

## PROJECT 10073 RECORD

1. DATE - TIME GROUP 30 July 59 31/0230Z	2. LOCATION Assonet, Mass. (1 Witness)
3. SOURCE Civilian	10. CONCLUSION INSUFFICIENT DATA FOR EVALUATION
4. NUMBER OF OBJECTS One	
5. LENGTH OF OBSERVATION 10 Minutes	11. BRIEF SUMMARY AND ANALYSIS Observer reported moon size object in the NE that traveled toward the witness. Object was yellow-white initially, but changed to a dull red finally. Observer hid under a overpass and said UFO stopped directly over him. The late data prevents a comprehensive evaluation and this case is filed as insufficient data.
6. TYPE OF OBSERVATION Ground-Visual	
7. COURSE Southward	
8. PHOTOS <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
9. PHYSICAL EVIDENCE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

FORM  
FTD SEP 63 0-329 (TDE) Previous editions of this form may be used.

## THE FIELDS

### ASTRONOMY

## Invisible Auroras Linked To Unusual Radio Noises

INVISIBLE AURORAS that occur at the same times as unusual radio noises may be due to the earth's encountering a stream of particles thrown out by the sun.

Two Australian scientists report in *Nature* (June 6) that they sometimes found a minute-to-minute link between changes in radio noise level and the invisible auroral light intensity.

The auroras were spotted by an electronic device called a sky-scanning photometer on 53 nights between June and December, 1958. A comparison of the radio noise bursts at 4.6 kilocycles and night-glowing auroral records showed only a few times when both did not occur simultaneously.

Both the invisible auroras and radio noises tend to occur when the earth's magnetic field is greatly disturbed, they found.

The solar streams causing them could be either protons or electrons, Drs. R. A. Duncan and G. R. Ellis of the Commonwealth Scientific and Industrial Research Organization, Camden, New South Wales, suggest.

*Science News Letter, June 20, 1959*

### GENETICS

## Computers Improve Study of Gene Mutation

COMPUTERS CAN help biologists estimate just what the effects would be of increased mutation rates in man's genes.

An increase in the number and frequency of gene changes following exposure to X-rays and other irradiation has been observed in laboratory animals. Some scientists believe some human ills can be correlated to high or above-normal radiation levels.

We have reached a point now, where scientists should be able to decide if an increase in hereditary defects will follow a rise in mutation rate, Dr. Howard B. Newcombe of Atomic Energy of Canada, Ltd., Chalk River, Ontario, said.

There are two ways these defects are maintained in a population: by mutation, and by an increase in defects along with an increase in fertility in the healthy carriers of genes. In this second way, the gene losses which result from any reduced fertility in persons with ill effects would be balanced by the increased fertility of other persons. Frequency of mutation, such as induced by X-rays or other radiation, would not be important here.

"Our ignorance on this point represents the major source of uncertainty in estimating the consequences of an increase in mutation rate," Dr. Newcombe told scientists at a symposium on molecular genetics and human disease in Syracuse, N. Y.

Present-day computing equipment seems to be adequate for comparing the genealogical information researchers are now gathering routinely in the form of marriage registrations. In addition to the need for new computers, the problem of studying human genetics and disease would be greatly aided by taking several steps: increase awareness of the hereditary causes of ill health as a public health problem; use vital statistics system to permit follow-up studies of individuals; make health information about individuals available especially where national health insurance programs are in effect, and improve methods of storing and getting back large amounts of records.

*Science News Letter, June 20, 1959*

### MEDICINE

## New Cortisone-Like Drug Eases Sunburn Discomfort

A CORTISONE-LIKE drug has been developed that may bring relief from pain and discomfort to many persons who have suffered severe sunburn reactions after initial or prolonged exposure to the summer sun.

Known as triamcinalone, the drug was administered orally every six hours to 14 severely sunburned persons by Drs. Milton M. Cahn and Edwin J. Levy of the University of Pennsylvania School of Medicine.

Nine of those treated obtained complete relief within 24 hours. Four others were more severe cases, with swelling of the face, hands and feet, and required 42 hours of therapy before complete relief was obtained.

The doctors reported that the drug caused no relapses or side effects, but cautioned against careless use because of the possible danger involved should some severe stress be experienced shortly afterward, such as emergency surgery. Tolerance to stress, such as experienced in surgery, is reduced considerably in some patients after receiving cortico-steroid therapy.

*Science News Letter, June 20, 1959*

### ICHTHYOLOGY

## Sea Cucumber May Be New Canned Food

SEA CUCUMBER chowder may soon be occupying a high place on the fish lover's menu.

The white meat of this fleshy relative of the starfish looks and tastes like excellent quality sliced clam meats, said John A. Dasso of the U.S. Bureau of Commercial Fisheries, Seattle, Wash.

In the North Pacific, sea cucumbers may be gathered at any season. However, native Alaskans say their quality is poor during warmer weather. Preparation of the tube-shaped animal is simple, the scientists reported.

After it is cleaned and eviscerated—by cutting off one or both ends, splitting down the side, and scraping and washing—the thin white strips of meat can be cooked and used as a clam substitute.

The sea cucumber can also be canned, frozen, or dried and used as is trepang or dried sea cucumber of the Orient.

*Science News Letter, June 20, 1959*

### ENGINEERING

## Largest Ball Bearing Measures 14 Feet

THE LARGEST precision ball bearing ever made weighs 14,600 pounds, measures nearly 14 feet in diameter, and will support a million pounds.

It contains 88 four-inch balls and will rotate at ten revolutions per minute during a minimum operating life of ten years.

Soon to be installed in the supporting system of a Nike-Zeus radar system, the bearing was built by the Kaydon Engineering Corporation of Muskegon, Mich.

Five different rings make up the bearing, reported the International Nickel Company, Inc., in New York. An upper and lower outer race (track or groove), an upper and lower inner race, and a data gear ring that indicates angular position of the radar antenna.

The rings were forged from nickel-chromium-molybdenum alloy steel, which has good hardenability and machinability. It also provides excellent wear resistance in the hardened condition, high strength and impact resistance even at low temperatures.

As demands for big radar systems continue, even larger bearings will be needed. Already, a 60-foot-diameter bearing is being designed with replacement segments. Diameters of 100 feet are probable in the future.

*Science News Letter, June 20, 1959*

### PUBLIC HEALTH

## Researchers Recommend Annual Polio Boosters

AN ANNUAL BOOSTER shot of polio vaccine, and possibly two such shots, is recommended by a research team at Michael Reese Hospital, Chicago.

A five-year study involving 4,000 children who had received a Salk-type polio vaccine showed that, within one to three years after getting their first three shots, the levels of immunity drop.

After a booster, however, the immunity levels reached a higher level and fell less than after the primary immunization. After a second booster "there was even better response," the researchers report in the *Journal of the American Medical Association* (June 6).

It seems possible, they explain, that once the polio antibodies, or polio virus fighters, are produced, they will be present within the body at very low levels for life. Actual virus exposure or booster shots will "re-ignite" the body to produce more of these virus fighters.

Thus a person who has once produced antibodies is probably still immune. However, it is preferable to have a detectable amount of antibodies present in the blood stream and the booster shot helps provide them, the team reports.

The research was carried out by Drs. Albert M. Wolf, Howard J. Shaughnessy, James W. Chapman and Ruth E. Church, and Martha Janota and Mildred Moore.

*Science News Letter, June 20, 1959*

other planet or a star—because it takes up so much less space in the sky. There is plenty of dark space between the stars for the planets to move, and not come in front of one.

The most unusual event on the celestial program for July is such a planetary occultation. This occurs on the seventh, when Venus occults Regulus, in Leo. This star is at the end of the handle (which is toward the south) of a smaller group, the sickle. Unfortunately, this occurs at 9:15 a.m., Eastern Standard Time, when Venus is low in the east in broad daylight, along the Atlantic Coast. Farther west, of course, it will not have risen.

While Venus is so bright that you can see it in daylight, if you know just where to look, you cannot see the star. The phenomenon will be visible in Europe and Africa, and parts of Asia. In some of these areas the sky will be darker when it happens.

But even though people in our country will probably miss the actual occultation, it will be interesting to watch Venus before and after the seventh, especially in relation to Regulus. On the evenings of the fifth and sixth, the planet will draw closer and closer to the star; and on that of the seventh it will have passed it.

### Celestial Time Table for July

#### JULY EST

1	2:00 p.m.	Moon farthest, distance 251,900 miles.
5	2:00 a.m.	Earth farthest from sun in 1959; distance 94,455,000 miles
	9:00 p.m.	New moon
8	5:28 a.m.	Moon passes Mercury
	4:00 p.m.	Mercury farthest east of sun; visible low in western sky at dusk for a few days before and after this date.
9	3:34 a.m.	Moon passes Mars
	5:31 p.m.	Moon passes Venus
13	7:01 a.m.	Moon in first quarter
15	11:36 a.m.	Moon passes Jupiter
17	9:00 a.m.	Moon nearest (for month); distance 226,300 miles
18	6:23 a.m.	Moon passes Saturn
19	10:33 p.m.	Full moon
26		Venus at greatest brilliancy
27	9:22 a.m.	Moon in last quarter
29	7:00 a.m.	Moon farthest, distance 251,400 miles

Subtract one hour for CST, two hours for MST, and three for PST.

Science News Letter, June 20, 1959

INTRODUCTION TO THE PHYSICAL SCIENCES—Morris Goran—*Free Press*, 421 p., illus., paper, \$6. General science course for college students, presenting astronomy, meteorology, geology, physics and chemistry as parts of a unified whole; includes biographical sketches of scientists.

THE LANGUAGE OF PSYCHOLOGY — George Mandler and William Kessen—*Wiley*, 301 p., \$6.75. Analysis of scientific language in psychology, tracing its development from vernacular to the formulation of explicit theories, emphasizing recent development in the logic and philosophy of science.

THE LIFE OF SIR ALEXANDER FLEMING: Discoverer of Penicillin—Andre Maurois, transl. from French by Gerard Hopkins, introd. by Robert Cruickshank—*Dutton*, 293 p., photographs, \$5. From the background of laboratories, test tubes and pipettes, antiseptics and antibiotics emerges a portrait of the man and great scientist who died in 1955.

LOAD-CARRYING CAPACITY OF ROADS AS AFFECTED BY FROST ACTION: Final Report—G. A. Meskal, W. W. Stiffler and Carl E. Vogelgesang—*Highway Research Bd.*, Bull. 207, 32 p., illus., paper, 10¢. Summaries of state projects, with Oregon and Indiana reports in full.

MODERN SCIENCE AND HUMAN FREEDOM—David L. Miller—*Univ. of Texas Press*, 297 p., \$6. Examines whether the great traditions of Western culture can be reconciled with the impact of science and the theory of evolution.

MOTIVATION OF SCIENTISTS AND ENGINEERS: A Survey of Management Policies and Practices in Selected Companies—Leonard C. Beanland and others—*Stanford Univ., Grad. School of Business*, 47 p., paper, 5¢. Group research project of twelve Stanford fellows exploring incentives in industry.

PHILIPPINE ZOOLOGICAL EXPEDITION 1946-1947: Tabanidae (Diptera)—Cornelius B. Philip—*Chicago Nat. Hist. Mus.*, 83 p., illus., paper, \$2. Report on horseflies and deerflies collected by the expedition.

PUSH AND PULL: The Story of Energy—Paul Blackwood—*Whittlesey House*, 190 p., illus. by William D. Hayes, \$3. Story of the energy present in each push or pull motion made by man or machine; explains solar, mechanical, radiant, chemical and nuclear energy, in simple terms, with suggestions for experiments.

QUALITATIVE ANALYSIS AND ANALYTICAL CHEMICAL SEPARATIONS—Philip W. West and Maurice M. Vick—*Macmillan*, 2nd ed., 302 p., illus., \$4.50. Fundamental text for second semester studies of general chemistry.

RESEARCH IN AGING: VA Prospectus—Veterans Administration Advisory Committee on Problems of Aging, Ralph W. Gerard, Chmn.—*Govt. Print. Off.*, 125 p., illus., \$1.50. Trans-

Do not film this page.

No Case (Information Only)

8 July 1959  
Amager, Island, Denmark

On July 8 prior to the November  
photograph 3 exposures of a saucer-shaped object, low over the  
landscape were taken by two young birdwatchers at Amager Island,  
Denmark. Their names were  and .

9 July 1959  
Columbus, Indiana

1959

RECENT NEWS STORIES

INDIANA FAMILY CHASES SAUCERS: On the night of July 9th, [redacted] and other members of his family driving with him, chased a group of unidentified lights for several miles on a highway near Columbus, Indiana. Said [redacted] "We saw three lights moving very slowly in front of us, and we thought at first that they were on an airplane with engine trouble. There was no sound. I think I could have thrown a rock and hit them, they were so low. These blinking orange lights then moved out of their triangle formation. It gave us quite a start. Later they came back together and we started chasing them towards Columbus." [redacted] estimated the speed of the lights at 15 mph, until he started chasing them. They then increased their speed and finally streaked off into the sky and got away from him. Local officials identified the lights as belonging to three airplanes flying in a triangle formation, but this explanation does not fit the facts as told by [redacted].

No Case (Information Only)

10 July 1959  
Gatwick, England

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G -0- Maj. Friend

1959

GATWICK, ENGLAND, JULY 10.--(UPI)--PILOTS LANDING HERE YESTERDAY REPORTED THAT UNIDENTIFIED WHITE OBJECTS HAD HOVERED AT THEIR PLANE'S WINGTIPS AS THEY CAME IN.

THEY TURNED OUT TO BE BUBBLES FORMED WHEN HIGH WINDS WHIPPED UP A DETERGENT FOAM FROM A NEARBY DRAINAGE DITCH.

No Case (Information Only)

24 July 1959  
Ocean City, New Jersey

1959

SAUCKER BRIEFS: An Ocean City N. J. newspaper article dated July 24th states that oval-shaped UFOs buzzed docks and guest cabins in that area. The report was made by Mrs. ██████████, of Upper Darby, Pa., a newspaper woman who was spending the summer at Ocean City. She said that she was working on the family boat when two saucers came down around the boat, with a third saucer behind it. The three objects then circled around the nearby guest cabins, and disappeared into the sky.



AUGUST 1959 SIGHTINGS

<u>DATE</u>	<u>LOCATION</u>	<u>OBSERVER</u>	<u>EVALUATION</u>
Aug	Coburn, Virginia	[REDACTED] (PHOTO)	Other (HOAX)
1	SE of Madrid, Spain	Spanish Military	Astro (METEOR)
2	Washington, D. C.	Military	Insufficient Data
3	Silver Spring, Maryland	[REDACTED]	Balloon
3	Woodside, California	[REDACTED]	Aircraft
9	Columbus, Ohio	[REDACTED]	Insufficient Data
10	Goose AFB, Labrador	Military	UNIDENTIFIED
11	Upper Greenwood Lake, New Jersey	[REDACTED]	Balloon
11	Lincoln, Nebraska	Military	Astro (METEOR)
12	Ocean Beach, New Jersey	[REDACTED]	Other (REFLECTION)
13	Denver, Colorado	Multi	Astro (METEOR)
13	Long Island, New York	[REDACTED]	Aircraft
13	Dayton, Ohio	[REDACTED]	Balloon
14	Frying Pan Shoals, South Carolina	Coast Guard	Other (MISSILE)
15	North Pacific (N of Hawaii)	NW Airlines	Insufficient Data
16	Macon & Forsyth, Georgia	Multi	Balloon
17	Donaldson AFB, South Carolina	[REDACTED]	Astro (METEOR)
17	NE of West Indies, SE of N Carolina	Multi	Other (ROCKET)
18	Terre Haute, Indiana	[REDACTED]	Astro (METEOR)
18	New Milford, New Jersey	[REDACTED]	Balloon
19	80 MI E of U.S.	Military (Air/RADAR)	Other (ANOMALOUS PROP)
19	Dallas, Texas	[REDACTED]	Aircraft
19	6 Mi W of Mitchell AFB, New York	[REDACTED]	Aircraft
19	Trenton, New Jersey	[REDACTED]	Insufficient Data
19	Shelton, Connecticut	[REDACTED]	Insufficient Data
19	Elburn, Illinois	[REDACTED]	Insufficient Data
19	Roddington, Newfoundland	[REDACTED]	Insufficient Data
21	Marysville, Ohio	[REDACTED] (PHYSICAL S)	Other (GLASS)
22	St Johns, Newfoundland	Pan Am Airlines	Astro (METEOR)
25	New York, New York	[REDACTED]	Balloon
26	Lake Winnebago, Wisconsin	[REDACTED]	Insufficient Data
26	Denver, Colorado	[REDACTED]	Astro (METEOR)
27	Denver, Colorado	[REDACTED]	Astro (METEOR)
28	Charlotte Isle, Canada <i>(file in following 21 Dec)</i>	Military (RADAR)	Aircraft
29	Mobile, Alabama	Multi	Astro (METEOR)
29	Hoquiam, Washington	[REDACTED]	Aircraft
30	Dayton, Ohio	[REDACTED]	Balloon



8. IF you saw the object at NIGHT, what did you notice concerning the STARS and MOON?

8.1 STARS (Circle One):

- a. None
- b. A few
- c. Many
- d. Don't remember

8.2 MOON (Circle One):

- a. Bright moonlight
- b. Dull moonlight
- c. No moonlight - pitch dark
- d. Don't remember

9. What were the weather conditions at the time you saw the object?

CLOUDS (Circle One):

- a. Clear sky
- b. Hazy
- c. Scattered clouds
- d. Thick or heavy clouds

WEATHER (Circle One):

- a. Dry
- b. Fog, mist, or light rain
- c. Moderate or heavy rain
- d. Snow
- e. Don't remember

10. The object appeared: (Circle One):

- a. Solid
- b. Transparent
- c. Vapor
- d. As a light
- e. Don't remember

11. If it appeared as a light, was it brighter than the brightest stars? (Circle One):

- a. Brighter
- b. Dimmer
- c. About the same
- d. Don't know

11.1 Compare brightness to some common object:

I thought it was the Moon on the horizon at first

12. The edges of the object were:

- (Circle One):
- a. Fuzzy or blurred
  - b. Like a bright star
  - c. Sharply outlined
  - d. Don't remember

e. Other \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

13. Did the object:

(Circle One for each question)

- |   |                                      |                                     |                                  |
|---|--------------------------------------|-------------------------------------|----------------------------------|
| a. Appear to stand still at any time?           | <input checked="" type="radio"/> Yes | <input type="radio"/> No            | <input type="radio"/> Don't know |
| b. Suddenly speed up and rush away at any time? | <input type="radio"/> Yes            | <input checked="" type="radio"/> No | <input type="radio"/> Don't know |
| c. Break up into parts or explode?              | <input type="radio"/> Yes            | <input checked="" type="radio"/> No | <input type="radio"/> Don't know |
| d. Give off smoke?                              | <input type="radio"/> Yes            | <input checked="" type="radio"/> No | <input type="radio"/> Don't know |
| e. Change brightness?                           | <input checked="" type="radio"/> Yes | <input type="radio"/> No            | <input type="radio"/> Don't know |
| f. Change shape?                                | <input type="radio"/> Yes            | <input checked="" type="radio"/> No | <input type="radio"/> Don't know |
| g. Flash or flicker?                            | <input checked="" type="radio"/> Yes | <input type="radio"/> No            | <input type="radio"/> Don't know |
| h. Disappear and reappear?                      | <input type="radio"/> Yes            | <input checked="" type="radio"/> No | <input type="radio"/> Don't know |

14. Did the object disappear while you were watching it? If so, how?

NO

15. Did the object move behind something at any time, particularly a cloud?

(Circle One):      Yes       No      Don't Know.      IF you answered YES, then tell what it moved behind: \_\_\_\_\_

16. Did the object move in front of something at any time, particularly a cloud?

(Circle One):      Yes       No      Don't Know.      IF you answered YES, then tell what in front of: \_\_\_\_\_

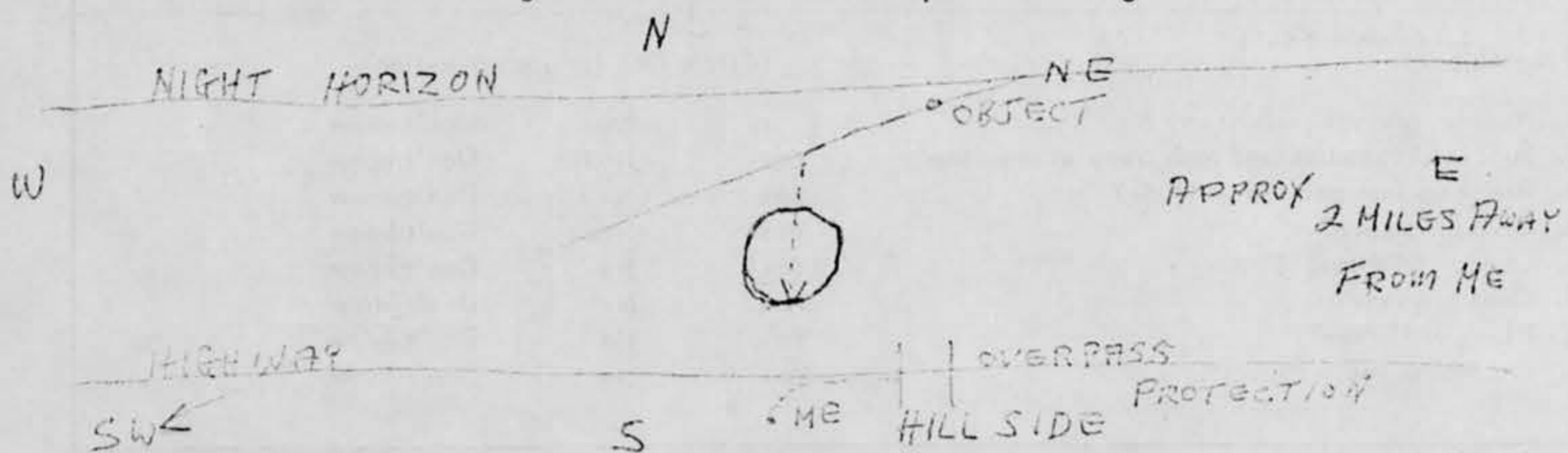
17. Tell in a few words the following things about the object:

- a. Sound Humming - steady  
 b. Color Yellow - White initially

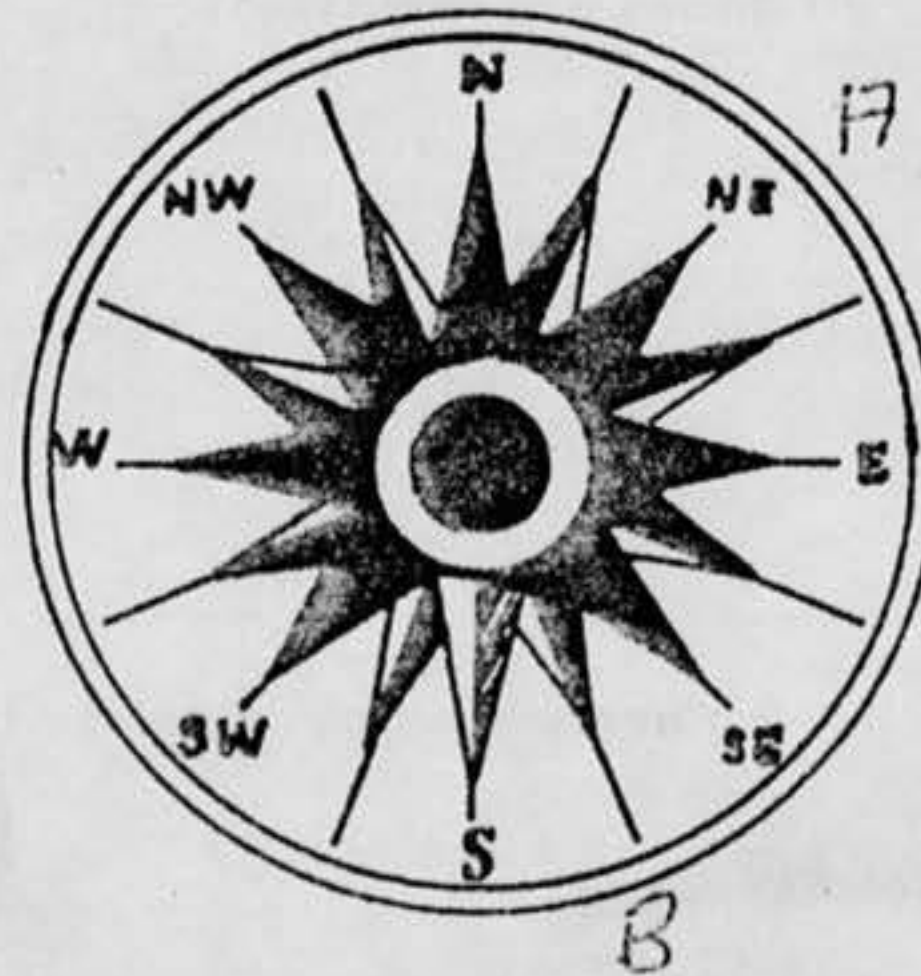
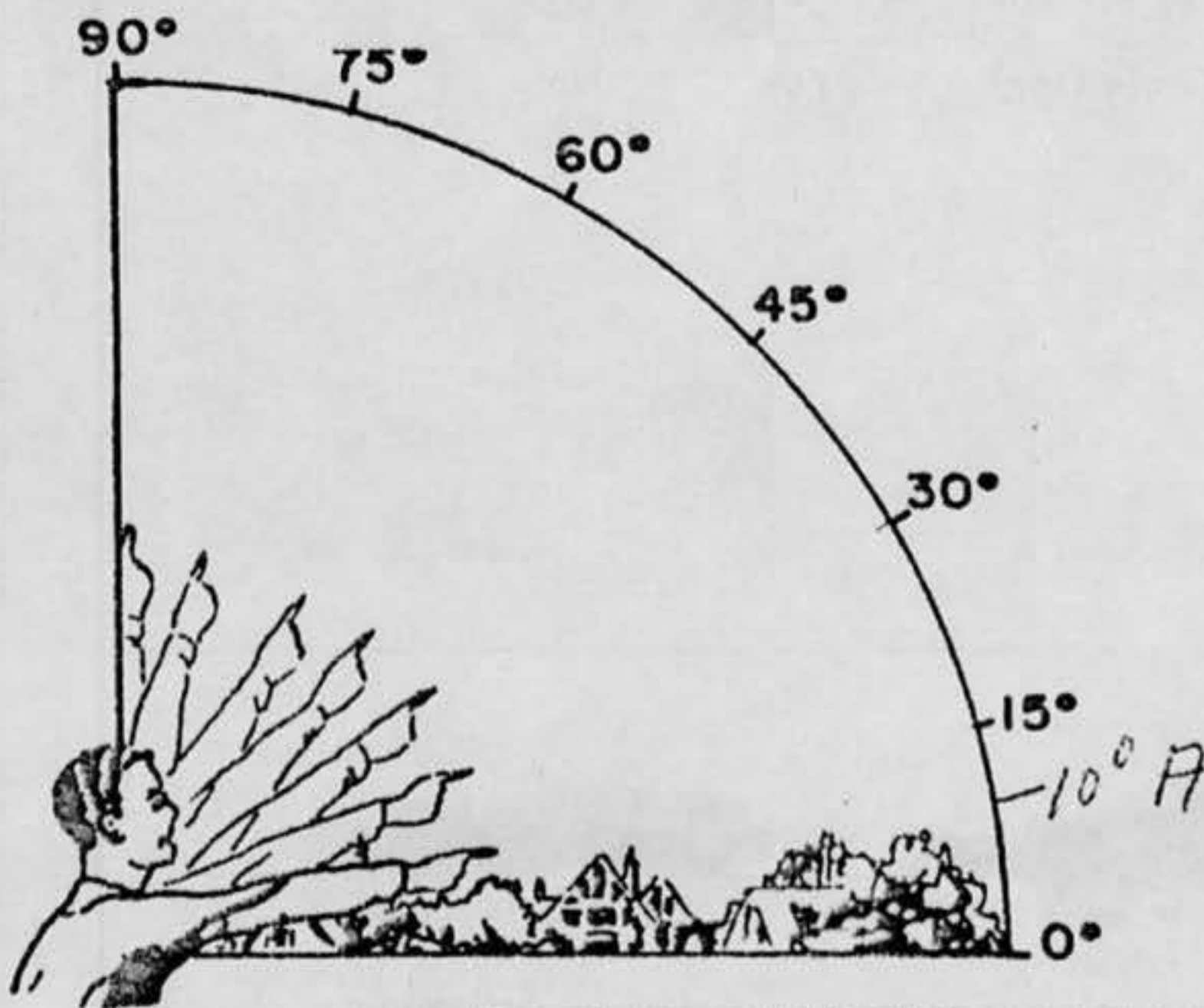
18. We wish to know the angular size. Hold a match stick at arm's length in line with a known object and note how much of the object is covered by the head of the match. If you had performed this experiment at the time of the sighting, how much of the object would have been covered by the match head?

all of the object

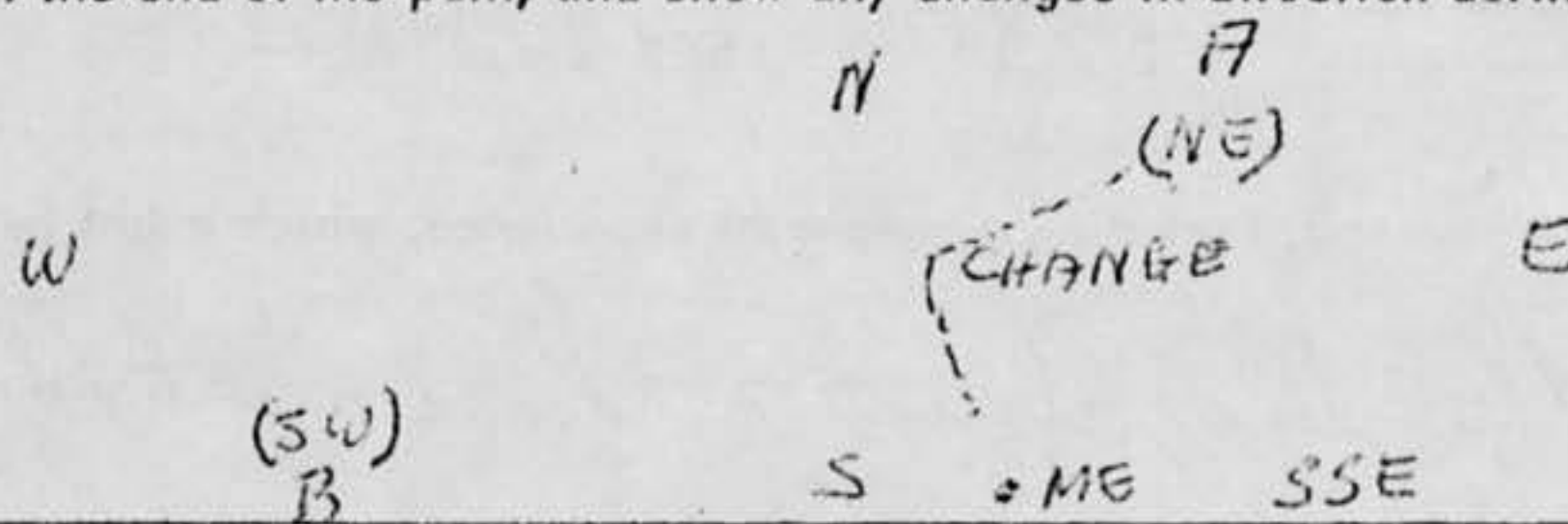
19. Draw a picture that will show the shape of the object or objects. Label and include in your sketch any details of the object that you saw such as wings, protrusions, etc., and especially exhaust trails or vapor trails. Place an arrow beside the drawing to show the direction the object was moving.



27. In the following sketch, imagine that you are at the point shown. Place an "A" on the curved line to show how high the object was above the horizon (skyline) when you *first* saw it. Place a "B" on the same curved line to show how high the object was above the horizon (skyline) when you *last* saw it. Place an "A" on the compass when you *first* saw it. Place a "B" on the compass where you *last* saw the object.



28. Draw a picture that will show the motion that the object or objects made. Place an "A" at the beginning of the path, a "B" at the end of the path, and show any changes in direction during the course.



29. IF there was MORE THAN ONE object, then how many were there? \_\_\_\_\_

Draw a picture of how they were arranged, and put an arrow to show the direction that they were traveling.

N/A

30. Have you ever seen this, or a similar object before. If so give date or dates and location.

No

31. Was anyone else with you at the time you saw the object? (Circle One) Yes  No

31.1 IF you answered YES, did they see the object too? (Circle One) Yes  No

31.2 Please list their names and addresses:

32. Please give the following information about yourself:

NAME [REDACTED] [REDACTED] [REDACTED]  
Last Name First Name Middle Name

ADDRESS [REDACTED] NEW BEDFORD  MASS  
Street City Zone State

TELEPHONE NUMBER [REDACTED] AGE 30 SEX MALE

Indicate any additional information about yourself, including any special experience, which might be pertinent.

I have over 500 hours flying time; almost 75 hours night flying  
 both dual and solo

33. When and to whom did you report that you had seen the object?

22 MAY 66  
Day Month Year

ATIC WRIGHT-PATTERSON  
 AFB OHIO

The light finally went out, and I had a feeling that the UFO had left. I waited a few minutes by my watch then I came out limped up the road to where my friends were visiting. I told them about it, but they did not believe my story, so I did not report it to any public officials at that time.

The CBS television program about UFO's made me mad because I felt that the program was too negative in its approach, and I decided to finally report my observation directly to AFIC at Wright-Patterson AFB.

On #20 the object hardly moved at all - that's why I had approximately 10 minutes of viewing time to cover the estimated 2 miles to me.



34. Date you completed this questionnaire:

12

JUNE

66

Day

Month

Year

35. Information which you feel pertinent and which is not adequately covered in the specific points of the questionnaire or a narrative explanation of your sighting.

Yes, I could not complete #27 because the UFO moved toward me when I was standing on the hillside alone. The UFO changed various colors as it moved toward me. Besides the initial color of Yellow White when first viewed it very close to the horizon Blue White and finally dull Red was the changes I saw come from the object.

I began to be afraid of this alien object as it moved slowly but steadily toward me. I started to run down the hillside toward the side of the road toward the overpass. The object was across the width of the road and a steady humming sound I could hear coming from the UFO as it moved toward me.

As I ran down the hillside my foot hit a hole - my balance was lost, and I rolled down the grassy hillside toward the roadside. At the bottom of the fall I looked up across the road, and saw the final color change dull red. With severe pain I started toward protection of the overpass, and at this moment I felt a strange tingling down my entire spine and my nervous system and parts of my body felt like "pins and needles" throughout my movement toward the overpass.

I made it under the overpass, and the UFO stopped directly over me. I could tell it was still there because a white light part of the red color system of the object moved around and I decided that looking out at the road.



ASTRONOMY

# Heavenly Display Very Good

Venus reaches its greatest brilliancy by July 26. With Jupiter and Saturn, plus a full moon, mid-July nights will yield unusually interesting viewing— *and UFOs!*

By JAMES STOKLEY

WITH THE WARM weather of summer, many persons are likely to be out of doors on July evenings, and so they have a fine opportunity to see the stars that shine overhead. This year the display is particularly good, because three bright planets are added to the usual stars.

These are shown on the accompanying maps, which give the appearance of the heavens about ten o'clock your own kind of standard time (or eleven by daylight saving time) at the first of the month and an hour earlier at the middle.

The brightest of these planets is Venus, which appears in the west long before any other planet or star. Ever since it came into the evening sky at the beginning of the year it has been getting brighter, and on July 26 it reaches its greatest brilliancy. This is minus 4.2 on the astronomer's magnitude scale, about 40 times as bright as a typical first magnitude star.

Venus now sets some two hours after the sun, and that is why it is so low on the map. It is in the constellation of Leo, the lion, close to the star called Regulus, which does not appear on our map. In fact, on July 7 Venus passes in front of Regulus, in a very rare occultation. This, however, from points in the United States and Canada, will be visible only along the east coast and during daylight hours.

About a seventh as bright as Venus, but still of great brilliance (magnitude minus 1.9) is the second planet, Jupiter. This is in the south, in Libra, the scales.

The third planet is Saturn, of magnitude 0.3, equal to a bright star of the first magnitude. This is in Sagittarius, the archer. Some of the stars of this group form the outline of a teapot, with the handle to the left, the spout to the right. Saturn is close to the knob of the lid.

### Two Other Planets Visible

There are two other planets that also can sometimes be seen with the naked eye, and these also are in the July evening sky, although not very conspicuous. Mars is also in Leo. It has set by the times for which our maps are drawn, but is above the horizon earlier, a little lower than Venus and farther north. But its distance is now so great (about 214,000,000 miles) that it appears like a second magnitude star. In addition, its low altitude dims it still more, so you will have to look closely to find it.

Around July 8 Mercury makes one of its uncommon appearances in the evening sky. It too will be low in the west at twilight and set about an hour and a half after the

sun, before the sky is completely dark. On the morning of the eighth, when it is not visible from this part of the world, the moon will pass Mercury. Since the moon is new on July 5, it will be visible as a narrow crescent on the eighth, so it will make a striking display, along with Venus and Mercury, and possibly Mars. The next evening the moon passes to the south of Venus in another beautiful spectacle.

The moon reaches first quarter, when it will set about midnight, on July 13. It is full on the 19th, shining all night. Thus the middle of the month will have moonlit evenings.

Among the stars of July, the brightest is Vega, in Lyra, the lyre, which is high in the east. Second in brilliance is Arcturus, in Bootes, the herdsman, over toward the southwest. A good way to find it is to look for the great dipper in the north, part of Ursa Major, the great bear. At the lower end of this group are the pointers, Merak and Dubhe. A line through them to the right shows the position of Polaris, the pole star.

The handle of the dipper is formed by the stars Alioth, Mizar and Alkaid. If you follow toward the south the curved line they form, you will come to Arcturus. Followed further, it brings you to another first-magnitude star, Spica, in Virgo, the virgin.

Next to this group, to the left, is Libra, in which Jupiter now stands. And next to Libra is Scorpius, the scorpion. In this is the star called Antares, which is distinctly red in color, somewhat like Mars. In fact, the name of this orb means "rival of Mars."

Two other first-magnitude stars are in the east. One is Deneb, in Cygnus, the swan; the other is Altair, in Aquila, the eagle. Along with Vega these stars form a prominent triangle in the sky, which may help you to locate them.

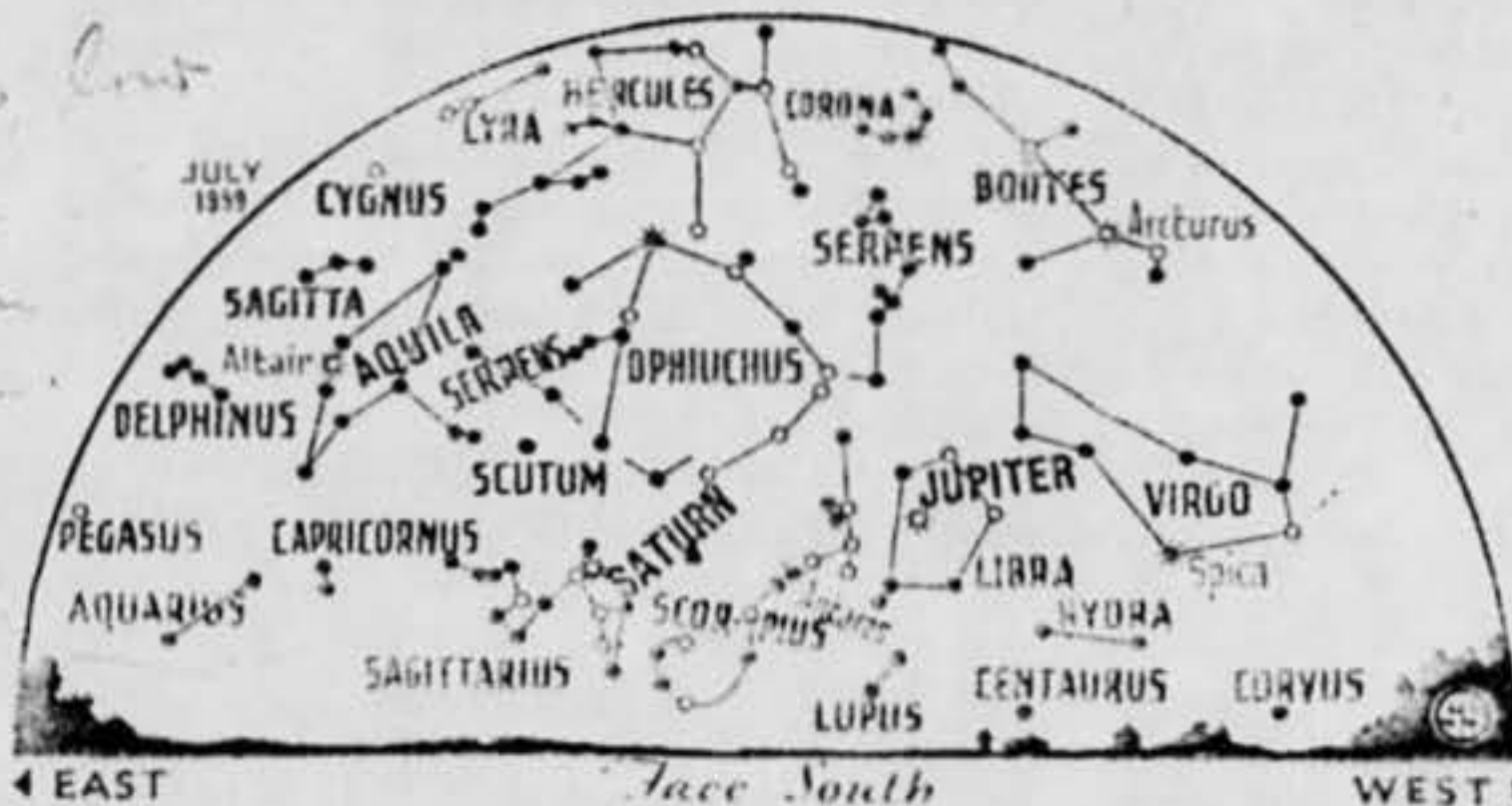
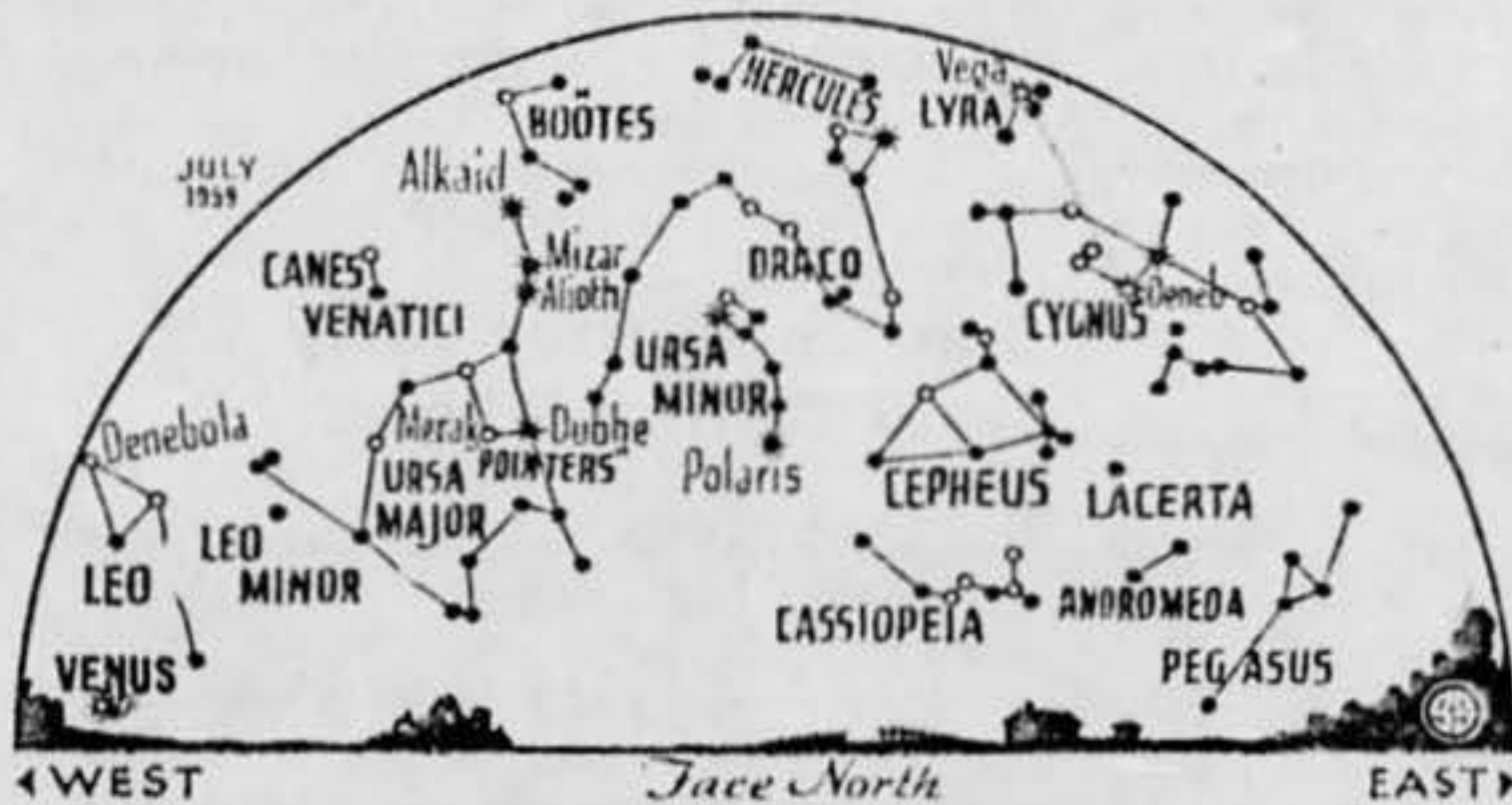
### Eclipsing Celestial Objects

The term "eclipse" usually refers to one of the sun or moon. A solar eclipse is caused by the moon's passing between sun and earth; a lunar eclipse, by the moon's entering the earth's shadow.

But there are other kinds of eclipses too. For example, there is a star called Algol in the constellation of Perseus (which now rises in the early morning) consisting of one dark and one bright sphere. Every few days the dark one comes in front of the latter, causing a partial eclipse which dims its light. This is typical of a class of stars known as "eclipsing binaries."

And the moon: not only can it come in front of the sun, but it can—and frequently does—pass in front of a star. This is termed not an eclipse, but an occultation. The moon "occults" the star.

With faint stars this happens frequently, but only rarely does the moon occult a very bright star, or a planet. Much rarer, however, is an occultation by a planet—of an



• • • • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

*Venus low on the western horizon being obscured by Jupiter's rays will produce some weird results - e.g. saucers! etc*