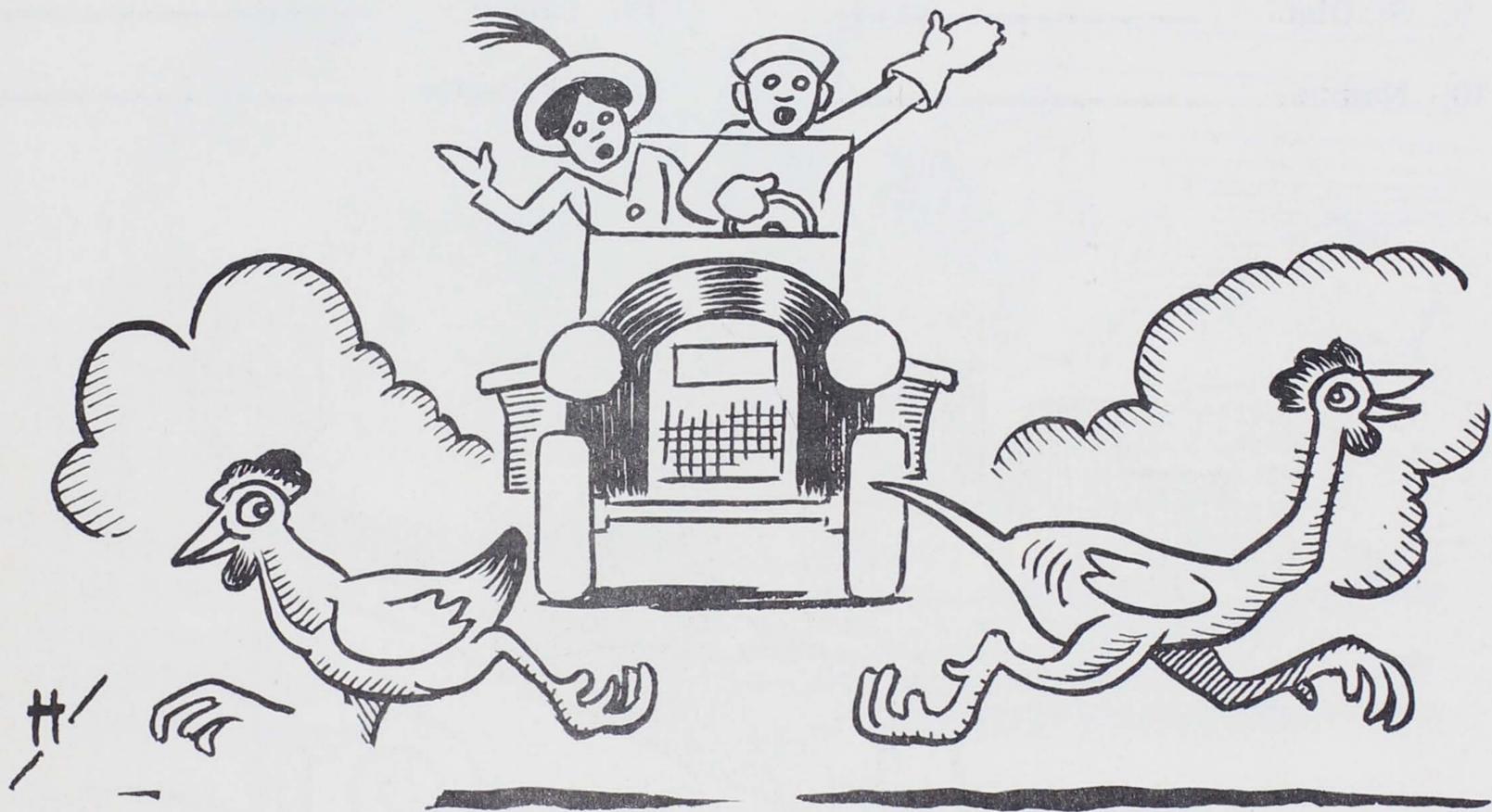
Directions: Arrange the following cities and towns in order according to their population.
Arrange from largest to smallest.

GROUP 1

- A. Lamoni 1. _____
- B. Carroll 2. _____
- C. Wadena 3. _____
- D. Matlock 4. _____
- E. Blue Grass 5. _____

GROUP 2

- A. Holstein 1. _____
- B. Hull 2. _____
- C. Milford 3. _____
- D. Hudson 4. _____
- E. Brooklyn 5. _____



GROUP 3

- A. Red Oak 1. _____
- B. Eldora 2. _____
- C. Miles 3. _____
- D. St. Paul 4. _____
- E. Goldfield 5. _____

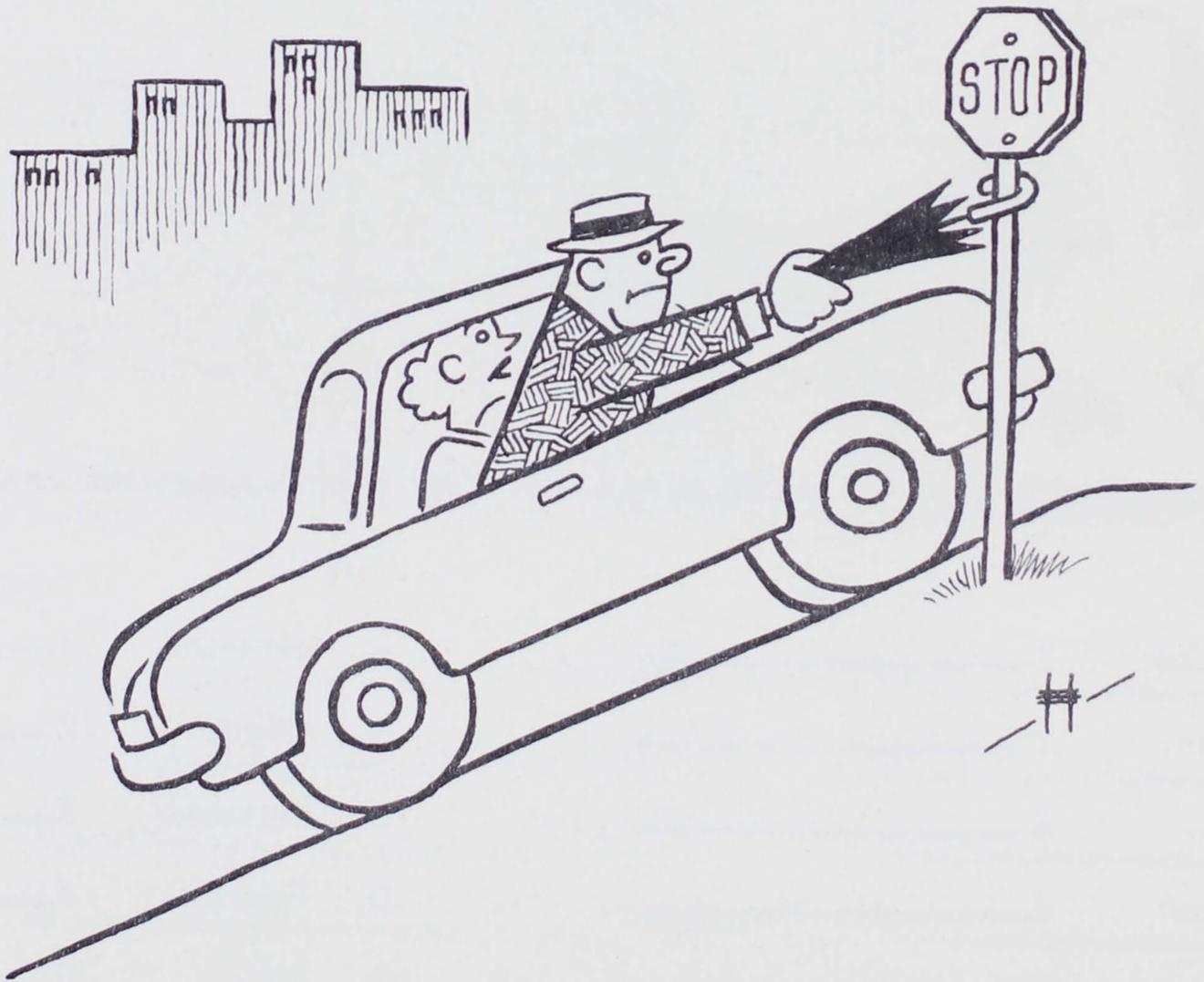
GROUP 4

- A. Jefferson 1. _____
- B. Clinton 2. _____
- C. Larrabee 3. _____
- D. Fostoria 4. _____
- E. Willey 5. _____

ROUNDING TO TENS

Directions: Round the population of these cities and towns to nearest tens.

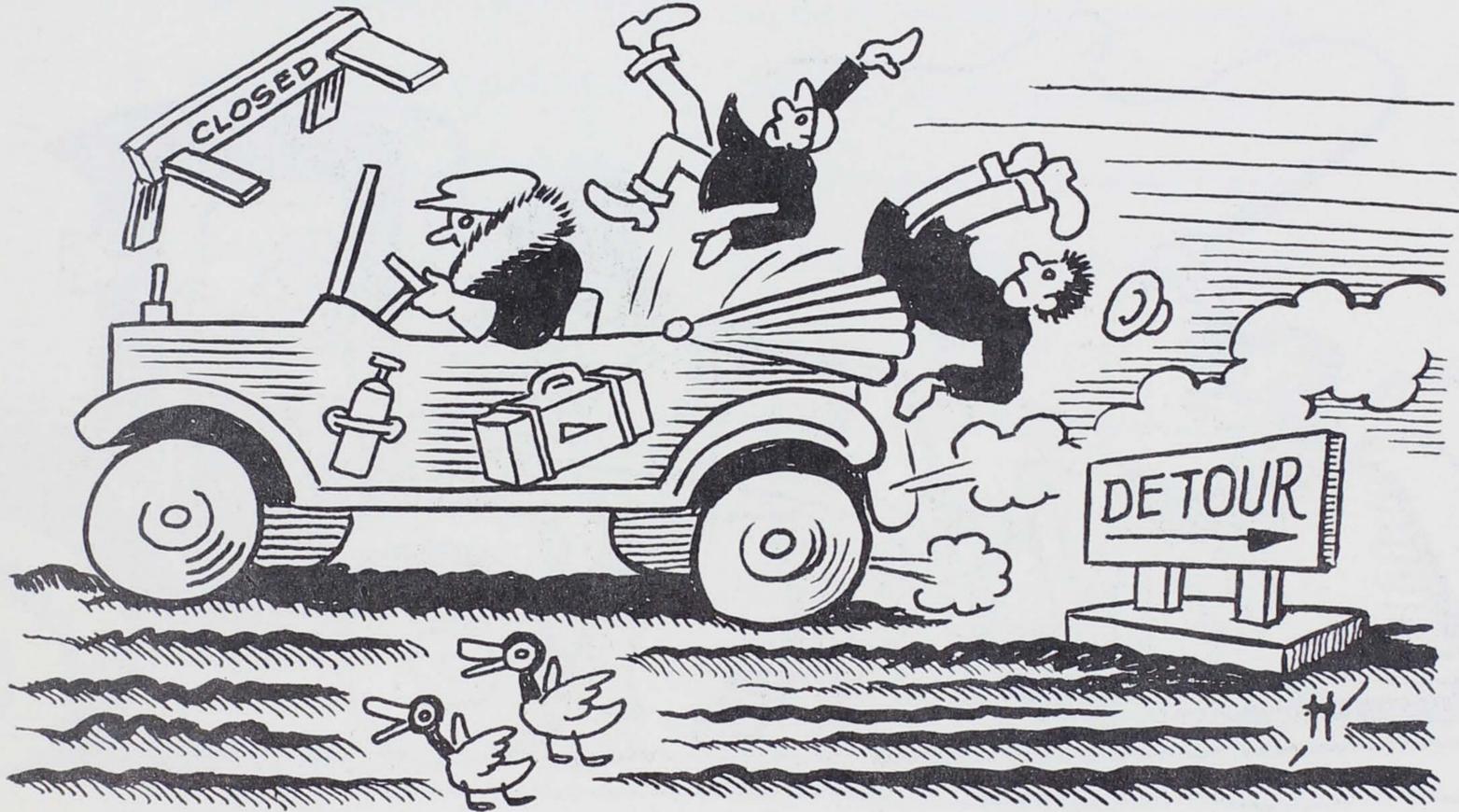
- | | | | |
|----------------|-------|------------------|-------|
| 1. Moorhead | _____ | 11. Deloit | _____ |
| 2. Clinton | _____ | 12. Anita | _____ |
| 3. Corning | _____ | 13. Grinnell | _____ |
| 4. Oyens | _____ | 14. Mystic | _____ |
| 5. Baxter | _____ | 15. Arnolds Park | _____ |
| 6. Conrad | _____ | 16. Vinton | _____ |
| 7. Montour | _____ | 17. Morrison | _____ |
| 8. Lost Nation | _____ | 18. Wayland | _____ |
| 9. St. Olaf | _____ | 19. Leland | _____ |
| 10. Nashua | _____ | 20. Lockridge | _____ |



ROUNDING TO HUNDREDS

Directions: Round the population of the following towns and cities to nearest hundreds.

- | | | |
|---------------------|-----------------------|-------------------------|
| 1. Le Mars _____ | 8. Villisca _____ | 15. Muscatine _____ |
| 2. Marion _____ | 9. Williamsburg _____ | 16. Des Moines _____ |
| 3. Mount Ayr _____ | 10. Sheldon _____ | 17. Rockwell City _____ |
| 4. Clinton _____ | 11. Hartley _____ | 18. Harlan _____ |
| 5. Jesup _____ | 12. Burlington _____ | 19. West Branch _____ |
| 6. Mt. Vernon _____ | 13. Armstrong _____ | 20. Dunlap _____ |
| 7. Denver _____ | 14. Earling _____ | |

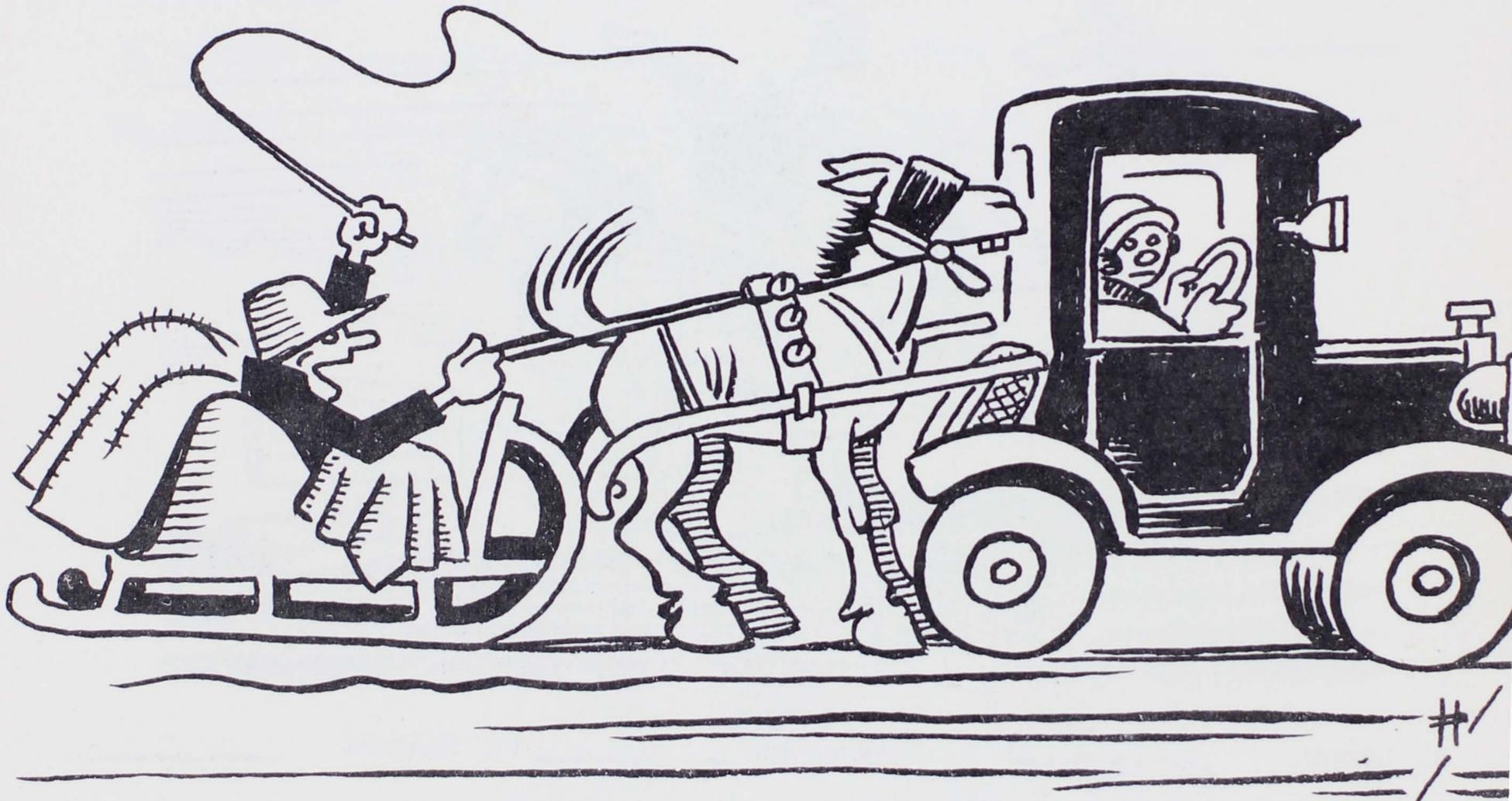


- | | | |
|-----------------------|---------------------------|-----------------------|
| 1. Sumner _____ | 8. Morning Sun _____ | 15. Sanborn _____ |
| 2. Rolfe _____ | 9. Drakesville _____ | 16. Tipton _____ |
| 3. Dayton _____ | 10. Missouri Valley _____ | 17. Winterset _____ |
| 4. Woodbine _____ | 11. New Sharon _____ | 18. Rock Rapids _____ |
| 5. Arispe _____ | 12. Cedar Falls _____ | 19. Adel _____ |
| 6. Libertyville _____ | 13. Britt _____ | 20. Spencer _____ |
| 7. Centerville _____ | 14. Oakland _____ | |

ROUNDING TO THOUSANDS

Directions: Round the populations of the following towns and cities to nearest thousands.

- | | | | |
|-------------------|-------|----------------|-------|
| 1. Ames | _____ | 6. Cedar Falls | _____ |
| 2. Burlington | _____ | 7. Sioux City | _____ |
| 3. Iowa City | _____ | 8. Waterloo | _____ |
| 4. Manchester | _____ | 9. Clinton | _____ |
| 5. Council Bluffs | _____ | 10. Lake Mills | _____ |



- | | | | |
|------------------|-------|---------------------|-------|
| 11. Cedar Rapids | _____ | 16. Carroll | _____ |
| 12. Ottumwa | _____ | 17. Des Moines | _____ |
| 13. Cherokee | _____ | 18. Marion | _____ |
| 14. Davenport | _____ | 19. West Des Moines | _____ |
| 15. Maquoketa | _____ | 20. Dubuque | _____ |

HOW MUCH LARGER?

Directions: Using your map, find the two towns listed below and find out how much the first town is larger in population than is the second.

- 1. Larrabee than St. Marys _____
- 2. Guttenberg than Wall Lake _____
- 3. Charles City than Centerville _____
- 4. Des Moines than Cedar Rapids _____
- 5. West Des Moines than Newton _____
- 6. Mitchellville than Eddyville _____
- 7. Lanesboro than Ackworth _____
- 8. Doon than Morley _____
- 9. Ankeny than Centerville _____
- 10. Manchester than Anamosa _____
- 11. Halbur than Moneta _____
- 12. Montrose than Otho _____
- 13. Evansdale than Onawa _____
- 14. Elma than Shannon City _____
- 15. Dysart than What Cheer _____
- 16. Albion than Klemme _____
- 17. Sumner than Peterson _____
- 18. West Union than Mount Ayr _____
- 19. Dunlap than Dow City _____
- 20. Clermont than Castana _____

USING CITY MAP INSERTS

Directions: The questions on this page are based on information shown in the Des Moines insert on the back of the map.

1. Which Interstate highways form a junction at Des Moines? _____
2. Which Freeway bisects Des Moines? _____
3. Which U.S. Highways form junctions at Des Moines? _____

4. How many State highways go into Des Moines? _____
5. Which railroads go through Des Moines? _____

6. Which communities make up the Des Moines Metropolitan Area? _____

7. On which streets is the State Capitol located? _____

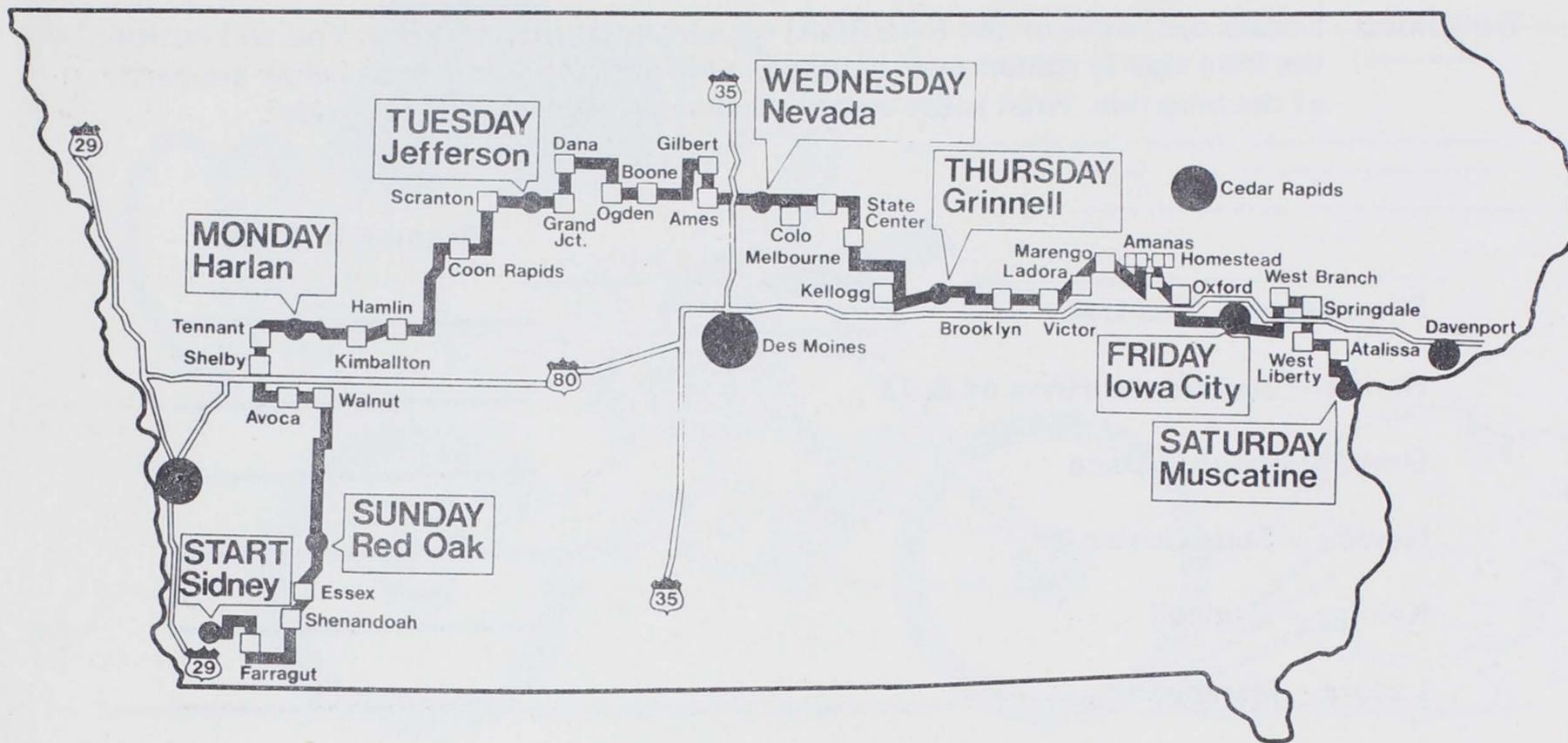
8. How many hospitals are shown on the map of Des Moines? _____
9. Which streets form the boundaries of the State Fair Grounds? _____

10. List at least five parks shown on the map of Des Moines? _____

11. Which rivers bisect Des Moines? _____

12. How many Des Moines streets, shown on the map, extend from the West city limits to the East city limits? _____

LET'S GO ON THE RAGBRAI



Route of RAGBRAI - Register's Annual Great Bike Ride Across Iowa

Directions: The Des Moines Register sponsors a great bike ride across Iowa every summer. The map above shows the bike route for one RAGBRAI. The route is divided into seven parts—one for each day of the week. The map shows the starting place—Sidney—and the finish—Muscatine. It also shows the stopping places for each day of the week.

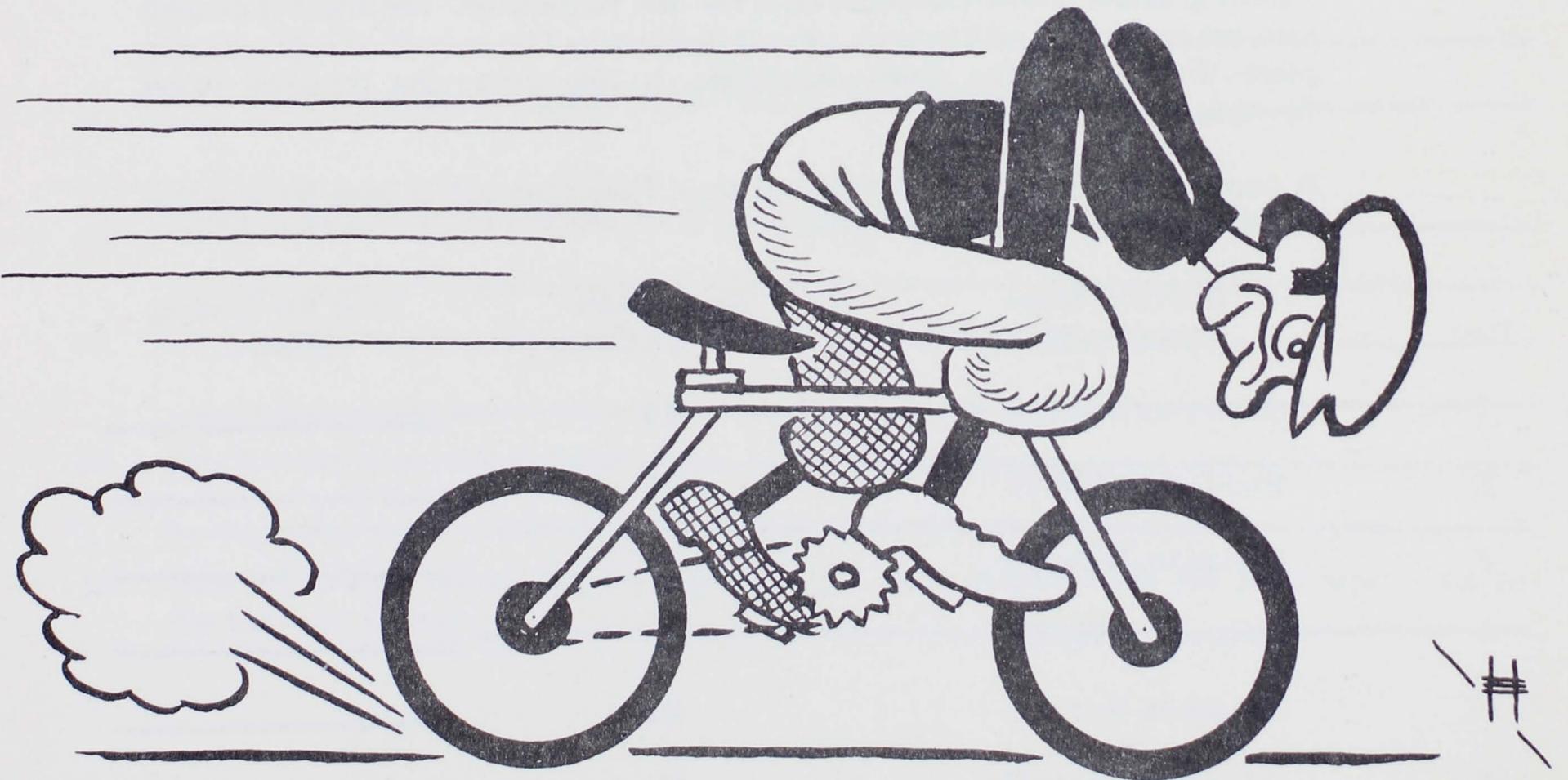
A good cyclist can make 10 miles an hour. How long will it take for a cyclist to travel each day of the RAGBRAI?

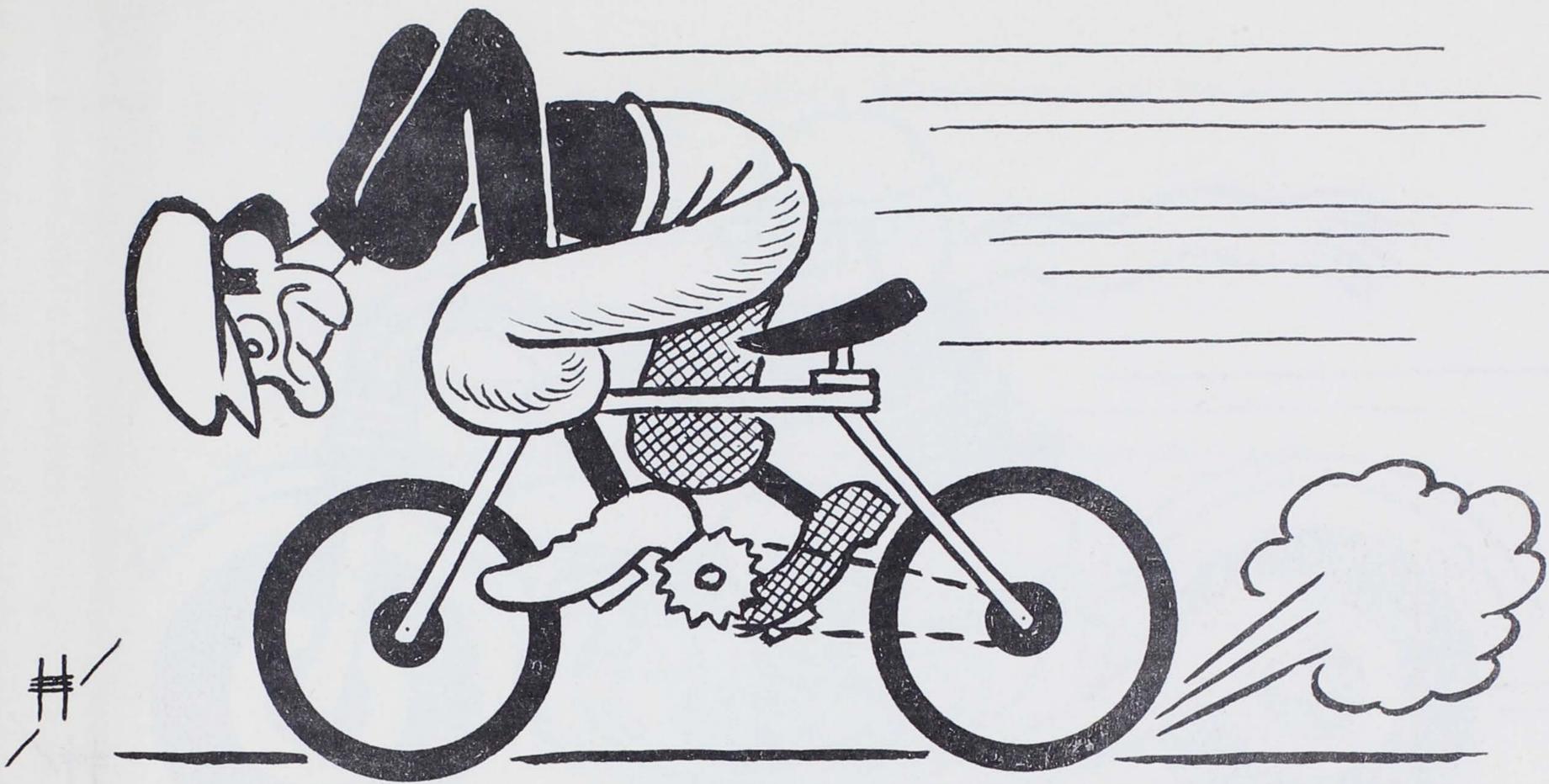
Day	Starting Place— Stopping Place	No. of Miles Between Stops	Time for Cycling (Hours)
1	Sidney to Red Oak	40	_____
2	Red Oak to Harlan	65	_____
3	Harlan to Jefferson	75	_____
4	Jefferson to Nevada	70	_____
5	Nevada to Grinnell	55	_____
6	Grinnell to Iowa City	80	_____
7	Iowa City to Muscatine	45	_____

MORE BIKING ACROSS IOWA

Directions: Locate the route of the RAGBRAI on a highway map of Iowa. You will notice the bike ride is routed over highways with little traffic. Listed below are parts of the bike ride. What is the distance between points on the bike ride?

	Distance in Miles
Shenandoah – Red Oak	_____
Harlan – Junction of Hwys 44 & 71	_____
Grand Junction – Dana	_____
Nevada – State Center	_____
Kellogg – Grinnell	_____
Ladora – Marengo	_____
West Branch – Road X-40	_____
West Liberty – Atalissa	_____





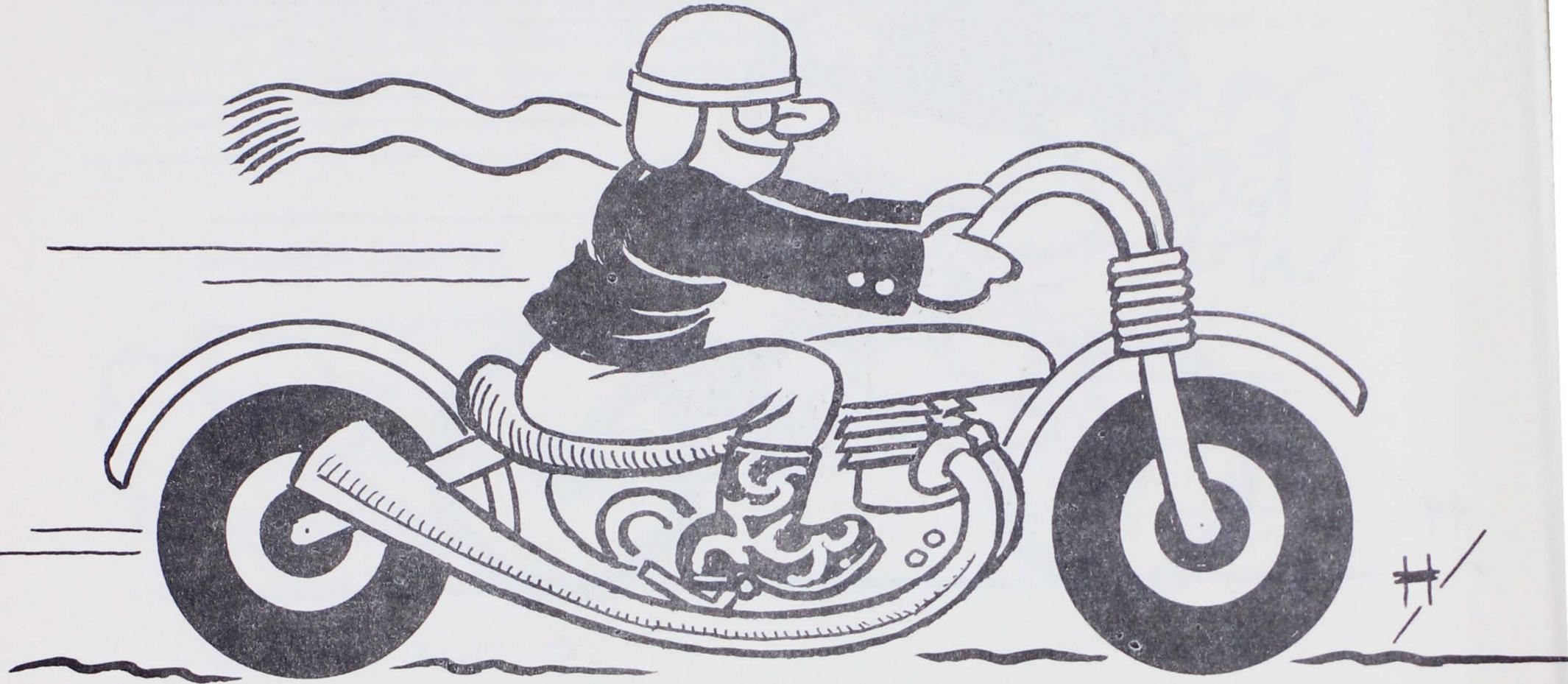
LET'S PLAN A BIKE RIDE

Directions: Plan a bike ride from your home town and return within one day. Your bike ride should last seven (7) hours. Assume that a good cyclist can make 10 miles an hour. Show in the chart below the major points on your bike route with the distances between each point. You may want to use the mileage scale in figuring distance.

Bike Route

	From – To	No. of Miles
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____

LET'S GO ON A MOTO CROSS



Directions:

A motorcycle racer, who lives in your city, wants to enter four moto cross races. He plans to go from one event to the next. List the highway routes to be taken. Figure the distance for the total trip from your home town and return. The moto cross events are listed below:

Moto Cross Races

Date	Place	Sponsors
Sept. 6	Springville	Cedar Valley Trailriders
Sept. 12	New Hartford	Rambling Wheels
Sept. 19	Forest City	Nob Hill Cyclers
Oct. 3	Hubbard	Hubbard J-Cs

	Highway Routes	Distance
Home Town to Springville	_____	_____
Springville to New Hartford	_____	_____
New Hartford to Forest City	_____	_____
Forest City to Hubbard	_____	_____
Hubbard to Home Town	_____	_____

MORE MOTORCYCLE PROBLEMS

Directions: A local cycle club asks you to help plan a 100-mile poker run. The club officers give you these criteria for the run:

- a. The starting point should be a junction of 3 highways.
- b. The run should be kept off heavily travelled highways.
- c. The run should be through scenic countryside.
- d. The run should end at a State Park with camping facilities and a place to have a barbecue.

On the chart below, list the starting point and the finish. Show the highway routes and the distance travelled on each route.

POKER RUN

	Place	Highway Route	Distance
Start	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
Finish	_____	_____	_____
		Total Miles	_____

Directions: A friend of yours who lives in Dayton, Iowa wants to ride in the Poker Run which you have planned. Figure the distance, by the shortest route, from Dayton to the starting point. The mileage chart below should help you with your computations.

Then figure the amount your friend will have to spend for gas from Dayton to the start of the Poker Run, for the Poker Run, and return back to Dayton. You may assume that his/her cycle gets 60 miles to the gallon and gas costs 65 cents a gallon.

MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	

Trip	No. of Miles	Gal. of Gas	Cost of Gas
From Dayton to Poker Run			
Poker Run			
From End of Poker Run to Dayton			
		Total	

HOW ABOUT A HARE SCRAMBLE ?

Directions: A cycle club in your home town enters a 5-hour Hare Scramble at Iowa City.

What highway routes will they take to Iowa City?

What is the distance between your home town and Iowa City?

How long will it take the club to reach Iowa City if they average 50 miles per hour?

How much will each spend for gas if their motorcycles get 60 miles to the gallon?



MORE USING CITY MAP INSERTS

Directions: Using the city map inserts find the city (Column I) in which each of the landmarks in Column II is located.

	Column I		Column II
A.	Ames	_____	1. Area 5 Community College
B.	Burlington	_____	2. Bever Park
C.	Cedar Rapids	_____	3. Emma Young Park
D.	Clinton	_____	4. General Dodge House
E.	Council Bluffs	_____	5. Ham House Museum
F.	Davenport	_____	6. Iowa State University
G.	Des Moines	_____	7. Kirkwood Community College
H.	Dubuque	_____	8. Living History Farms
I.	Ft. Dodge	_____	9. Old Capitol Building
J.	Iowa City	_____	10. Meredith Wilson Foot Bridge
K.	Marshalltown	_____	11. Old Shot Tower
L.	Mason City	_____	12. Perkins Park
M.	Ottumwa	_____	13. Rhododendron Showboat Museum
N.	Sioux City	_____	14. Rock Island Arsenal
O.	Waterloo—Cedar Falls	_____	15. Sgt. Floyd Monument
		_____	16. State Capitol Building
		_____	17. State Fair Grounds
		_____	18. Susie Sower Historical House
		_____	19. Wildwood Park
		_____	20. University of Northern Iowa

FIGURING DISTANCE, TIME, AND COST

**FACTS
WE NEED**

55 MILES PER HOUR

25 MILES PER GALLON

59.9¢ COST PER GALLON

PART I: Estimate how far you think it is between the towns listed below by just **LOOKING** at the map. Write your estimate in the distance column. **THEN**, write down in the time column how long you would **ESTIMATE** this trip to take. **THEN**, in the cost column, estimate about how much this trip would cost and write it in the cost column.

REMEMBER: There is no right or wrong answer to this part, we are only seeing how close you can come to the actual amount, which we will figure in Part II.

CITIES	DISTANCE	TIME	COST
1. Centerville and Mason City	_____	_____	_____
2. Winterset to Sioux City	_____	_____	_____
3. Indianola and Marshalltown	_____	_____	_____
4. Estherville and Burlington	_____	_____	_____

PART II: Using the distance chart on the map, write in the correct distance given and, using this information, figure the cost and time of each trip.

1. Centerville and Mason City	_____	_____	_____
2. Winterset to Sioux City	_____	_____	_____
3. Indianola and Marshalltown	_____	_____	_____
4. Estherville and Burlington	_____	_____	_____

MORE FIGURING DISTANCE, TIME, AND COST

**FACTS
WE NEED**

50

MILES PER HOUR

30

MILES PER GALLON

60¢

COST PER GALLON

Directions: Using the information above, first estimate just to see how close you can really come to the right answer, THEN find the distance chart on your map and write in the correct distance in the DISTANCE column, then figure the other two columns.

ESTIMATE

DISTANCE

TIME

COST

1. Forest City to Atlantic

2. McGregor to Sabula

3. Keokuk to Leon

4. Carroll to Clarinda

ACTUAL

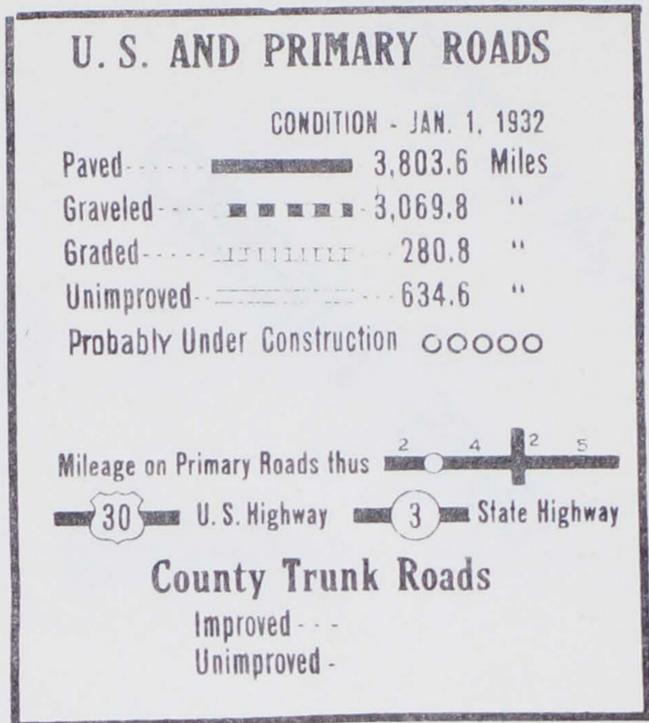
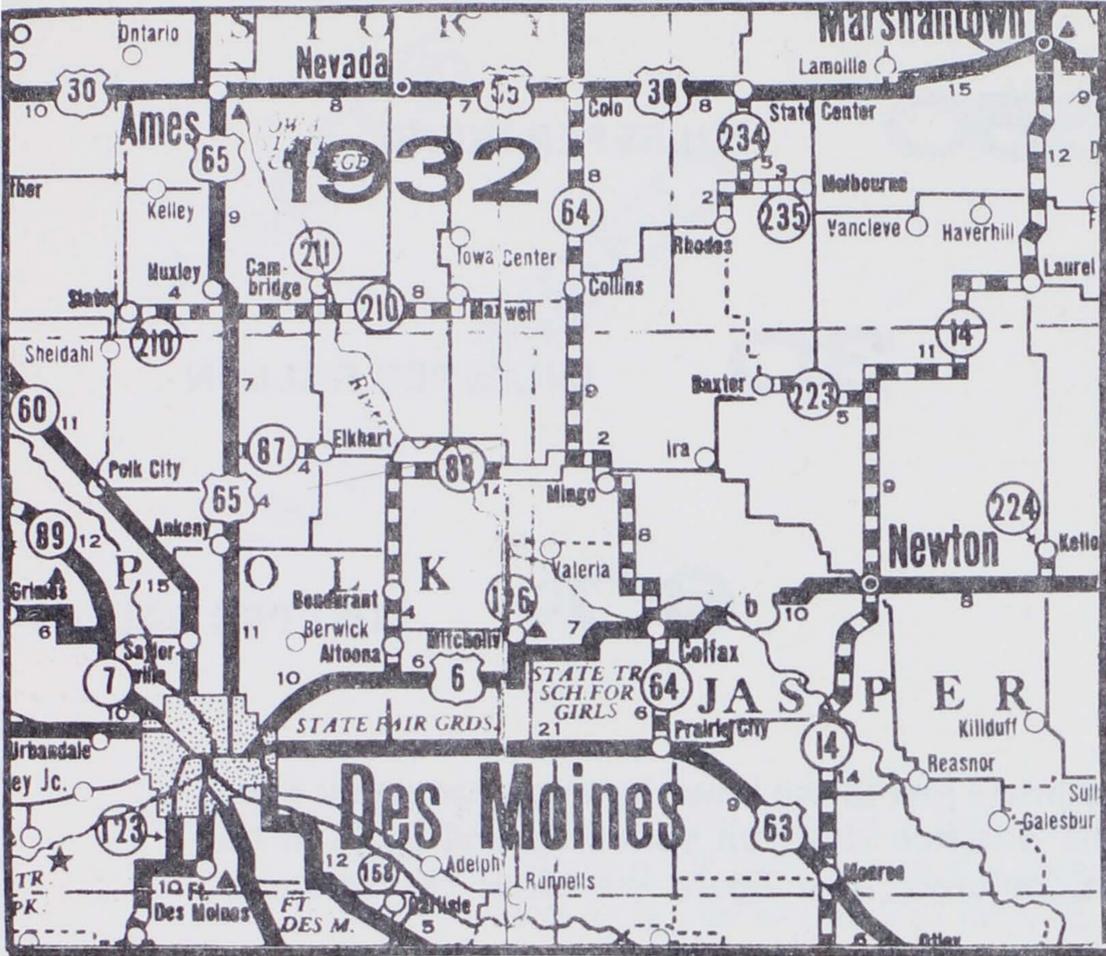
1. Forest City to Atlantic

2. McGregor to Sabula

3. Keokuk to Leon

4. Carroll to Clarinda

COMPUTING DISTANCE IN THE 1930'S



Legend and Map Section
from
Iowa Highway Commission Map, 1932

Directions: The questions on this page are based on sections from the 1932 and 1937 Iowa Highway Commission Maps.

1932

1937

1. What was the distance between Des Moines and Marshalltown?

By way of 65 and 30? _____

By way of 6 and 14? _____

By way of 6, 64, and 30? _____

2. How many miles of highway between Des Moines and Marshalltown were paved?

By way of 65 and 30? _____

By way of 6 and 14? _____

By way of 6, 64, and 30? _____

1. What was the distance between Des Moines and Marshalltown?

By way of 65 and 30? _____

By way of 6 and 14? _____

By way of 6, 117, and 30? _____

2. How many miles of highway between Des Moines and Marshalltown were paved?

By way of 65 and 30? _____

By way of 6 and 14? _____

By way of 6, 117, and 30? _____

FIGURING TIME AND COST IN GRANDPA'S DAY

**FACTS
WE NEED**

35 MILES PER HOUR on PAVING

30 MILES PER HOUR on GRAVEL

25 MILES PER GALLON

15¢ COST PER GALLON

Directions: Figure the time required and gas expense needed to travel between Marshalltown and Des Moines.

Use the 1932 and 1937 Map Insets for highway information.

	Distance	Time	Cost
MARSHALLTOWN TO DES MOINES			
By way of Highways 30 and 65	_____	_____	_____
By way of Highways 14 and 6	_____	_____	_____
By way of Highways 88 and 30	_____	_____	_____

LEGEND

U.S. AND PRIMARY ROADS

Paved	-----	MILES	4,546
Bituminous Surfaced	- - - - -		470
Graveled	-----		3,130
Earth	-----		172
Under Construction	-----		

Mileage on Primary Roads thus

U.S. Highway
 State Highway

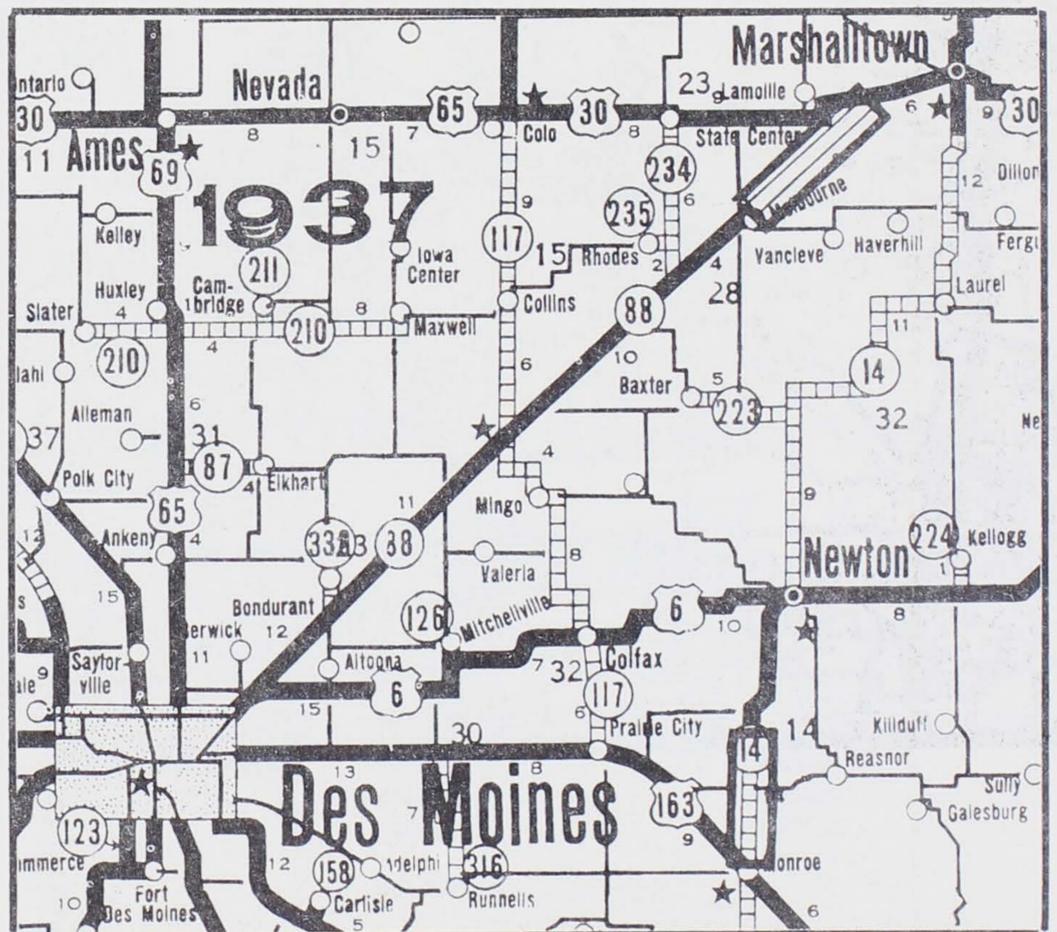
COUNTY TRUNK ROADS

Surfaced -----

Earth - - - - -

CITIES AND TOWNS

Legend and Map Section from Iowa Highway Commission Map, 1937



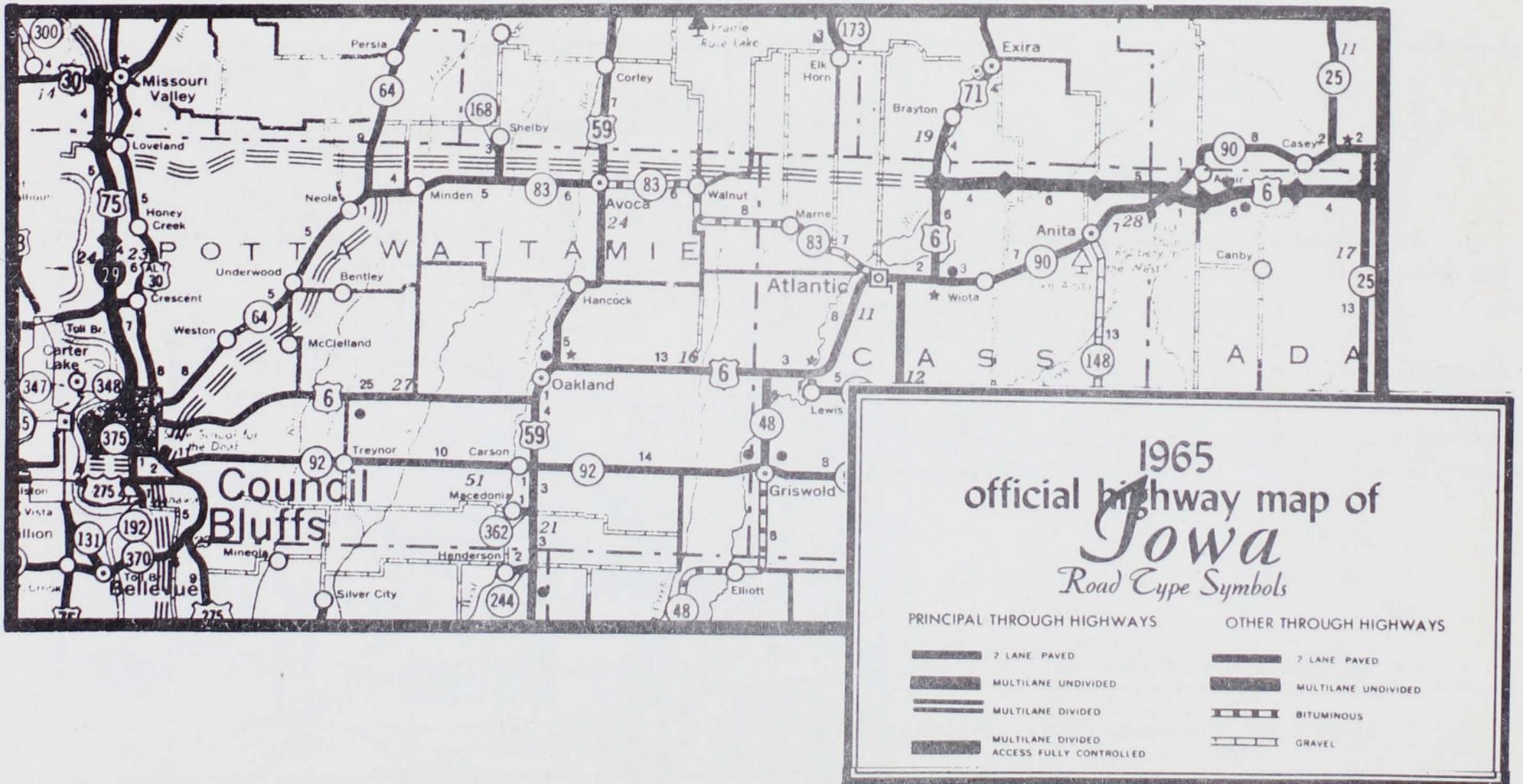
USING THE INTERSTATE

Directions: Use the inset of the 1965 highway map to figure the distance between the following pairs of cities. Compute the shortest distance but follow principal through highways only.

	Highway Routes	Distance
Missouri Valley and Avoca	_____	_____
Crescent and Atlantic	_____	_____
Council Bluffs and Harlan	_____	_____

Directions: Use the inset of the 1974 highway map to figure the distance between the following pairs of cities. Compute the shortest distance but follow principal through highways only.

	Highway Routes	Distance
Missouri Valley and Avoca	_____	_____
Crescent and Atlantic	_____	_____
Council Bluffs and Harlan	_____	_____



FIGURING DISTANCE, TIME, AND COST ON THE INTERSTATE

1965

1974

70 mph

55 mph

20 mpg

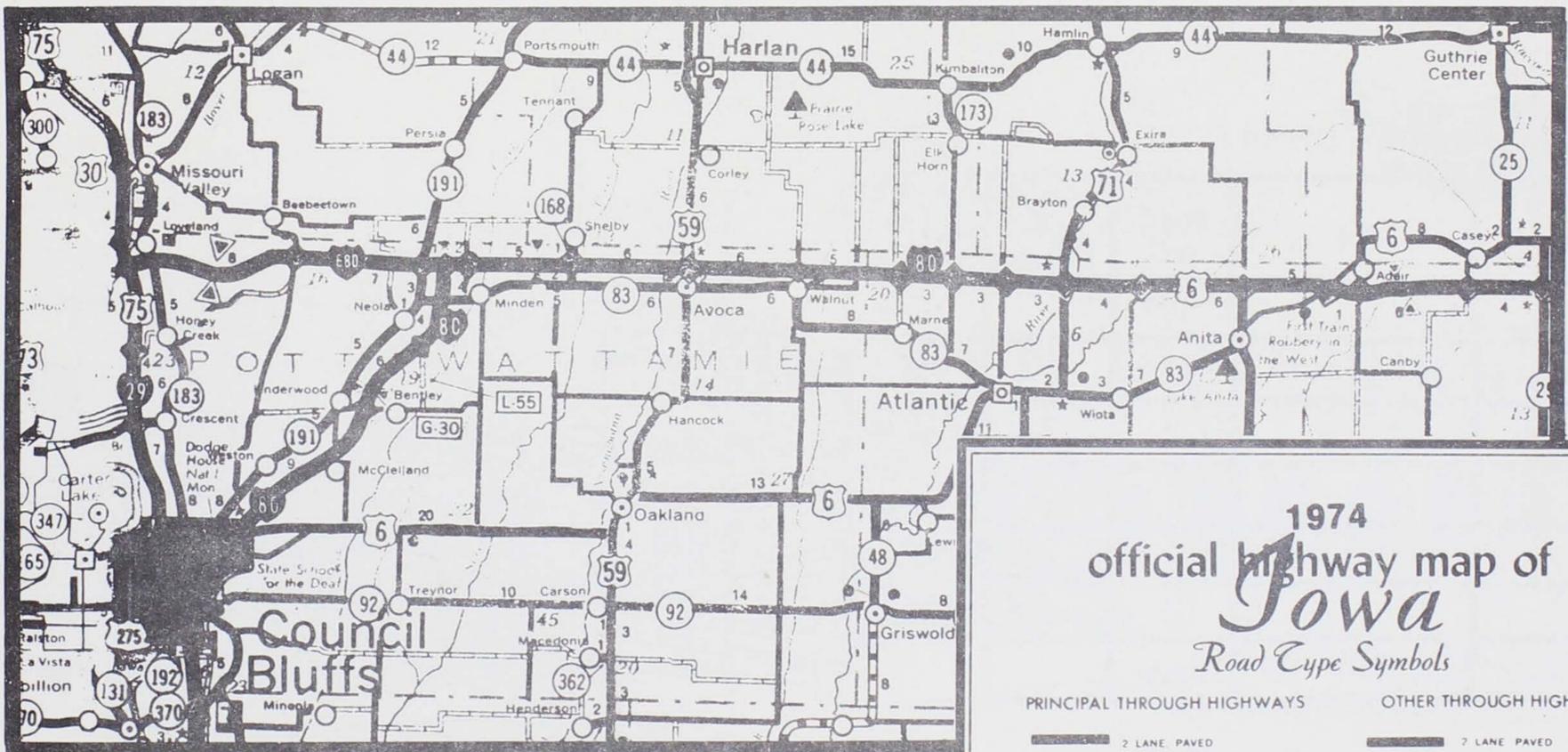
20 mpg

30¢ gal

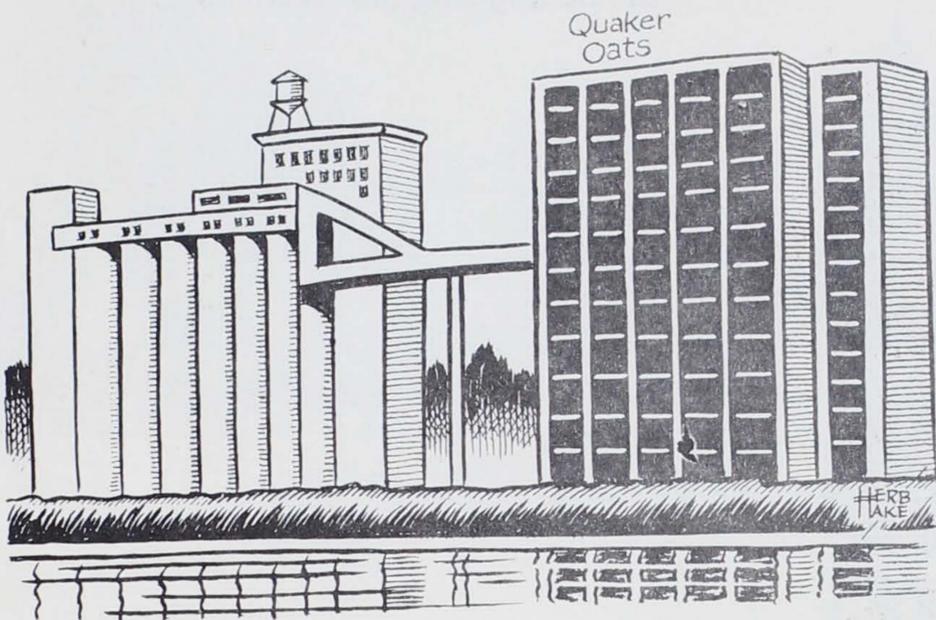
60¢ gal

Directions: Compute the distance, time, and cost of a trip between Missouri Valley and Atlantic using principal through highways only in 1965 and 1974.

	1965	1974
Distance	_____	_____
Time	_____	_____
Cost	_____	_____



LET'S VISIT IOWA FACTORIES



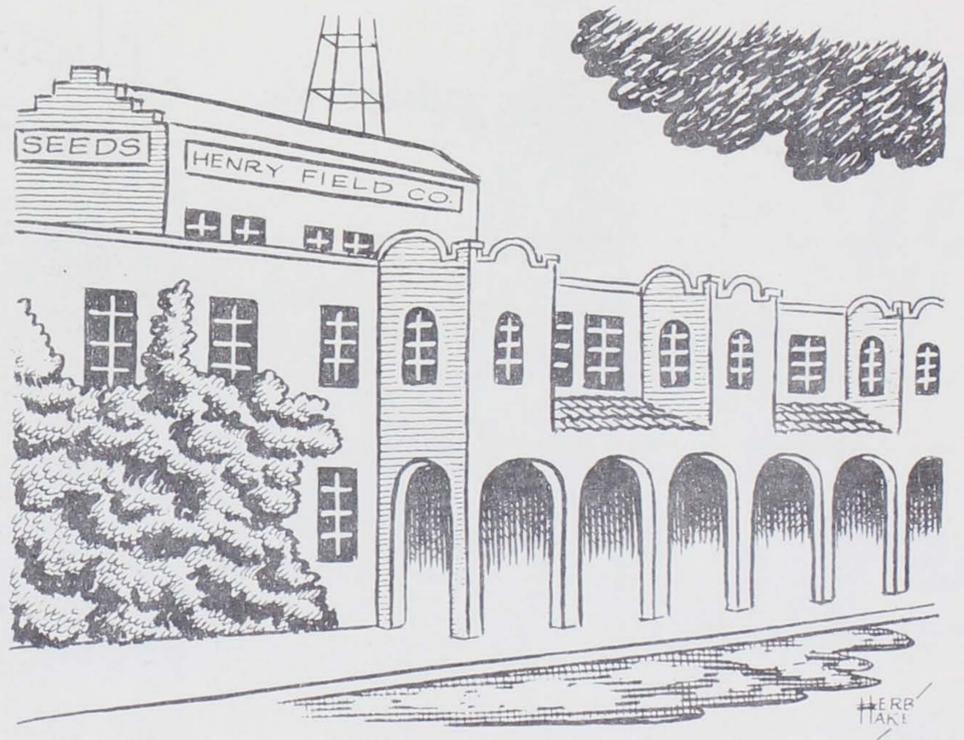
MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	

3. Quaker Oats—Cedar Rapids
Northeast Iowa

MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	

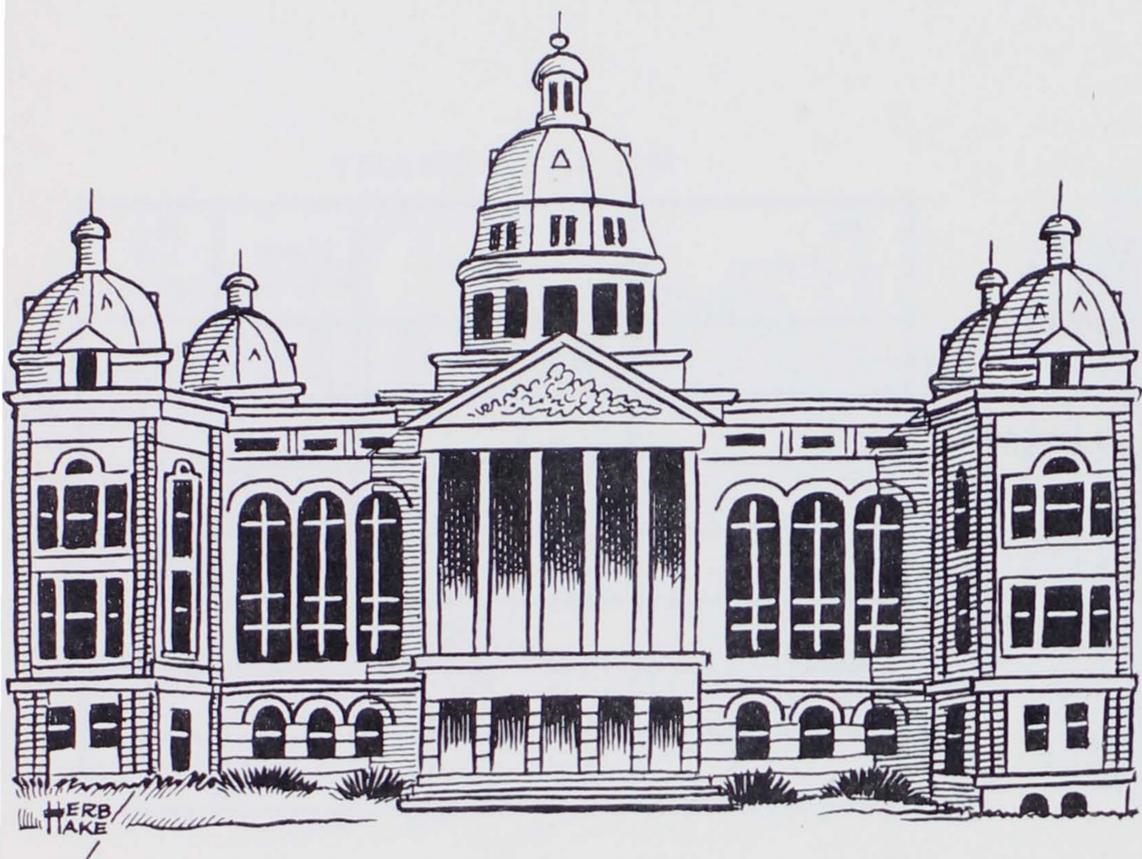


4. Henry Field—Shenandoah
Southwest Iowa

PLAN A TRIP TO DES MOINES

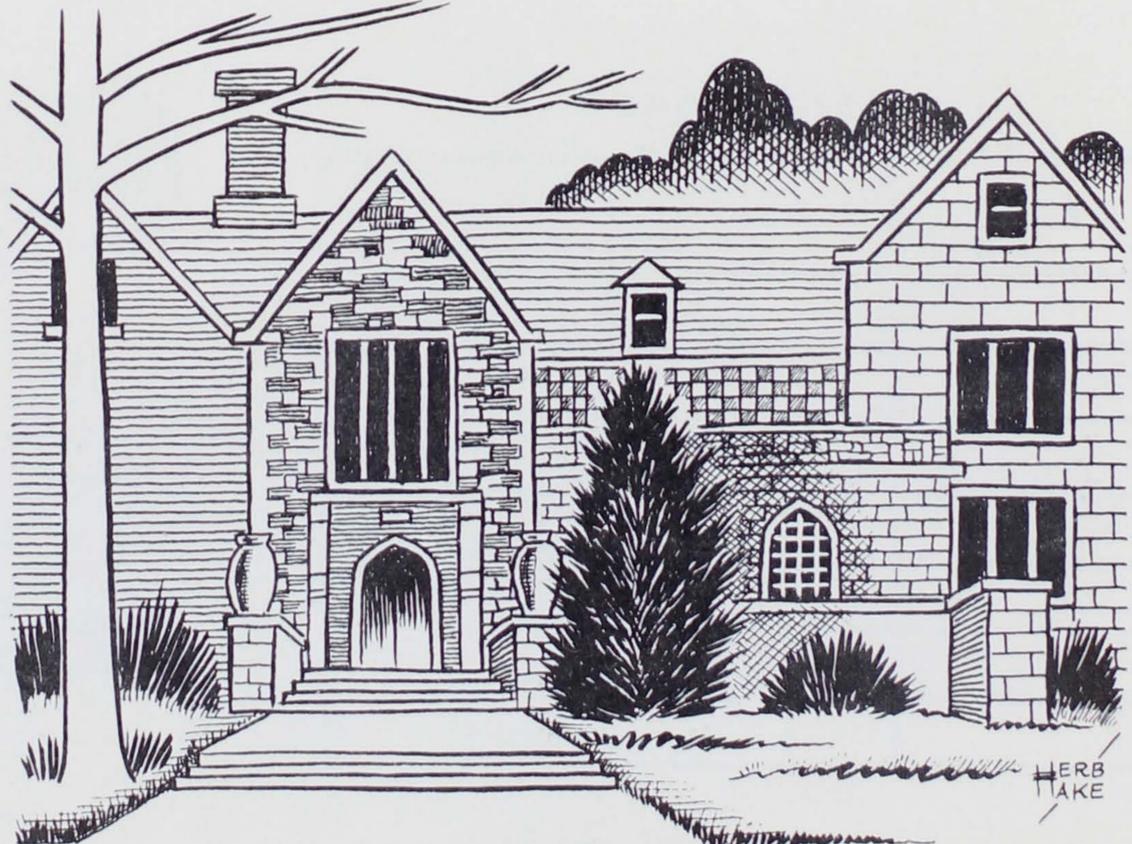
Directions: Working in your group, plan a trip from your home town to Des Moines. Please include the following four items.

1. Planning your route: List all highways, stops, and places of interest for both going and returning.

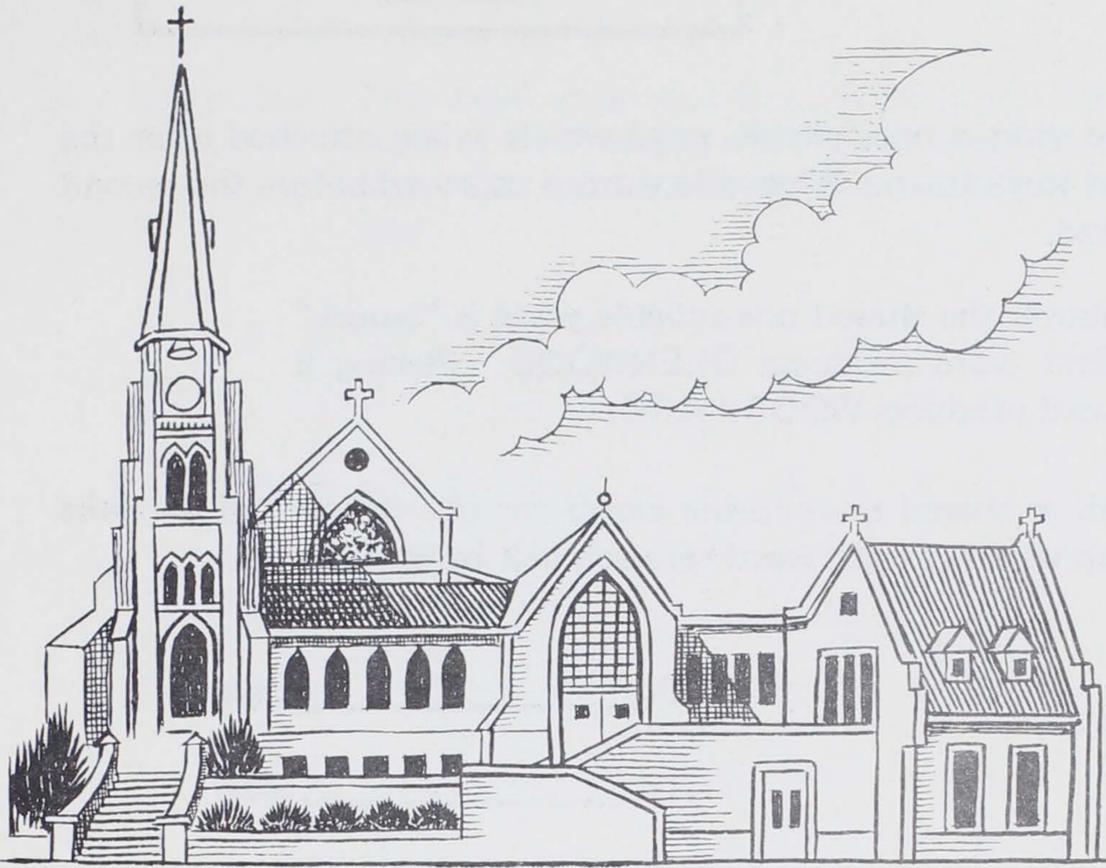


State House

2. How far? Figure your mileage for the trip.



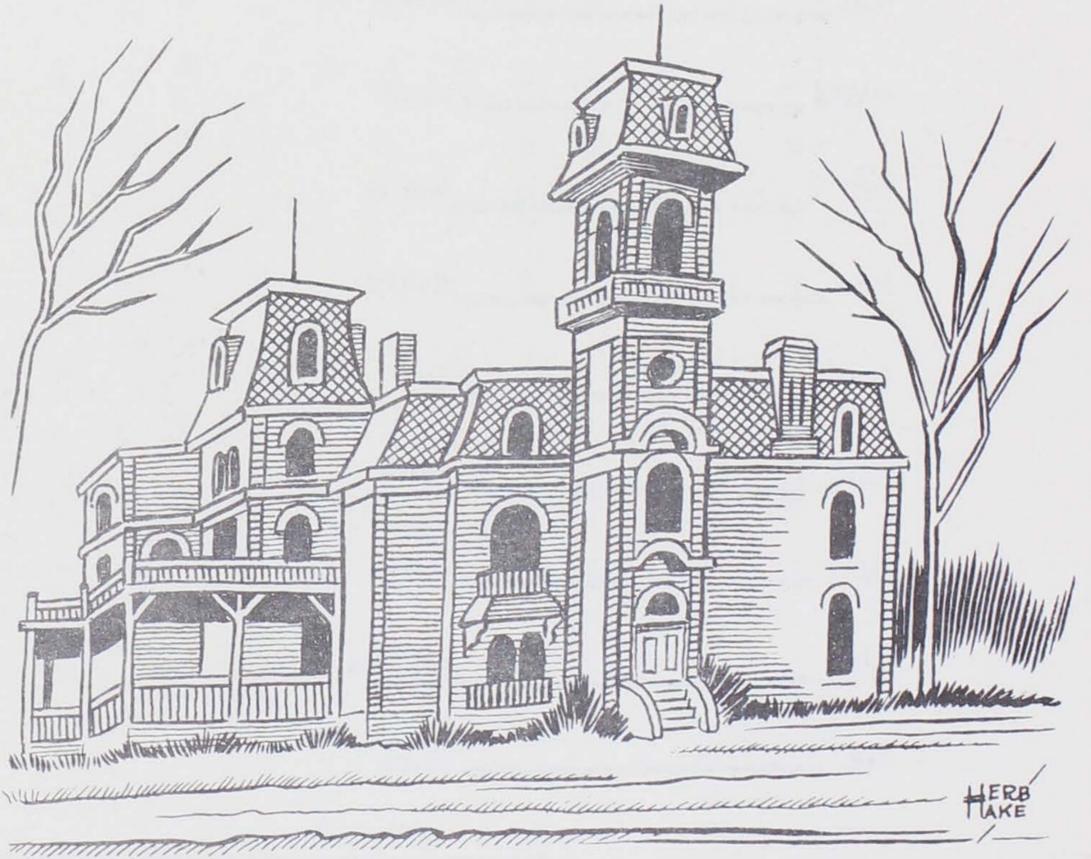
Salisbury House



St. Paul's Episcopal Church

3. Costs: Figure gas, food, and other expenses. List expenses and amounts. (Gasoline is \$.59 per gallon; your car gets 18 miles per gallon.)

4. Time: How long will the trip take? (Figure in stops for food, gas, sight-seeing, etc.)



Terrace Hill

IOWA TOWN NAMES

GLEN _____ WARD

The pairs of words and/or names in this puzzle share a one-syllable word which, when attached after the first word in the pair, produces the name of an Iowa town. When the word is attached before the second word, the name of another Iowa town is produced.

Example: In the illustration above, the shared one-syllable word is "wood."
 Adding it to the first word produces GLENWOOD. Placing it before the second word produces WOODWARD.

The words at the bottom of this page will work as shared one-syllable words for one or more of the pairs below. Before you refer to them, try to come up with the right word for each pair by yourself.

ming _____ sage

bald _____ field

well _____ son

brand _____ slow

stan _____ ville

max _____ man

con _____ land

earl _____ burg

edge _____ burn

have _____ ridge

goose _____ side

trey _____ walk

log _____ drew

ex _____ ville

piers _____ slow

row _____ dover

tab _____ leans

tiff _____ wood

low _____ mark

bucking _____ burg

tole _____ on

north _____ stock

cam _____ port

pal _____ ran

tam _____ very

wool _____ ton

kirk _____ chester

pack _____ bine

elk _____ wick

stan _____ ville

a	do	in	man	or	win
an	ham	lake	nor	stock	wood
bridge	hart	line	o	way	
den	hope	lock	on	well	

HOW'S YOUR CB TALK?

Directions: This word maze contains 36 CB terms. The words read from left to right, from right to left, up and down, and horizontally. Circle them as you find them. A check list printed below the maze will help you keep a record of those you find.

P F Q T J X I B Y S G E D I S E H T N O V R
 L V F I H H F A E H X S Z P I U X R K S T G
 A N D O V R Z F A A R P J S A Y E X D L R Y
 I N B V O T E N O A T D U S Z L Y Y H E A B
 N T P E N Z D E E S O T P M E C B P E K D R
 W R R P A L G B S Y R O H E U E R N M O V I
 R U E O E R E K O O O O H E A T S N M Y E A
 A C V R P H T U C C N W O R B T S W U L R E
 P K I S T E C A N U N Y E D A U N E S A T H
 P U F D I O R E K E R L O M E W S R R C I T
 E M E I P Z K R E I E T P U O H E H Y O S N
 R E V Y R C I T A E N H P D M V T R E L I I
 F A I C I S H B H E I G M U O R O W N S N R
 E S F H J G T W Z G B U P C M T O A O B G A
 Y Y C F I L R M H L K B T I A U E J E L F E
 B P T E T U E W A C E A A G C L K K U P B B
 E U G G O M A F A M E X E D C T F C C S R N
 N M A F I Y E B S S A N W U G I U T I S W Y
 O U M O D U L A T E W I T H Y O U R P P W U
 G T E A R S X R A Y M A C H I N E P E P X W
 E A W A Q H D R O L L E R S K A T E M S X M
 W E V S M O K E Y B O U L E V A R D A Q Y B

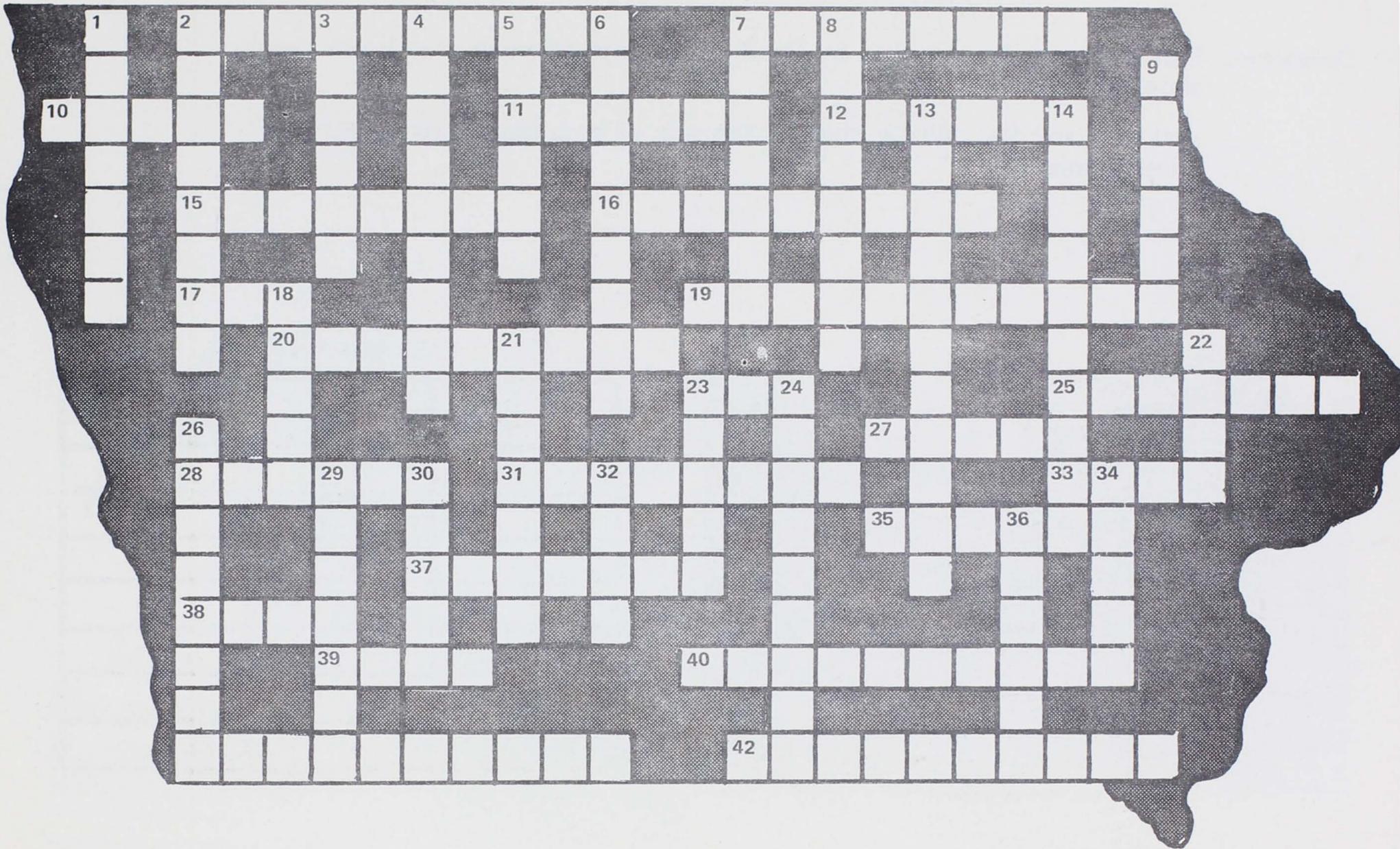
Advertising
 Back-Um-Down
 Bear
 Bear in the Air
 Bear Report
 Bear Taking Pictures
 Beat the Bushes
 Blow the Doors Off
 Boulevard

Chicken Coops
 Clean
 Do You Copy
 Ears
 Eat-Um-Up
 Eighteen Wheeler
 Feed the Bears
 First Mama
 Five Five

Four Wheeler
 Green Stamp Highway
 Handle
 Local Yokel
 Modulate With You
 Negatory
 On the Side
 Pick-Um-Up-Truck
 Plain Wrapper

Rest-Um-Up
 Rollerskate
 Seat Covers
 Smokey
 Threes on You
 Truck-Um-Easy
 We Gone Bye
 X-Ray Machine
 Zoo

WE FIND MORE HIGHWAY JUNCTIONS



This puzzle may be completed by finding the cities/towns located at or near these highway junctions.

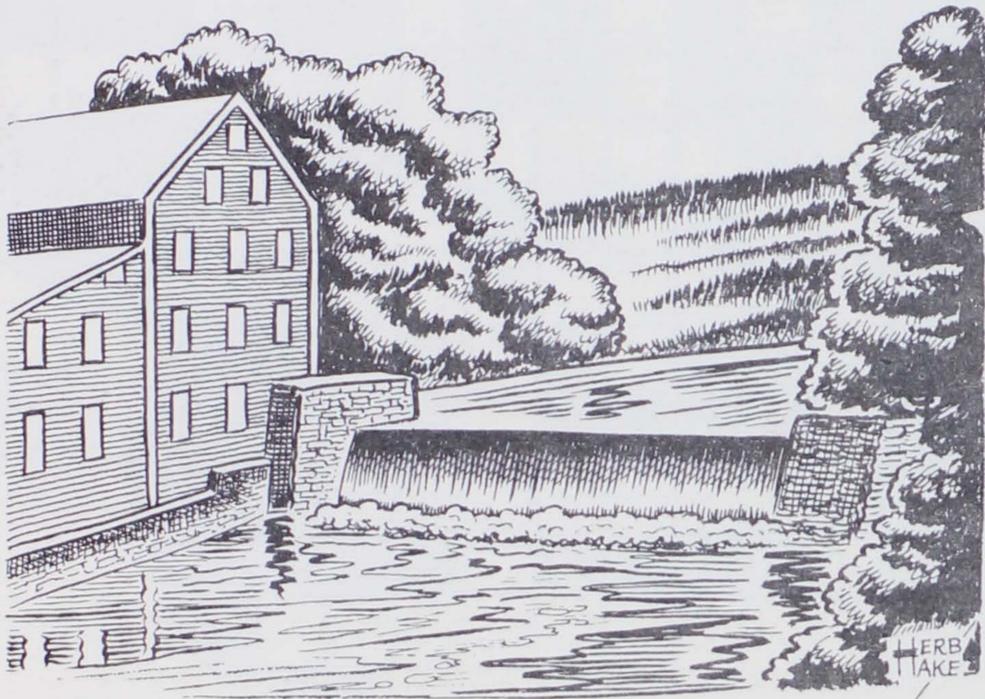
DOWN

- | | | | |
|----|----------------------------------|----|--------------------------------|
| 2 | Iowa 3 and Iowa 4 | 1 | US 218 and Iowa 3 |
| 7 | US 71 and Iowa 83 | 2 | Iowa 356 and Jefferson Co. V63 |
| 10 | US 59 and Iowa 83 | 3 | Iowa 62 and Jackson Co. E17 |
| 11 | US 20 and Dubuque Co. Y21 | 4 | US 63 and Iowa 92 |
| 12 | US 69 and Iowa 179 | 5 | Iowa 38 and Iowa 130 |
| 15 | US 20 and US 218 | 6 | US 71 and Iowa 7 |
| 16 | US 18 and US 65 | 7 | US 151 and Iowa 64 |
| 17 | Iowa 31 and Woodbury Co. D54 | 8 | Iowa 175 and Calhoun Co. N41 |
| 19 | Iowa 175 and Ida Co. L51 | 9 | US 136 and US 218 |
| 20 | Iowa 136 and Clinton Co. Z34 | 13 | Iowa 4 and Iowa 9 |
| 23 | Iowa 141 and Iowa 183 | 14 | Iowa 17 and Wright Co. C54 |
| 25 | Iowa 3 and Iowa 241 | 18 | US 30 and US 169 |
| 27 | Iowa 117 and Jasper Co. F24 | 21 | US 30 and Iowa 146 |
| 28 | US 30 and Iowa 37 | 22 | US 6 and US 169 |
| 31 | US 6 and Dallas Co. P46 | 23 | Iowa 215 and Hardin Co. D65 |
| 33 | US 30 and US 59 (9 miles away) | 24 | US 35 and Iowa 165 |
| 35 | Iowa 195 and Pocahontas Co. C15 | 26 | US 59 and Iowa 175 |
| 37 | Tama Co. T47 and Tama Co. D65 | 29 | Iowa 408 and Kossuth Co. P60 |
| 38 | US 34 and Iowa 123 | 30 | Iowa 163 and Marion Co. T15 |
| 39 | US 20 and Iowa 13 (9 miles away) | 32 | Iowa 167 and Lyon Co. A42 |
| 40 | Iowa 2 and Iowa 81 | 34 | US 30 and Crawford Co. E59 |
| 41 | US 18 and Iowa 4 | 36 | US 6 and Iowa 419 |
| 42 | Iowa 141 and Crawford Co. L51 | | |

LET'S VISIT IOWA STATE PARKS

Directions: Figure the number of miles, by the shortest route, between your home town and these Iowa State Parks.

You may use the mileage chart at the side of each picture to record your computations.



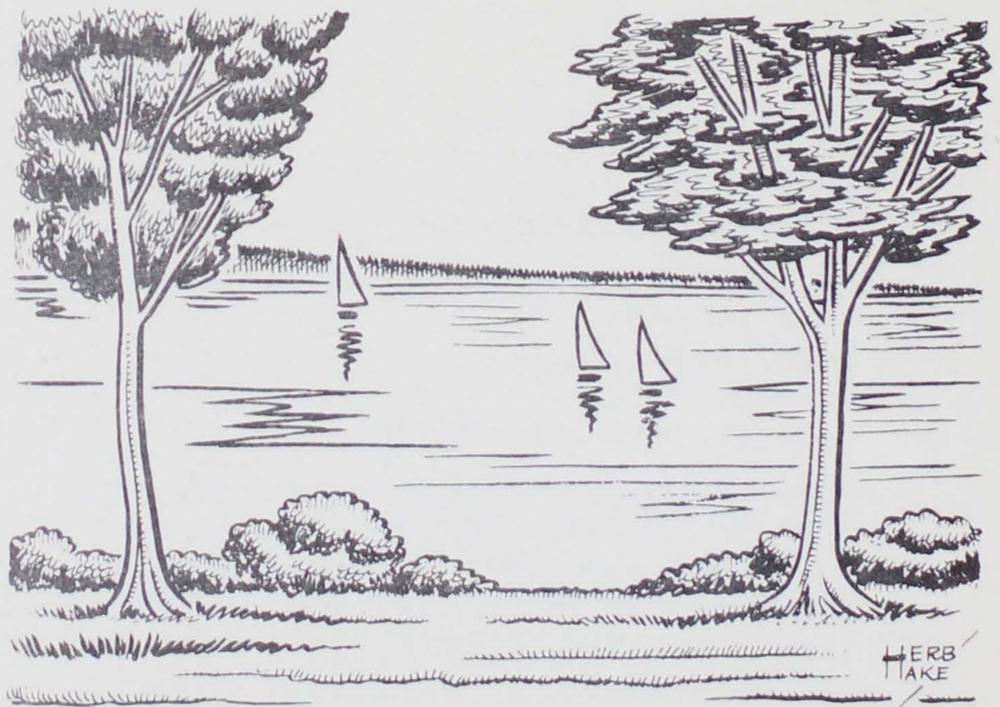
MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	

1. Wildcat Den
Southeast Iowa

MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	



2. Storm Lake
Northwest Iowa



3. Lewis and Clark
Southwest Iowa

MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	

MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	



4. Backbone
Northeast Iowa

LET'S VISIT IOWA HISTORIC LANDMARKS

Directions: Figure the number of miles, by the shortest route, between your home town and these Iowa Historic Landmarks.

You may use the mileage chart at the side of each picture to record your computations.



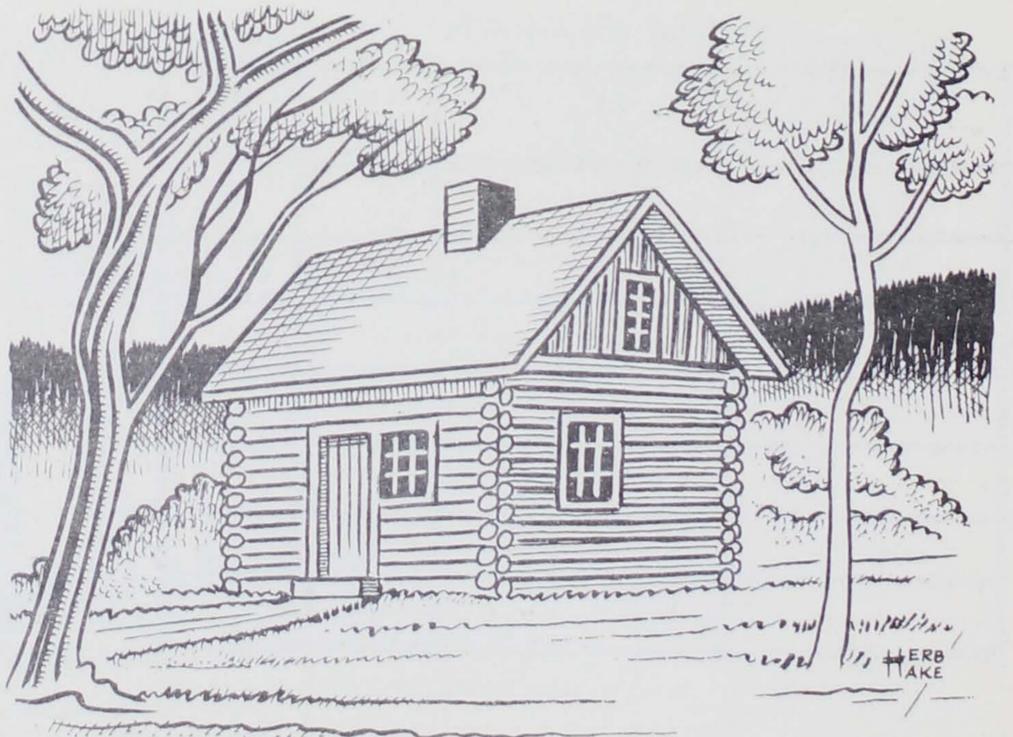
MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	

1. Little Brown Church – Nashua
Northeast Iowa

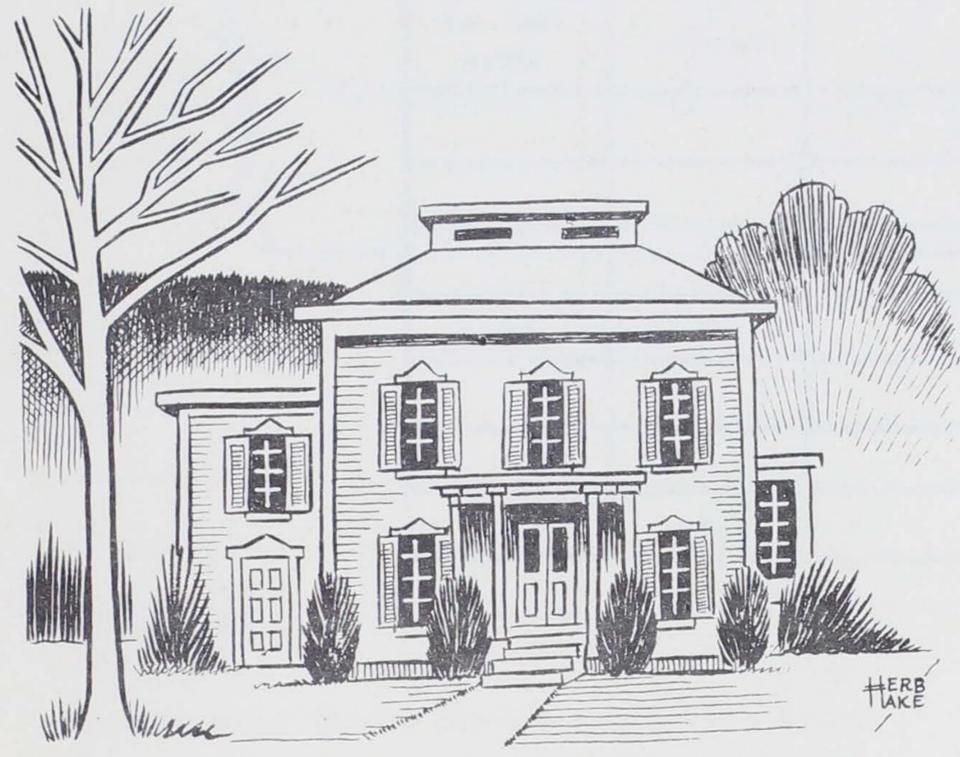
MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	



2. Gardner Cabin—West Okoboji
Northwest Iowa

LET'S VISIT IOWA HISTORIC LANDMARKS



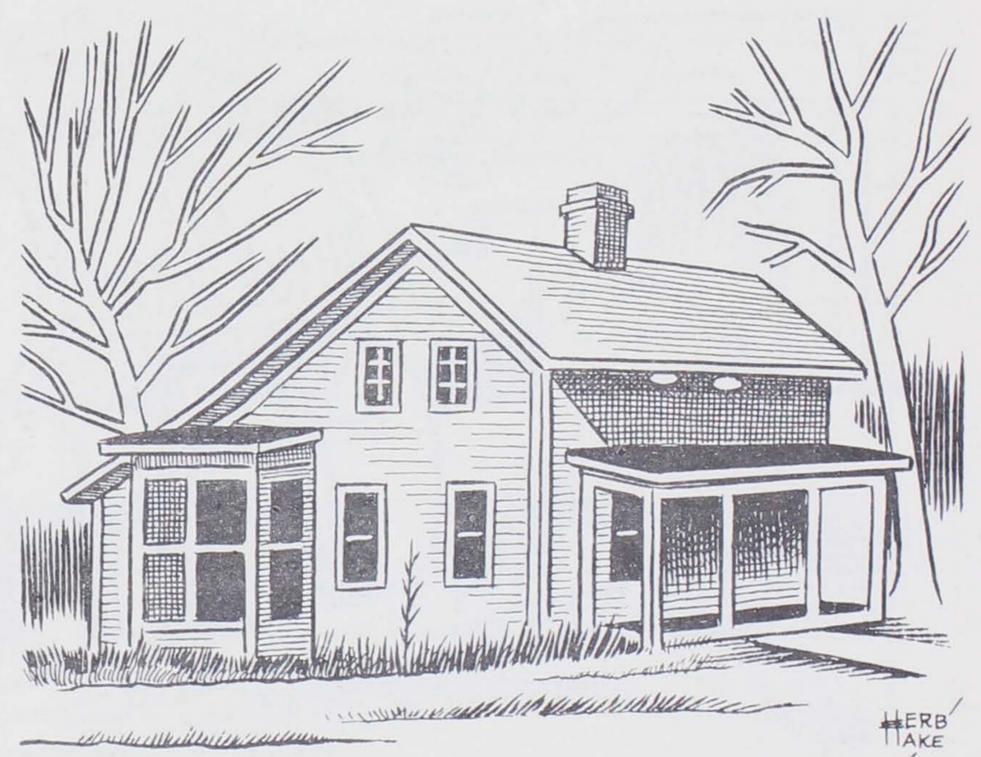
3. Harlan Home—Mt. Pleasant
Southeast Iowa

MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	

MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	



4. Todd House—Tabor
Southwest Iowa

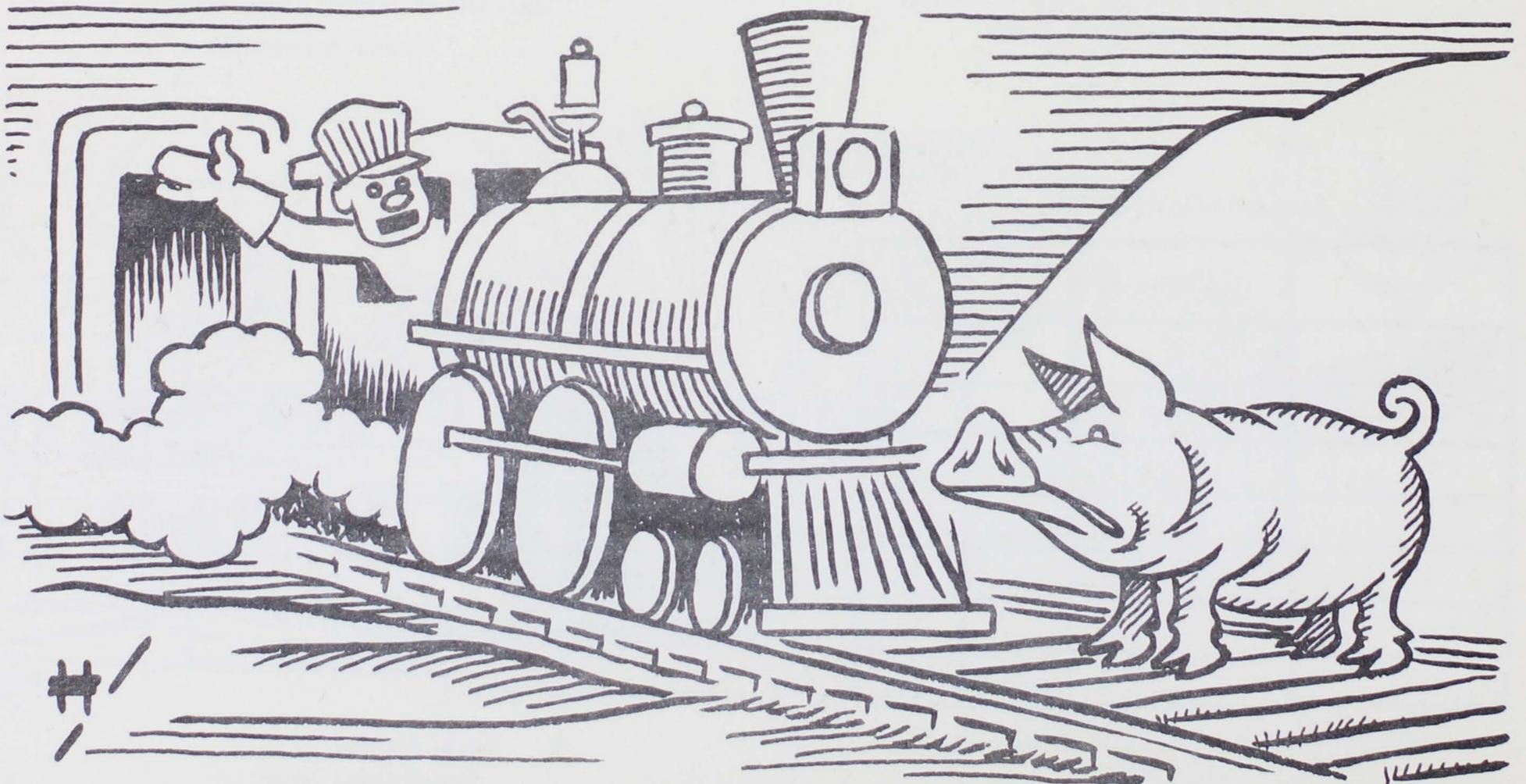
LET'S TAKE A TRIP BY AMTRAK

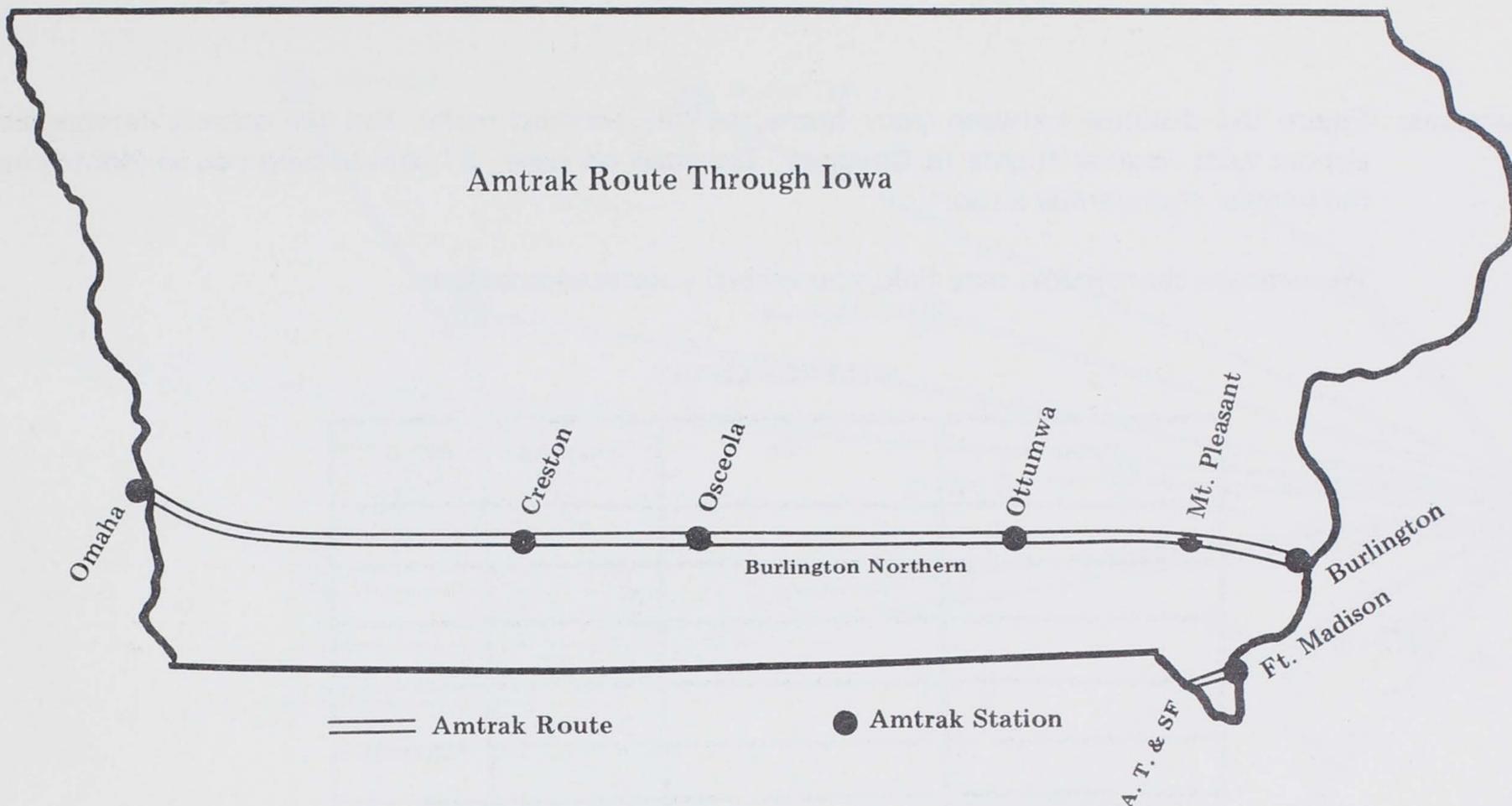
Directions: Figure the distance between your home, by the shortest route, and the nearest Amtrak station shown on the map of Iowa on page 49.

The mileage chart below may help you record your computations.

MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	





Directions:

Assume your family plans a trip to San Francisco by Amtrak. Figure the time you should leave home to reach the nearest station on the Burlington Northern Railroad. The Amtrak timetable indicates train time for each of the Amtrak stations.

You should plan to be at the station a half-hour before train time. With the 55 MPH speed limit, you should plan to average 50 MPH on the road.

1. Distance to nearest Amtrak station:

2. Departure time for train:

3. Time to leave home:

Amtrak Timetable

CHICAGO-BURLINGTON-OMAHA			
Read Down	(Central Daylight Time)		Read Up
5	← Train Number →		6
San Francisco Zephyr	← Train Name →		San Francisco Zephyr
Daily	← Frequency of Operation →		Daily
	Miles		
4 00 p	0	Dp CHICAGO'IL (Union Sta) Ar	1 35 p
7 05 p	179	..... Monmouth, IL.....	10 00 a
7 35 p	205	..... Burlington, IA.....	9 30 a
8 05 p	233	..... Mt. Pleasant.....	8 55 a
8 50 p	280	..... Ottumwa.....	8 10 a
10 05 p	360	..... Osceola.....	6 50 a
10 45 p	393	..... Creston.....	6 20 a
12 50 a	496	Ar OMAHA' NE..... Dp	4 20 a
Thru train to San Francisco			Thru train from San Francisco

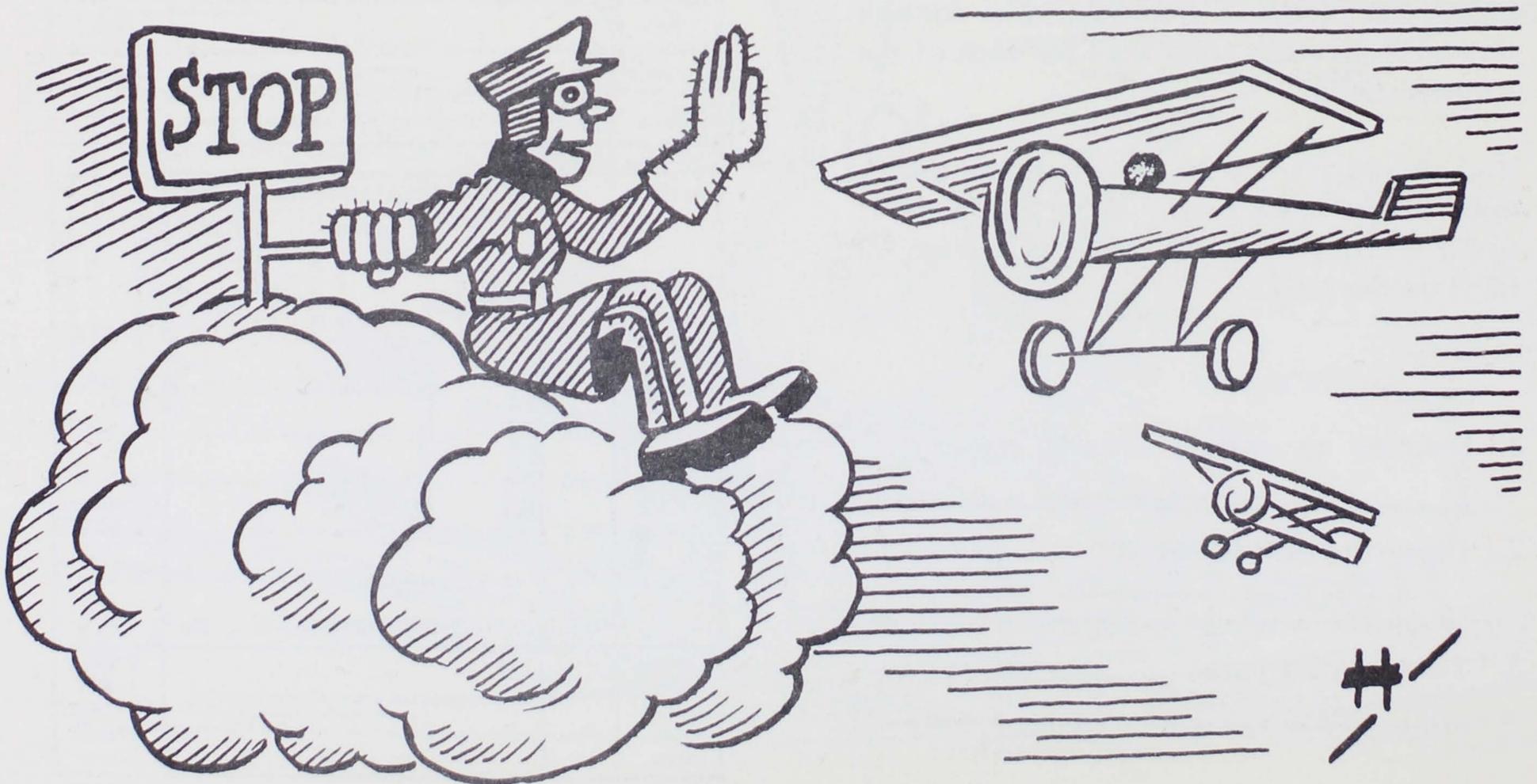
LET'S TAKE A TRIP BY AIR

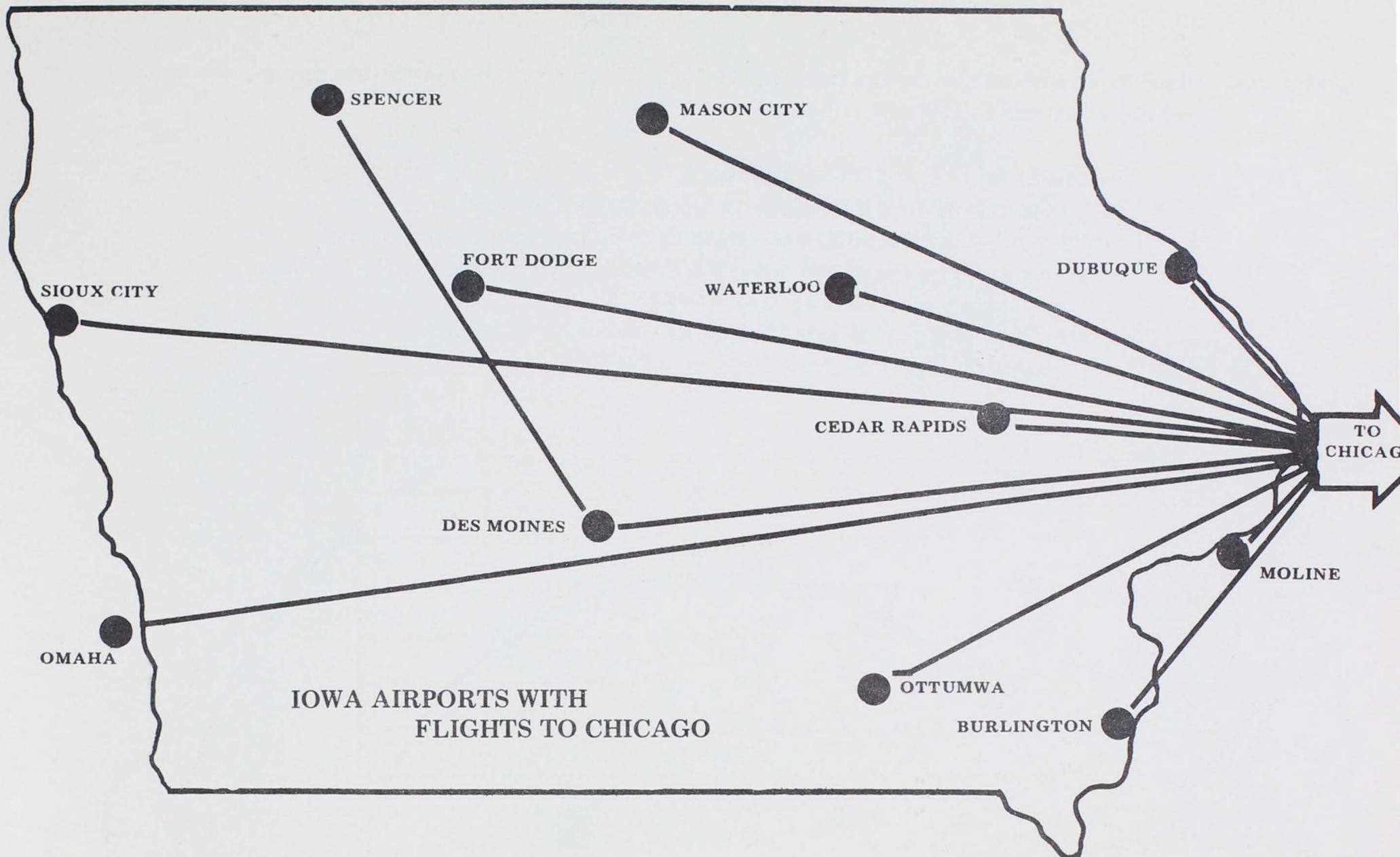
Directions: Figure the distance between your home, by the shortest route, and the nearest commercial airport with regular flights to Chicago. The map on page 51 should help you in identifying the nearest commercial airport.

The mileage chart below may help you record your computations.

MILEAGE CHART

From	To	Hwy No.	No. of Miles
		Total	





IOWA AIRPORTS WITH FLIGHTS TO CHICAGO

Directions:

Assume you plan to travel to Chicago, Ill. by air. Figure the time you should leave home to take the flight into Chicago from the nearest commercial airport. Departure times are shown on the flight schedule.

You should plan to check-in at the airline ticket desk at least an hour before departure time. You should also plan to average 50 MPH on the road due to the 55 MPH speed limit.

1. Distance to nearest commercial airport: _____
2. Check-in time at airline ticket desk- _____
3. Departure time for flight to Chicago: _____
4. Time to leave home- _____

FLIGHT SCHEDULE TO CHICAGO FROM IOWA AIRPORTS

Flights selected for this problem, local travel agencies can provide information regarding additional flights.

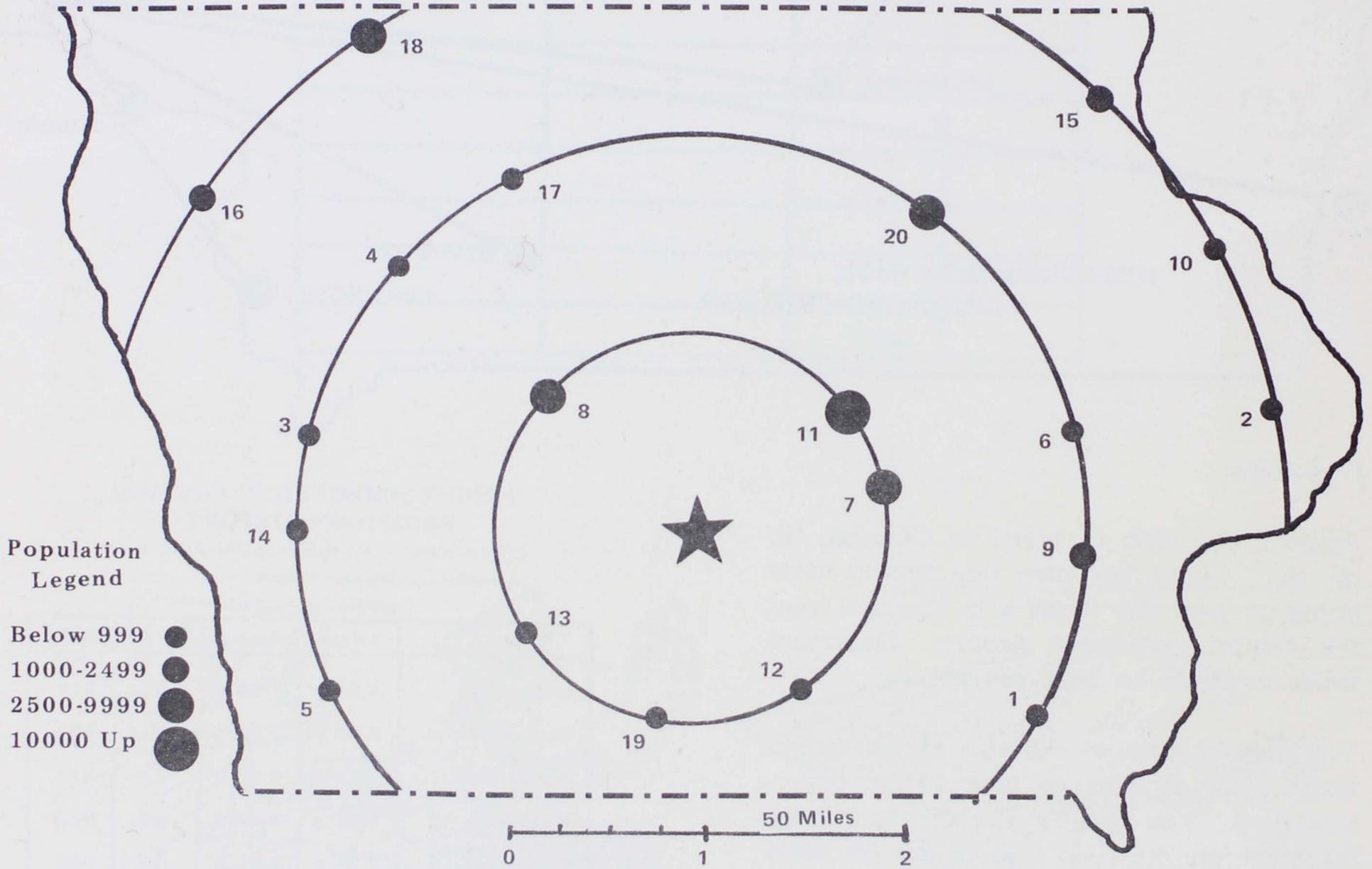
From	Leave	Arrive	Airline	Flight
Burlington	7 04 p	8 05 p	OZ	810
Cedar Rapids	3 00 p	3 50 p	UA	398
Des Moines	4 45 p	6 39 p	UA	314
Dubuque	1 54 p	2 45 p	OZ	980
Ft. Dodge	7 35 p	10 27 p	OZ	888
Mason City	8 27 a	9 20 a	OZ	994
Moline	10 10 a	10 49 a	UA	430
Ottumwa	1 14 p	3 19 p	OZ	872
Omaha	2 55 p	4 15 p	UA	776
Sioux City	11 57 p	2 30 p	OZ	934
Spencer (via Des Moines)	3 45 p	4 40 p	XJ	993
Waterloo	8 55 p	10 27 p	OZ	888

UA — United Airlines
 OZ — Ozark
 XJ — Mesaba Aviation

USING THE DISTANCE SCALE

Directions: Identify the cities and towns indicated by dots (●) on the concentric circles. To solve this puzzle, you need this information:

1. The center point (★) is Des Moines.
2. The circles represent a map scale of 1 inch equals 50 miles.
3. Population size of the cities and towns is indicated in the map legend.
4. Distance should be measured from the State Capitol symbol in Des Moines.
(Iowa Transportation Map, 1976-1977)
5. Measure from the city of Des Moines, not the state boundaries.
(State boundaries may vary from exact scale).



1 _____	8 _____	15 _____
2 _____	9 _____	16 _____
3 _____	10 _____	17 _____
4 _____	11 _____	18 _____
5 _____	12 _____	19 _____
6 _____	13 _____	20 _____
7 _____	14 _____	



BIKE
XING



SLIPPERY
WHEN WET



DIVIDED
HIGHWAY



FARM
MACHINERY



CAMPING



NEW SIGNS
ALONG
IOWA'S
HIGHWAYS



HOSPITAL



DEER
XING



CATTLE
XING



HILL



PED
XING



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