PROJECT 10073 RECORD CARD


ATIC FORM 329 (REV 26 SEP S2)

PROJECT 10073 RECORD CARD


ATIC FORM 329 (REV 26 SEP 52)

## U.S. AIR FORCE TECHNICAL INFORMATION SHEET

This questionnaire has been prepared :so that you can give the U.S. Air Force as much information as possible :concerning the unidentified aerial phenomenon that you have observed. Please try to answer as many questions as you possibly can. The information that you give will be used for research purposes, and will be regarded as confidential material. Your name will not be used in connection with any, statements, conclusions, or publications without your permission. We request this personal information :so that, if it is deemed necessary, we may contact you for further details.

1. When did you see the object?


2. Time of day: $\frac{21<0}{H \text { Hour }}$

(Circle One):
A.M.
or P.M.
3. Time Zone:
(Circle One): 6. Eastern
4. Central
c. Mountain
d. Paeific
e. Other
(Circle One): a. Doylight Saving
b. Standard
5. Whore we … Noarest Postal Addrose

Additional romarks:
5. How long was object in sight?
5.1 How was time in sight determined? akel presenct at 2102
a. Certain
b. Fairly certain.
c. Not very sure
d. Just a guess
6. What was the condition of the isky?
DAY
a. Bright
b. Cloudy
NIGHT
a. Bright
b. Eloudy
7. IF you saw the object during DAYLIGHT, where was the SUN located as you looked at the object? $N / A$
(Circle One): a. In front of you
d. To your left
b. In back of you
e. Overhead
c. To your right
f. Don't remember
8. IF you saw the object at NIGHT, what did you notice concerning the STARS and MOON?
8.1 STARS (Cirele One):
a. None
a. None
b. A fove
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. The object appeared:
(Circle One):
a. As a light
b. Shiny
c. Dark
d. Don't remember
10. If it appeared as a light, was it brighter than the brightest stars?

$$
y=s
$$

11. Did the object:
a. Appear to stand still at any time?
b. Suddenly speed up and rush away at any time?
c. Break up into parts or explode?
d. Give off smoke?

- Change brightness?
f. Change shape?
g. Flash or flicker?
h. Disappear and reappeor ?
(Circle One for each question)

| Yes | No | Don't Know |
| :---: | :---: | :---: |
| Yes | No | Don't Know |
| Yos | No | Don't Know |
| Yes | No | Don't Know |
| Yes | No | Don't Know |
| Yes | No | Don't Know |
| Yes | No | Don't Know |
| Yes | No | Don't Know |

12. 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:
13. Did the object move in front of something at any time, particularly a cloud?
(Circle One):
Yes in front of: $\qquad$ Don't Know.
IF you answered YES, then tell what
$\qquad$
14. Did the object appear:
$\qquad$
(Circle One): a. Solid
b. Transparent
c. Vapor
d. Don't Know
15. Did you observe the object through any of the following?

| a. Eyeglasses | Yes | No | e. Binoculars | Yes | No |
| :---: | :---: | :---: | :---: | :---: | :---: |
| b. Sun glasses | Yes | No | f. Tolescope | Yos | No |
| c. Windshiold | Yos | (No) | g. Theodolite | Yes | (NO) |
| d. Window glass | Yes | (No) | h. Other |  |  |

16. Tell in a few words the following things about the object.
a. Sound $\qquad$
b. Color $\qquad$
17. 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 yby.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.
No motion

18. The edges of the object were:

e. Other $\qquad$
$\qquad$
$\qquad$
19. If there was MORE THAN ONE object, then how many were there? $\qquad$
Draw a picture of how they were arranged, and put an arrow to show the direction that they were traveling.
20. Draw a picture that will show the motion that the object or objects made. Place an " $A$ " at the beginning of the path, : " $B$ " at the end of the path, and show any changes in direction during the course.

None
21. How large did the object appear: to you as compared to an object with which you are familiar?

Segues Chen a jutes;
22. 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?
Dent p now-
23. Did the object disappear while you were watching it? If so, how?
24. In order that you can give as clear a picture as possible of what you saw, describe in your own words a common object or objects which, when placed up in the sky, would give the same appearance as the object which you sow.

A star lust seemed closer
25. Where were you located when you saw the object? (Circle One):
a. Inside a building
b. In a ear
c. Outdoors
d. In an airplane (typo)
e. At sea
f. Other
26. Were you (Circle One)
a. In the business section of a city?
b. In the residential section of a city?
c. In open countryside?
d. Near an airfield?
e. Flying over a city?
f. Flying over open country?
g. Other
27. What were you doing at the time you saw the object, and how did you happen to notice: it? $\frac{\text { Herne tran vies hes haruene }}{0}$
28. IF you were MOVING IN AN AUTOMOBILE or other vehicle at the time, then complete.the following questions:
28.1 What direction were you moving? (Circle One)
a. North
c. East
e. South
g. West
b. Northeast
d. Southeast
f. Southwest
h. Northwest
28.2 How fast were you moving? $\qquad$ miles per hour.
28.3 Did you stop at any time while you were looking at the object?
(Circle One)


No
29. What direction ware you looking when you first saw the object? (Circle One)
o. North
c. East
e. South
b. Northeast
d. Southeast
f. Southwest

What direction were you looking when you last saw the object? (Circle One)
a. North
c. East
e. South
f. Southwest
b. Northeast
d. Southeast
31. If you are familiar with bearing terms (angular direction), try to estimate the number of degrees the object was from true North (thru east) and also the number of degrees it was upward from the horizon (elevation).
31.1 When it first appeared:
b. From horizon 72 degrees.
31.2 When it disappeared:
a. From true North $\qquad$ degrees.
b. From horizon $\qquad$ degrees.
34. What were the weather conditions at the time you saw the object?

CLOUDS (Circle One)
a. Clear sky
b. Hazy
c. Scattored:elouds
d. Thick or heavyiclouds

## WEATHER (Circle One)

a. Dry
b. Fog, mist, or light rain
c. Moderate or heavy rain
d. Snow
e. Don't remember
35. When and to whom did you report that, you had seen the object?
Day
$\square$
Month
Year
36. Was anyone else with you at the time you saw the object?
(Circle One)
-
36.1 If you answered YES, did they see the object too?
(Circle One) Yes No

37. Was this the first time that you had seen an object or objects like this?

37.1 IF you answered NO, then when, where, and under what circumstances did you see other ones?
$\qquad$
$\qquad$
$\qquad$
38. In your opinion what do you think the object was and what might have caused it?
39. Do you think you can estimate the speed of the object?
(Circle One)
Yes

$$
\overline{\mathrm{No}}
$$

IF you answered YES, then what speed would you estimate? $\qquad$ Not MOUINE
40. Do you think you can estimate how far away from you the object was?
(Circle One)
Yes
No
i doors
Cost
IF you answered YES, then how far away would you say it was?
41. Please olive the folloxion information about yourself:


TELEPHONE NUMBER

Age $\qquad$ 14 Sex $\qquad$ 1.1

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

$$
7 \text { Tit Graze student }
$$

42. Date you completed this questionnaire:

Fivinn cimpueciox an using




PROJECT 10073 RECORD CARD


ATIC FORM 329 (REV 26 SEP 52)

## AEROSPACE TECHNICAL INTELLIGENCE CENTER UNITED STATES AIR FORCE WRIGHT-PATTERSON AIR FORCE BASE оніо



23 Feb 61

To: AFCIN-4E2
Attn: Maj Friend
The following, extracted from Capt Fisher's report dated 21 Feb 61, is quoted for your information:

1700 hours, received phone call from a Mr. CR 44410, wanting to know what action we were taking on a UFO sighting he had made and reported last Wednesday. Called Maj Friend, who asked me to call Sgt Bolieu. Sgt Bolieu said he would call Mr. Yates. I called back and told him Bolieu would call.


## U.S. AIR FORCE TECHNICAL INFORMATION SHEET

This questionnaire has been prepared so that you con give the U.S. Air Force as much information as possible concerning the unidentified aerial phenomenon that you have observed. Please try to answer as many questions as you possibly an. The information that you give will be used for research purposes, and will be regarded as confidential material. Your name will not be used in connection with any statements, conclusions, or publications without your permission. We request this personal information :so that, if it is deemed necessary, we may contact you for further details.

1. When did you see the object?

2. Time of day: $\frac{2}{\text { Hour }}$
(Circle One):
A.M.
or
3. Time Zone:
(Circle. One he. Eastern)
b. Central
c. Mountain
d. Pacific
e. Other
4. Where were you when you sow the object?


Additional remarks:
$\qquad$
(Circle One): a. Daylight Saving (b. Standard)
5. How long was object in sight?

5.1 How was time in sight determined?

Certain
Fairly certain
c. Not very sure
d. Just a guess
6. What was the condition of the sky?

| DAY | NIGHT |
| :--- | :--- |
| a. Bright | a. Bright |
| b. Cloudy | b. Cloudy |

7. IF you saw the object during DAYLIGHT, where was the SUN located as you looked at the object?
(Circle One):
a. In front of you
d. To your left
b. In back of you
e. Overhead
c. To your right
f. Don't remember

This form supersedes ATIC 164, 13 Oct 54.

8. What was the condition of the sky?
DAY
a. Bright
b. Cloudy
NIGHT
Bright
b. Cloudy
9. IF you saw the object during DAYLIGHT, where was the SUN located as you looked at the object?
(Circle One): a. In front of you
d. To your left
b. In back of you
e. Overhead
c. To your right
f. Don't remember
10. IF you saw the object at NIGHT, what did you notice concerning the STARS and MOON?

### 8.1 STARS (Circle One):

8.2 MOON (Circle One):
a. None OBject peen Cooing
a. Bright moonlight
c. A dow venus from $S W$ to
b. Dull moonlight
c. No moonlight - pitch dark
d. Don!t remember $\mathcal{N} E$
d. Don't remember
9. The object appeared:
(Circle One):
a. As a light
b. Shiny
c. Dark
d. Don't remember



11. Did the object:
a. Appear to stand still at any time? $\sim \nearrow$ ?
b. Suddenly speed up and rush away at any time?
c. Break up into parts or explode?
d. Give off smoke?

- Change brightness?
f. Change shape?
g. Flash or flicker?
h. Disappear and reappear?
(Circle One for each question)

12. 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:
13. Did the object move in front of something at any time, particularly a cloud?

14. Did the object appear: (Circle One): (a.) Solid b. Transparent c. Vapor d. Don't Know
15. Did you observe the object through any of the following?

| a. Eyeglasses | Yes | No | e. Binoculars | Yes | No |
| :--- | :--- | :--- | :--- | :--- | :--- |
| b. Sunglasses | Yes | No | f. Telescope | Yes | No |
| e. Windshield | Yes | No | g. Theodolite | Yes | No |
| d. Window glass | Yes | No | h. Other |  |  |

16. Tell in a few words the following things about the object.
a. Sound hole
b. Color $\frac{3 x}{4}$ viand very bruedit, while nt center sati slut

Green tint pootemp of center, The ede in were veliow time arid
17. 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.
hod the
afforarance
for of pen
rays,

18. The edges of the object were:
(Circle One): as Fuzzy or blurred
e. Other
b. Like a bright star
c. Sharply outlined
d. Don't remember
19. 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.

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


$$
S W-N E
$$

21. How large did: the object appear to you as compared to an object, with which you are familiar?

22. 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?
23. Did the object disappear while you were watching it? If so, how?


24. In order that you can give as clear a picture as possible of what you:saw, describe in your own words a common object or objects which, when placed up in the sky, would give the same appearance as the object

25. Where were you located when you saw the object? (Cirele One):
a. Inside a building
b. In a car
c. Outdoors
d. In an airplane (typo)
e. At sea
f. Other
26. Were you (Circle One)
a. In the business section of a city?
b. In the residential section of a city?
c. In open countryside?
d. Near an airfield?
-. Flying over a city?
f. Flying over open country?
g. Other
27. What were you doing at the time you saw the object, and how did you happen to notice it?
$\qquad$
$\qquad$
28. IF you were MOVING IN AN AUTOMOBILE or other vehicle at the time, then complete the following questions:
28.1 What direction were you moving? (Circle One)
a. North
c. East
29. South
g. West
b. Northeost
d. Southeast
f. Southwest
h. Northwest
28.2 How fast were you moving? $\qquad$ miles per hour.
28.3 Did you stop at any time while you were looking at the object?
(Circle One) Yos No
30. What direction were you looking whón you first saw the object? (Circle One)
a. North
c. East
e. South
g. West
b. Northeast
d. Southeost
f. Southwest
h. Northwest
31. What direction were you looking when you last saw the object? (Cirele One)
a. North
c. East
e. South
g. West
Northeast
d. Southeast
f. Southwest
h. Northwest
i. Overhead
32. If you are familiar with bearing terms (angular direction), try to estimate the number of degrees the object was from true North (thru east) and also the number of degrees it was upward from the horizon (elevation).
31.1 When it first appeared:
a. From true North $\qquad$ degrees.
b. From horizon $\qquad$ degrees.
31.2 When it disappeared:
a. From true North $\qquad$ degrees.
b. From horizon $\qquad$ degrees.
33. What were the weather conditions at the time you saw the object?

## CLOUDS (Circle One)

Clear sky
b. Hazy
c. Scattered clouds
d. Thick or heavyiclouds

WEATHER (Circle One)
(9.) Dry
b. Fog, mist, or light rain
c. Moderate or heavy rain
d. Snow
-. Don't remember
35. When and to whom did you roport that. you had iseen the object?
Day Month Year
36. Was anyone olse with you at the time you saw the object?
(Circle One) Yos No
$\bullet$.
36.1 IF you answered YES, did they see the object too?
(Circle One) Yos No
36.2 Please list their names and addresses:

37. Was this the first time that you had seen an object or objects like this?
(Circle One) Yos No
37.1 If you answered NO, then when, where, and under what circumstances did you see other ones?
$\qquad$
$\qquad$
38. In your opinion what do you think the object was and what might have caused it?
39. Do you think you cen estimate the speed of the abject?
(Circle Ono)
Yes
No

IF you answered YES, them whet aped would you eatimmer?
$-$
40. Do you think you cen cetimeto how for away from you the object wee?
(Circle One) Yes No
IF you answered YES, then how for awry would you say it wee?



TELEPHONE NUMBER


Age $\qquad$ Sex $\qquad$

Indicate any additional information about yourself, including any adveation, which might be pertinent.
42. Date you completed this questionwoire:
Day - Month Year

## OFFICIAL U.S. AIR



FTD FORM 164 This formt superpedes FTD 164, jul 61, which is obsolete.
OCT 62164 This lorms superseder FTD 164, jul 61, which is obsolete

# ORCE UFO FORM 

8. IF you saw the object at NIGHT, what did you notice concerning the STARS and MOON?
8.1 STARS (Circle One):

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):
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
d. As a light
b. Transparent
e. Don't remember
c. Vapor
is
11. If it appeared as a light, was it brighter than the brightest stars? (Circle One):
a. Brighrer
c. About the same
b. Dimmer
d. Don't knew
11.1 Compare brightness to some common object:
12. The edges of the object were:

| (Circle One): a. Fuzzy or blurred | e. Other |  |
| :---: | :---: | :---: |
| (c. Sharply outlined | 4 |  |
| 3. Did the object: (Circle One for each question) |  |  |
| a. Appear to stand still at any time? | Yes No | Don't know |
| b. Suddenly speed up and rush away at any time? | Yes (No) | Don't know |
| c. Break up into parts or explode? | Yes (NO) | Don't know |
| d. Give off smoke? | Yes (NO) | Don't know |
| e. Change brightness? | Yes N0 | Don't know |
| f. Change shape? | Yes | Don't know |
| g. Flash or flicker? | Yes Nos | Don't know |
| h. Disappear and reappear? | Yes (NO) | Don't know |

## 9

## Official U.S. Air Force

Page 3
14. Did the object disappear while you were watching it? If so, how?

## MT

15. Did the object move behind something at any time, particularly a cloud?
(Circle One):
Yes
Don't know.
IF you answered YES, then tell what
it moved behind: $\qquad$

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: $\qquad$
17. Tell in a few words the following things about the object:
a. Sound Mar A, M, I
b. Color U保i+h Xifn:a
18. Wo 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?
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 fails or vapor trails. Place an arrow beside the drawing to show the direction the object was moving.

Page 2
8. IF you saw the object at NIGHT, what did you notice concerning the STARS and MOON?
8.1 STARS (Circle One):
8.2 MOON (Circle One):
a. None
a. Bright moonlight
b. Dull moonlight
b. A foo
c. Many
d. Don't remember
c. No moonlight - pitch dark
d. Don't remember
9. The object appeared:
(Circle .One):
a. As a light
b. Shiny
c. Dark
d. Don't remember
10. If it appeared as a light, was it brighter than the brightest stars? much brighter
11. Did the object:
a. Appear to stand still at any time?
b. Suddenly speed. up and rush away at any time?
c. Break up into parts or explode?
d. Give off smoke?
e. Change brightness?
f. Change shape?
g. Flash or flicker?
h. Disappear and reappear ?
(Circle One for each question)

| Yes | No | Don't Know |
| :--- | :---: | :--- |
| Yes | $N_{0}$ | Don't Know |
| Yes | No | Don't Know |
| Yes | No | Don't Know |
| Yes | $N_{0}$ | Don't Know |
| Yes | No | Don't Know |
| Yes | $N_{0}$ | Don't Know |
| Yes | No | Don't Know |

12. Did the object move behind something at any time, particularly a cloud?
(Circle One):
Yes Nor
Don't Know.
IF you answered YES, then tell what
it moved behind: $\qquad$ Yes
Don't Know.
13. Did the object move in front of something at any time, particularly a cloud?
(Circle One):
Yes in front of:
IF you answered YES, then tell what
$\qquad$
14. Did the object appear:
(Circle One):
a. Solid
b. Transparent
c. Vapor
d. Don't Know
15. Did you observe the object through any of the following?
a. Eyeglasses
b. Sun glasses
c. Windshield
d. Window glass

e. Binoculars
f. Telescope
g. Theodolite
h. Other
Yes

$$
\underset{m}{ }
$$

I

## UFO form continued

Page 4
20. Do you think you can estimate the speed of the object?
(Circle One) Yes No
$\frac{1}{1+t a+m o v i n g ~ m i r d e ~ v i z ~}$
If you answered YES, then what speed would you estimate?
21. Da you think you can estimate how far away from you the object was?
(Circle One)
Yes
If you answered YES, then how far away would you say it was?
22. Where were you located when you saw the object? (Circle One):
a. Inside a building
b. In afar
c. Outdoors
d. In an airplane (type)
e. At sea
f. Other of siva 4 ald A in Anger to 16 \& $2 m$

## 23. Were you (Circle One)

a. In the business section of a city?
b. In the residential section of a city?
c. In open countryside?
d. Near an airfield?
e. Flying over a city?
f. Flying over open country?
g. Other
$\qquad$
24. If you were MOVING IN AN AUTOMOBILE or other vehicle at the time, then complete the following questions: 24.1 What direction were you moving? (Circle One)
a. North
c. East
e. South
g. West
b. Northeast
d. Southeast
f. Southwest
h. Northwest
24.2 How fast were you moving? $\qquad$ miles per hour.
24.3 Did you stop at any time while you were looking at the object?
(Circle One) Yes No
25. Did you observe the object through any of the following?
a. Eyeglasses
b. Sun glasses Yes Yes Yes
c. Windshield Yes
e. Binoculars Yes

f. Telescope
g. Theodolite $1 /$
h. Other

26. In order that you can give as clear a picture as possible of what you saw, describe in your own words a common object or objects which, when placed up in the sky, would give the same appearance as the object which you saw.
$\qquad$

Official U.S. Air Force


UFO form continued


Official U.S. Air Force


## AEROSPACE TECHNICAL INTELLIGENCE CENTER UNITED STATES AIR FORCE WRIGHT-PATTERSON AIR FORCE BASE OHIO <br> 6 Feb 61 <br> 

REPLY TO ATTM OF:

AFCIN-4X2

SUBJECT:
Extract from Duty Officers' Report

T0:
AFCIN-4E2 (Maj Friend)
The following, extracted from Capt McCabe's Report dated 4 Feb 61, is quoted for your information:

0700 hours, USAF Command Post reported Sgt. Noon base ops Andrews saw a flashing light, size of pea, W to E, 1300 Z. Reported for info and not a UFO.


UFO form continued


## ASTRONOMY

# Mars and Venus Still Prominent 


#### Abstract

February's brilliant night sky features the constellations of Orion, Taurus, Auriga, Canis Minor and Leo, as well as the planets Venus and Mars, James Stokley reports.


$\rightarrow$ STILL INCREASING in brilliance, Venus is now brighter than any other planet, or any star, in the evening sky. You can see it in the west soon after the sun has descended below the horizon, and long before the end of twilight. In fact, it is now so bright that you can even see it in broad daylight-if you know just where to look.

Even though it is now about a month past the time of its greatest brilliance, Mars is still prominent on February evenings. It is in the constellation of Gemini, the twins, high in the south as shown on the accompanying maps. These show the skies as they look about 10 p.m., your own kind of standard time, on Feb. 1; about 9 p.m. at the middle of February; and at $8 \mathrm{p} . \mathrm{m}$. as it comes to an end.
On the astronomer's scale of brightness, Venus has a magnitude of minus 4.2 on Feb. 15. That of Mars is minus 0.1 , which makes it about a fortieth as bright as Venus. Only one star is as bright: Sirius, the dog star, in Canis Major, the great dog. Sirius exceeds Mars by more than three and a half times.

## Mercury Seen Above Horizon

Because Mercury, the innermost planet, is so close to the sun, it is seldom seen. But on Feb. 6 it will be farthest east of the sun, and so will remain above the horizon for a little while after sunset. Thus, for a few evenings about this time you will be able to see it low in the southwest in the gathering dusk. By the time the sky is dark, Mercury will have set; we can never see it in the nighttime sky.
Higher than Sirius, and a little to the right, stands the notable constellation of Orion, the warrior. The three stars in a row, which form his belt, will help you recognize it. Above the belt is Betelgeuse and below is Rigel; both of these stars are first magnitude.
Still higher and farther right you will see Taurus, the bull. A V-shaped group of stars, called the Hyades, outline the bull's face. Among these is ruddy Aldebaran, which marks his eye.
Directly overhead, at the times for which our maps are drawn, stands Auriga, the charioteer. In it is the bright star called Capella, shown on the northern sky map. Below it, to the south, is Mars, in Gemini, the twins. In chis same constellation is the first magnitude star Pollux. And below the Gemini is Canis Minor, the lesser dog, with Procyon.
In no other region of the sky are so many brilliant stars concentrated in so small
an area. It is because they are visible in the evening at this time of year that the winter skies are so magnificent. The added presence of Mars now makes them even more so.

Climbing into view in the east is another first magnitude star, Regulus. It stands in the figure of Leo, the lion.
In the northeastern sky is Ursa Major, the great bear, of which the familiar great dipper is part. The two stars in the bowl of the dipper called the pointers show the way to Polaris, the pole star, which is always in the north. This is in Ursa Minor, the lesser bear.
To the left is Cepheus, the king, and Cassiopeia, the queen. The latter consists of stars arranged to form a letter M , on one side. And above and to the left of Cassiopeia is Perseus, the mythological hero, with the star called Algol. This is a famous variable star. Every 2.86 days this star dims in light as the brighter orb is eclipsed by a darker star that revolves around it.

Twice each year the moon comes between the sun and earth, producing a solar eclipse. When this happens, the tip of the moon's conical shadow may sweep across the earth, along a path a hundred or so miles wide and several thousand miles long. In this
"path of totality" the moon completely hides the sun's globe and the surrounding corona comes into view for a few minutes. When this happens, astronomers can make many observations possible at no other time.
The eclipse track often passes over distant parts of the world, or over large areas of ocean in which there are but a few scattered islands. Many eclipse expeditions have been organized, at great trouble and expense, to get to the places where the eclipse can be seen. Sometimes all these efforts are frustrated by clouds in front of the sun during the crucial minutes.

## Eclipse Comes to Astronomers

Since an eclipse path may reach any part of the earth, occasionally it may happen to go over a well-populated region, even one with many permanent observatories. Then the astronomers do not have to go to the eclipse-it comes to them.
This will happen on Feb. 15, when the sun will be hidden for millions of people in southern and castern Europe. The path of totality starts in the Bay of Biscay as the sun is rising. Then it sweeps over southern France, Italy, Yugoslavia, Rumania, Bulgaria and the U.S.S.R. It ends as the sun is setting in northern Siberia, near the Taimyr Peninsula. At the beginning of the path, in the Bay of Biscay, it is 130 miles wide, and at the middle the width is 164 miles.


## CIE FIEILDS

## geophrsics <br> Earth's Dust Cloud Came From Moon

$\Rightarrow$ THE DUST CLOUD that encircles the earth several thousand miles out in space is formed of dust scattered from the moon when it is hit by meteorites, a United States scientist has suggested.
Dr. Fred L. Whipple of Harvard College Observatory, director of the Smithsonian Astrophysical Observatory, Cambridge, Mass., says that space experiments should "readily" show whether or not his theory of a lunar origin for the dust cloud is correct.
The existence of a high concentration of interplanetary dust orbiting the earth has been indicated recently from information gathered by rocket, satellite and space probe vehicles having instruments that detect the sounds the dust particles make when hitting the vehicle's surface.
Of four possible explanations for the origin of the dust cloud, Dr. Whipple bebelieves that the lunar theory is the most "tenable." From this theory, a generally eastward motion of the particles in the dust cloud is predicted. This motion could be detected from space experiments, he reports in Nature, 189:127, 1961.
Compared to the density of true interplanetary space, the concentration of dust particles in the cloud surrounding the earth is perhaps 100,000 times as high, Dr. Whipple says.

- Science News Letter, 79:57 January 28, 1961


## psrchology

## Young Baboon Can Count, May Learn to Add

$\rightarrow$ A YOUNG BABOON named Cowboy is making history at the University of Maryland's psychopharmacology laboratory, College Park, Md. He can count-at least when he is hungry.

Cowboy has been taught to push a button that turns on a light. The color of the light-orange, red, green, blue or whitedetermines how many beep tones, coming from a sound box hooked to the light switches, he must let pass before he pushes a second button that stops the sound and releases a food pellet.

If he pushes the second button before enough beeps have sounded or after too many, for the particular light color, he gets no food. Each beep lasts for two seconds, but the time between them varies. This keeps the baboon from merely marking total time before pushing the second button.

Cowboy now bas the system down pat. He eats as he chooies and gets all the food he wants by pushing the proper buttons about 200 to 300 times a day. Usually, about 50 button pushes in one session release enough food for a meal.

At present, the baboon is required to keep track of no more than five beeps at one time. He may have to think a little harder in the future, however. Although his trainer, Dr. Jack Findley, assistant professor of psychology, is reluctant to state that his pupil can actually count, he hopes to teach Cowboy to add.

This may be done by turning on two different colors of lights at the same time and teaching the animal that he must stop the sounds only after the sum total of the beeps produced by each individual light has passed.
When the baboon has learned the more complicated task, Dr. Findley plans to give him mild stimulants, such as dexadrine and caffeine, to study their effects on performance, and to develop a technique applicable to the testing of newer drugs.

- Science News Letter, 79:57 January 28, 1961


## biology

## Living Insects Found On Antarctic Plateau

$\rightarrow$ A FEW DOZEN hardy insects and mites have been found 6,000 feet above sea level in the Mt. Gran area at the head of Mackay Glacier about 90 miles from McMurdo Sonnd, Antarctica.
Keith A. J. Wise, a New Zealander working under a National Science Foundation grant for the Bernice P. Bishop Museum of Honolulu, came across the arthropods at what is believed to be the highest altitude at which insect life has been encountered on Antarctica.
While he was on a field trip, Mr. Wise found approximately two dozen collembola or springtails, a type of primitive wingless insects, under loose rocks on a surface of the plateau that was free of snow. In the same general location he also found about a dozen free-living nonparasitic mites.
Both insects and mites are arthropods, belonging to the phylum arthropoda. But mites are not insects, having four rather than three pairs of legs in the mature stage.

The springtails found by Mr. Wise were all whice, whereas specimens he had previously encountered at Hallett Station, about 300 miles farther north, were all black. Both black and white varieties were found at Mt. Suess.

- Science News Letter, 79:57 January 28, 1961


## technotogy

## Reinforced Asphalt <br> Omits Steel Wire Fabric

$\rightarrow$ REINFORCED ASPHALTIC concrete resurfacing of a mile and a half of cracked highway has been completed for test purposes by New York State. Steel wire fabric used for reinforcement was deliberately omitted from some of the 40 -footlong slabs in the stretch of test highway. A new continuous strip photographic process recorded the condition of the highway iwfore repair. A similar photographic record will be taken in several years so that a side-by-side comparison may be made to check the steel fabric's effectiveness in reducing cracks.

- Science News Letter, 79:57 January 28, 1961


## BIOCHEMISTRY <br> Unique Plasma Fraction Checks Copper Poisoning

$\rightarrow$ CERULOPLASMIN, a blue copperprotein found in the blood, may be the factor that protects the human body against the hazards of copper poisoning

Activities ranging from working with copper to drinking beer and eating oysters, both of which have a high copper content place the average person in danger of copper poisoning, Drs. Irmin Sternlieb and I. Herbert Scheinberg of Albert Einstein College of Medicine at Yeshiva University reported in New York.

The level of the copper-bound protein in blood is highest in adults in late pregnancy. It reaches a lower peak in old age. It is also at a high level in disease conditions such as heart-muscle damage caused by insufficient blood flow, overactivity of the thyroid gland, tumor of lymph glands, in fections and after sex hormones are given
No one knows why the ceruloplasmin level rises under these circumstances, the investigators reported at a New York Academy of Sciences conference. But the fact that the level falls in patients with poor protein balance may mean that a protein deficiency is involved.
Studies of patients with Wilson's disease suggest that ceruloplasmin plays a part in warding off copper poison, they said. If this is true, this plasma fraction is the only one with such powers, for all others known protect against bacterial and viral disease.

- Science News Letter, 79:57 January 28, 196
education


## World Affairs Role Urged for Colleges

$\rightarrow$ AMERICAN UNIVERSITIES and colleges must play a more active role in world affairs. Their help is urgently needed to contribute to the nation's understanding in international matters and to assist in the educational systems of the rapidly developing countries of Asia, Africa and Latin America.
A report issued in New York by a top level committee from Government, industry and universities, called upon American in stitutions of higher learning to show new leadership and initiative in meeting their expanding responsibilities as centers of learning and service. The report also urged greater support to the universities from the Federal Government, state governments, in dustries and private foundations.
One important recommendation was the establishment of a new organization that would coordinate all the educational planning and development in world affairs.
The report, "The University and World Affairs," was prepared by the Committee on the University and World Affairs. Included were Dean Rusk, then President of the Rockefeller Foundation: Arthur S. Flem ming, then Secretary of Health, Education and Welfare; and Senator J. W. Fulbright of Arkansas.

- Science News Letter, 79:57 January 28, 1961
' In southern Russia, at Rostov-on-Don and Stalingrad, the eclipse occurs around the middle of the day. The sun will then be about 27 degrees above the horizon and it will be hidden for two minutes 45 seconds. Farther west, in France and Italy, the sun will be lower, and the total eclipse will last about two minutes.
The path crosses the Riviera and persons wintering there will have an unusual spectacle to watch on the morning of the 15th. Watching the sun, with adequate protection for the eyes, they will see the dark disc of the moon slowly creep across the sun's face.
Then will come totality, the corona will flash into view, and the brighter stars, and Venus, will be visible. Then a sliver of the sun's disc will again appear, slowly widening as the moon moves away, and the eclipse ends. Over all of Europe, northern Africa and much of Asia, there will be a partial eclipse, with the moon hiding only part of the sun. The nearer a person is to the path of totality, the greater will be the area of the sun that is covered.
Fortunately for the astronomers, there are many observatories along the path. Near Ancona, Italy, is the Arcetri Observatory, equipped with special instruments for solar observations. At St. Michel, in southern France, is the Haute Provence Observatory, with a 76 -inch reflector that is the largest telescope in Europe.
There is another large observatory on Mt. Gros, near Nice. Russian astronomers will be able to watch the eclipse from their large observatory at Simeis in the Crimea. With at least a dozen observatories along the path, this should be one of the best observed of all eclipses. If the weather is good, these observations should lead to many important new scientific data.
Celestial Time Table for February Feb. EST.
4 3:42 a.m. Algol (variable star in Perseus) at minimum brightness 7:00 a.m. Mercury farthest east of sun, visible low in west after sunset for a few days about this date
7 12:31 a.m. Algol at minimum
8 11:50 p.m. Moon in last quarter
9:20 p.m. Algol at minimum
2 I2 noon
Uranus nearest
Uranus nearest earth, distance
$1,614,000,000$ miles 1,614,000,000 miles
1:00 a.m. Moon passes Jupiter (visible low in east before sunrise)
2:00 a.m. Moon passes Satura
6:00 a.m. Moon nearest, distance 222,600 miles
3:11 a.m. New moon; eclipse of sun
visible in Europe, Africa and visible in Europe, Africa and Asia
10:00 a.m. Jupiter passes Saturn
7:00 p.m. Mercury passes between earth and sun
3:35 a.m. Moon in first quarter
t2 noon Moon passes Mars
iz noon Plito nearest earth; distance
$3.028,000,000$ miles
4:00 p.m. Moon farthest; distance 252,-
200 miles 2:16 a.m. $\begin{aligned} & 200 \text { miles } \\ & \text { Algol at minimum }\end{aligned}$
Subtract one hour for CST, two hours for MST, and three for PST.
- Science News Letter, 79:58 January 28, 1961

321 p., \$6. Presents new material about prog ress in nutrition, including comparisons of food habits of Alaska, Latin America, China and India, relating nutritional progress to social and historical factors which aid or impede its growth.
International Education in Physics: Proceedings of the International Conference on Physics Education, Unesco House, Paris, 1960 -Sanborn C. Brown and Norman Clarke, Eds. -Wiley, 191 p., \$4.50. A world view of physics education, of examinations, selection of students, laboratory work, training of teachers, physics for non-physicists, use of television, and physics for non-physicists,
Laboratory Manual in Principles of Biology as Illustrated by Animals-Howard J. Stains-Burgess, 127 p., illus., paper, $\mathbf{\$ 2 . 5 0}$. Provides material for four hours of laboratory work per week.
Linear Systems Analysis: An Introduction to the Analysis of Discrete-Parameter Timethe Analysis of Discrete-Parameter Time-
Invariant Linear Systems-Paul E. PfeifferInvariant Linear Systems-Paul E. Pfeiffer-
McGraw, 538 p ., $\mathbf{S}_{12.50}$. Provides fundamentals McGraw, $538 \mathrm{p} ., \$ 12.50$. Provides fundamentals
of theory as applied to passive linear circuits, of theory as applied to passive linear circuits,
linear servomechanisms and mechanical vibrating linear ser
systems.

Mechanical Waveguides: The Propagation of Acoustics and Ultrasonic Waves in Fluids and Solids with Boundaries-Martin RedwoodPergamon, 300 p., S9. Intronluction to the properties of guided waves, with survey of the more important recent research.

The Microscope and How to Use ItGeorg Stehli-Sterling, 160 p., illus., $\$ 3.95$. A methodical, fully illustrated guide to discovering new worlds by microscopic examination

Modern Trigonometry-Dick Wick Hall and L. O. Kattsoff-Wiley, 236 p., illus., $\$ 4.95$ Elementary text, analytic in approach and emphasizing the ability to reason about the phasizing the abcilty
trigonometric functions.

Old Father: The Story Teller-Pablita Velarde-King, Dale Stuart, 67 p., illus. by author, $\$ 7.95$. Tribal legends written and handsomely illustratel by Pueblo Indian artist.

Radiation Researci in the Life Sciences: Current Projects in the United States and Throughout the Worid-Committee on Govcrament Operations, U.S. Senate-GPO, 175 p., paper, $55 \%$. Information on the magnitude, organization and distribution of current research programs, fully indexed.
Religion \& Science-Bertrand RussellOxiord Univ. Press, 256 p., paper, \$1.25. First published in 1935.
Representative Chordates: A Manual of Comparative Anatomy-Charles K . WeichertMcGraw, 2nd ed., 218 p., illus., $\$ 4.25$. Designed for use as a laboratory manual in onesemester courses in comparative anatomy of the vertebrates.

A Revision of Cedrela (Meliaceae)-C. Earle Smith, Ir.-Chicago Nutural Hist. Mus., 46 p.. illus., 14 plares, paper, 31.75 . Treas only the American species of Spanish cedar.

Science is Fun. Science is Learning. Science is Exploring.-Wibur B. BeauchampScolt, Foresman \& Co., 112 p., 128 p., 168 p., illus., $\$ 2.20, \$ 2.44, \$ 2.68$. Basic science program for grades 1, 2 and 3, with teachers' editions available.

Study Abroad: New Dimensions in Higher Education, No. 6--Irwin Abrams-GPO, 21
IDENTIFY ANY TREE!
Two-volume set by foremost dendrologist. W. H. Harlow, "Trees," full text, 950 photos, covers
$1 \not 10$ common treem of N. and N.E. USA. "Twig ito common trees of N. and N.E. USA. "Twig
\& Fruit Guide." enables yon to identify treen \& shrubs in winter, any season. Identification, folklore. uses, etc. Total 444 pp . $\$ 2.60$ plus 10 . postage. Money-back guarantee. Dept. SNL, DOVER. 180
Varick St., N. Y. 14. N. Y.
16. Tell in a few words the following things about the object.
a. Sound Only airplanes sounds.
b. Color

17. 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.

$$
\begin{aligned}
& \text { like a spotlight } \\
& 0
\end{aligned}
$$

18. 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 $\qquad$
19. 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.

16-28 FABRUARY 1961 SIGHTITGS
 (*)See segarate folder
20. Draw a picture that will show the motion that the object or objects made. Place an " $A$ " at the beginning of the path, : " $B$ " at the end of the path, and show any changes in direction during the course.
No MaT con
21. How large did: the object appear: to you as compared to an object with which you are familiar? About 3 Lithe size of on auto mo bile head light
22. We wish to know the angular size. Hold a match stick of 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?
about all of it.
23. Did the object disappear while you were watching it? If so, how? Never disappeared
24. In order that you can give as clear a picture as possible of what you saw, describe in your own words a common object or objects which, when placed up in the sky, would give the same appearance as the object which you saw.
a large spotlight
25. Where were you located when you saw the object? (Circle One):
a. Inside a building
b. In a car
c. Outdoors
d. In an airplane (type)

- At sea
f. Other

26. Were you (Circle One)
a. In the business section of a city?
b. In the residential section of a city?
c. In open countryside?
d. Near an airfield?
e. Flying over a city?
f. Flying over open country?
g. Other
27. What were you doing at the time you saw the object, and how did you happen to notice:t?

28. IF you were MOVING IN AN AUTOMOBILE or other vehicle at the time, then complete the following questions:
28.1 What direction were you moving? (Circle One)
a. North
c. East
-. South
g. West
b. Northeast
d. Southeast
f. Southwest
h. Northwest
28.2 How fast were you moving? $\qquad$ miles per hour.
28.3 Did you stop at any time while you were looking at the object?
(Circle One) Yes No
29. What direction were you looking when you first saw the object? (Circle One)
o. North
c. East
-. South
b. Northeast
d. Southeast
f. Southwest
h. Northwest
i. Overhead
g. West
30. What direction were you looking when you last saw the object? (Circle One)
a. North
c. East
e. South
b. Northeast
d. Southeast
f. Southwest
h. Northwest
i. Overhead
g. West
31. If you are familiar with bearing terms (angular direction), try to estimate the number of degrees the object was from true North (thru east) and alse the number of degrees it was upward from the horizon (elevation).
31.1 When it first appearsd:
a. From true North $\qquad$ degrees.
b. From horizon $\qquad$ to degrees.
31.2 When it disappeared:
a. From true North $\qquad$ degrees.
b. From horizon
$\qquad$ dagress.
32. 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.

33. In the following larger sketch place an "A" at the position the objoct was when you first sow it, and a "B" at its position when you last saw It. Refer to smaller sketch as an example of how to complete the largor sketch.

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

## CLOUDS (Circle One)

C. Clear sky
b. Hazy
c. Scattered clouds
d. Thick or heavyiclouds

WEATHER (Circle Ono)
(a. Dry
b. Fog, mist, or light rain
c. Moderate or heavy rain
d. Snow
e. Don't remember
35. When and to whom did you report that, you had seen the object?
Day Month Year
36. Was anyone else with you at the time you'saw the object?
(Circle Ono)
Yes
No
-.
36.1 IF you answered YES, did they see the object too?
(Circle One)
 No
36.2 Please list their names and addresses:

Her Hushoud - B.L.
37. Was this the first time that you had seen an object or objects like this?

37.1 IF you answered NO, then when, where, and under what circumstances did you see other ones?
$\qquad$
$\qquad$
$\qquad$
38. In your opinion what do you think the object was and what might hove caused it? NO
39. Do you think you can estimate the speed of the object?
(Circle One)
IF you answered YES, then what speed would you estimate? $\qquad$
O MPH
40. Do you think you can estimate how far away from you the object was?
(Circle One)
Yes
No
IF you answered YES, then how for away would you say it was? $\qquad$
41. Please give the follomion fiformation about yourself:
NAME
$\qquad$
$\qquad$


TELEPHONE NUMBER,
Ago 45
Sex $\qquad$ $F$

Indicate any additional information about yourself, including any education, which might be pertinent.
42. Date you completed this questionnaire:


