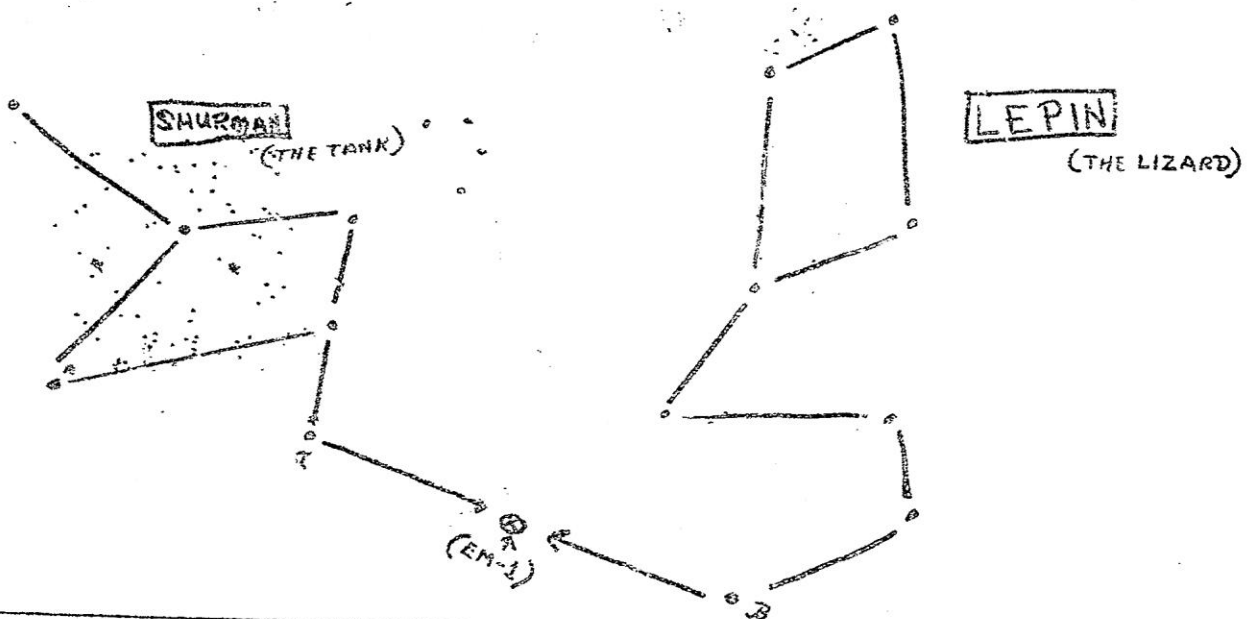


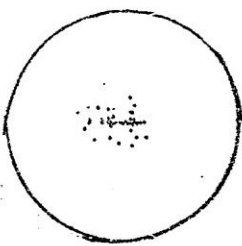
A DEEP SPACE OBJECT

EM-1

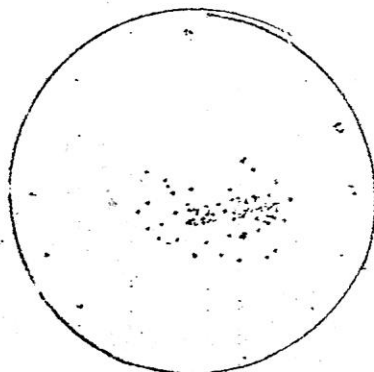
To find EM-1 LOOK
Half Way Between
α SHURMAN and β LEPIN



View Through 4½" Reflector
at 45x



VIEW THROUGH 6" Reflector
at 70x



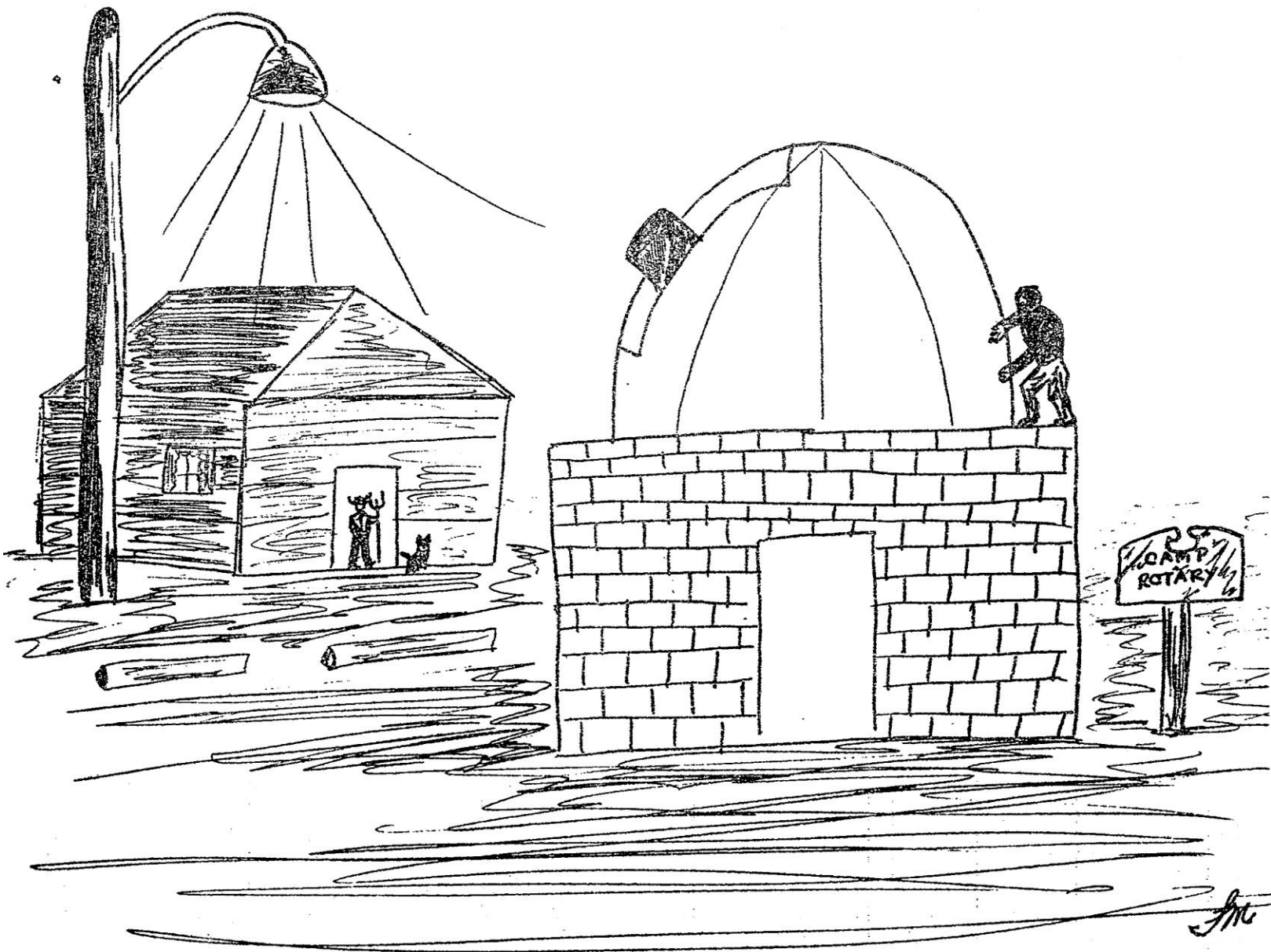
NEXT PAGE FOR
VIEW THROUGH W.A.S.'S
12½" CASSEGRAIN AT 200X.
→



The Way Out Paper

June 1970
★ Editor
Frank McLaughlin

ROTARY NEWS



NOTES ON DEEP-SKY OBJECTS

by D. Ther

July is the ideal time for observing the many objects of Sagittarius, Aquarius, and Scorpius, as well as the “old favorites” such as the ring nebula and M13. A rough count, shows about twenty globulars and ten open clusters scattered throughout these areas. On June 23, under unusually favorable seeing, I observed several of these objects. The following are those which were most impressive in the 8” at 100X.

M11 lies two degrees southeast of Beta Scuti, making it an easy object to find. It is one the most compact of all the open clusters, containing roughly 200 stars in an area 12’ in diameter. A bright foreground star of 9th magnitude lies near the center of the cluster, with all other members being 11th magnitude or fainter. At first glance one can easily understand why M11 is often called the Great Scutum Cluster.

M22 is rated as “the finest globular cluster after M13 in the sky north of declination -40 degrees”. Lying two degrees northeast of Lambda Sagittarii, this object has a total magnitude of 5.8. I find that although the resolvable members of M13 are brighter than those of M22, the 8” resolves much more of M22 than of M13. The angular size is 17’.

NGC 6826 is a planetary lying five degrees directly north of Delta Cygni. Being one of the most unusual objects in the sky, it is sometimes called the “blinking planetary” because with direct vision only the central 11th magnitude star is visible, but with averted vision the star is drowned out by bright nebulosity. The magnitude of the nebulosity is 8.8.

NGC 7009 the Saturn Nebula, presents a very bright elliptical disk. It is the only nebula I have seen in which color is readily evident. The deep, blue-green tinge is unmistakable. The central star is magnitude 11.7, while the nebula is 8.4.

M2 is located about five degrees north of Beta Aquarii and is a globular of magnitude 6.4. In small telescopes it appears as a hazy patch of glowing mist and even an 8” has difficulty in resolving it. The visual diameter is 7’ and long exposure photographs increase the value to 11’. John Herschel compared it to a heap of fine sand, containing thousands of 14th and 15th magnitude stars.

PLANETOLOGICAL

FRAGMENTS →

Compiled by C. Edsall

A monthly series of articles devoted to the discussion and study of topics of current astronomical significance and interest related to our solar system.

FRAGMENT 1

Basalt—Stuff of the Worlds?

No one was quite sure what to expect early this past spring when a team of researchers from MIT's Planetary Astronomy Lab initiated a program to measure the spectral reflectivity of a number of select asteroids. No one was sure because it had never been done before.

Their modus operandi included the instrumentation provided by the 60-inch reflector of the Cerro Tololo Inter-American Observatory and the 60-inch and 100-inch scopes on Mount Wilson. With these and sets of narrow-band interference filters, they scanned the spectra of asteroids Vesta, Pallas, and Ceres between 0.3 and 1.1 microns.

The spectral reflectivity of objects in the solar system is measured to determine the mineralogy and composition of the surfaces of these objects. And, hopefully, through this, gain new knowledge concerning the age and origin of the solar system.

The primary features of the reflectivity curves obtained showed (i) a strong absorption band near 0.9 microns and (if) no bands to indicate the presence of carbon dioxide and water ices. This 0.9 micron band of Vesta has been shown to be indicative of the presence of magnesium-rich orthopyroxenes, a basaltic achondrite. Although this same band did not appear for Pallas or Ceres, the bands in this region for these asteroids also indicated forms of the same minerals.

These findings are significant only because they add to the compilation of data from many parts of the solar system we have concerning a quite singular and perhaps worthy series of discoveries.

As we have reached outward from the earth to conduct compositional analyses of the surfaces of other entities, on the moon, Mars, Venus, and now, asteroids, it seems as though we continually come upon a material common to all. This is Basalt.

As the earth encountered its first cooling period after its formation, the rock layer upon which the crust of the earth rests and which mediates between the

crust and the mantle was of molten magma and cooled slowly. The part of this magma high in silicates and relatively low in iron, calcium, and magnesium solidified quickly into Granite, a grainy, light colored igneous mineral. The part low in silicates and high in iron, calcium, and magnesium cooled more slowly into fine-grained Basalt. The rest solidified even more slowly into glassy Obsidian.

During the centuries of geologic time, the Granite became extrusive--pushed through the surface of the earth into the common Granitic formations observed today. The Obsidian did this also. The Basaltic rock, however, remained intrusive--continued to support the continents and ocean floors and, now it is established, carried them on convection currents across the globe.

Now, however, as we have "seen the earth as it truly is" in one glance and in the next encompassed in great detail the surface of the Moon, we have also been able to see both the processes and consequential effects that shaped it.

After the rock and soil samples from Tranquility Base had been examined and tested both by NASA and private researchers, the results were published as the proceedings of the first Lunar Science Conference held in Houston last January. The reports indicated that the samples consisted of igneous rocks in the form of Basalts, micro breccias, crystalline soil, glassy fragments, and iron micro-meteorites. Again, the Basalts predominated in the composition of the soil. From this and other data, a hypothetical cross-section of the moon's composition has been suggested--the core being a convecting, iron-rich solid, the mantle of Olivine-Pyroxines, and the crust of stratified iron-Basalts.

From all of this we can see patterns emerging that can guide us in understanding the formation of rocky planets in not only ours, but, perhaps other solar systems. These are that in the cooling process, when iron, calcium, and magnesium combines with minimal amounts of silicates above the mantle section of the planet, basaltic layers will form as a separate mass between the mantle and crust, within the crust, or as the outer crust itself. And in the future, when a planetary astronomer examines the reflectivity curves obtained from stars other than our Sun, perhaps he will notice an absorption band centered near 0.9 microns. This band will not have anything to do with that star, perhaps, rather he will have discovered a world completely new to our experience.

June, 1970

Summer Meetings

Messier Club - * 779-5832 - Frank McCullough

Astro Presentations - 776-9720 - Larry Kalinowski
777-1857 - Dave Ther

Solar Study - 751-2836 - Gene Francis

Optics Group - SL4-2134 - Gerald A/yea

Keep In Touch For
Camp Outs!

* new number

ASTRONOMY PUNS FOR A CLOUDY NIGHT



or

(an extra page to make the paper thicker)

1. Me second, U- niverst~
2. TELE*scope, we'll be out to use it, later!
3. If you didn't get that one, you're a :real Domey.
4. If I can't drive, the clock will.
5. Go tell it on the mount-an.
6. Eye piece, you peace, we all peece?
7. Tri-pod, -Hippies do.
8. The officers of our club are going on a POLUS picnic.
9. Dave Ther's BAROMETER (that's a joke)
10. I didn't planet that way, either.
11. Sun, be home by Moon.
12. We are making a crater profit here on the moon.
13. I always had a nite-Mare. Do you Sea?
14. Oh shucks! I missed the BALD-win.
15. ED-SELL everything if I had it to sell.
16. Sun, you're not too bright are you?
17. Another flare-up like that and you'll be in a spot.
18. I ex-Spectrum all home soon.
19. I want to order a cheese and astronomy sandwich.
20. It is my turn, now it is Saturn.

JOKE OF THE MONTH

The majority of the people voted to view the solar eclipse without filters, I asked who opposed, no one did--So the EYES had it.

If any of these jokes offend you in any way send your complaints to

PRESIDENT LARRY F. KALINOWSKI 15674 FLANAGAN, Roseville, Mich.

And he will send out apology letters to each of you.

THANK YOU.

It is quite unfortunate that regular WAS meetings cannot be held in summer, simply because Lincoln High School is unavailable. During these months, communication between members and the club is difficult. This heightens the problem of informing members of times and places of club activities, outings, and special interest group meetings, such as Messier study and astrophotography.

This mail edition of the WASP is an attempt to tighten the communication gap created by the lack of regular meetings. But it is not the whole answer. For, however informative and complete the paper may be, it cannot provide the stimulating discussion and exchange of ideas that usually occurs at the meetings. A more equitable solution must be found.

Since the erection of the WAS observatory in Ray Township, the club has not used the high school's astronomical (?) facility. The change was welcome, as the school's neglect of the dome and the unfailingly foul atmosphere of Metropolitan Warren made serious observing impossible. Perhaps the time has come for WAS to abandon the stale little algebra room it now occupies and seek more suitable quarters.

Martin Miron

I'd like to use this space to thank and congratulate, on behalf of WAS, all those who contributed their time and effort to the fine exhibit prepared for the Warren fair. Special congratulations to Dave Ther, Chris Edsel and Larry Kalinowski, who, of all our members I observed at the fair, worked the hardest.

There is no truth to the rumors 'of a strike at...

Hamtramck Bubble Factory number nine

(Proof follows)

Jeepers Creepers

Where'd ya get them peepers?

Jeepers Creepers

Where'd ya get them eyes?

Got them lookin'

At the white hot leapers.

Call them sunspots

Leaping through the skies.

There's a square

/ in every crowd

*****#*****

And now the thrilling continued adventures of your hero and mine~

Telescope Tim

As you remember, last month's episode ended with Telescope Tim, amateur astronomer, poised to jump from the peak of Mt. Wilson, after hearing from the mad Doctor Mabuse the terrible news that he suffered from an incurable allergy to pitch, compounded with the shock of the departure of his girlfriend, Venus, who was convinced that Tim was having an indecent affair with his twelve-inch, which, in fact was as scarred and pitted as Tim's warped personality, since who aluminizes with recycled TV-dinner trays anyway? ...

Be sure to be here next month as Tim tries to grind a mirror out of compressed saran wrap!

~~~~~ 11

"Looks like another one of those sit-in protests."

????????????-!-???????????? I=I

"All right, everybody make way for the stretcher."

000000000000000000000000!00000000000000000000 11

## OBSERVATIONAL ASTRONOMY

### M-8 The Lagoon Nebula

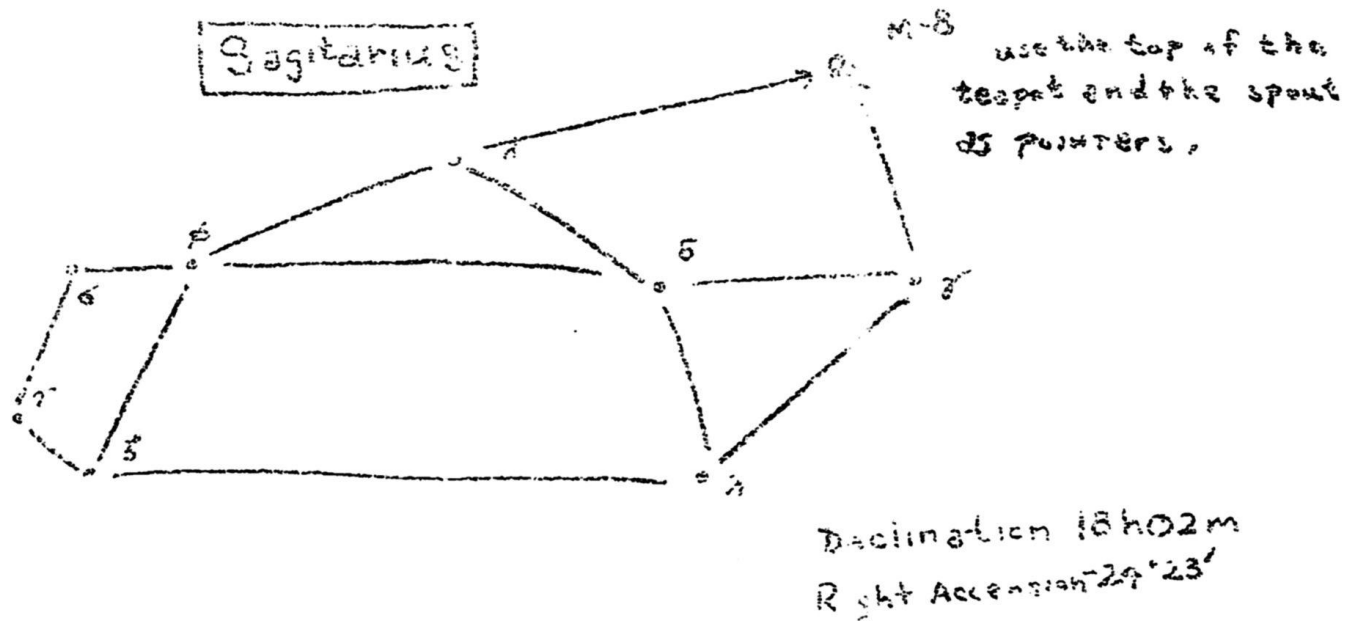
Have you ever viewed the object? If you haven't you are missing two objects in one. Those who like open clusters and the spray of stars, you get your wish. Those who like a diffuse nebula it is also there.

It is striking to the eye through a telescope. Binoculars pick up the object yet a telescope is needed to show the makeup of the object.

I used a 4½" reflector at 45x and was impressed with what I saw. The morning I observed this was July 7, 1968 at Bald Mountain. My memory is somewhat clear of what it looks like, yet the time has come to attack this region again, this time with a bigger telescope and better drawings.

I would like whoever has a telescope to find this object, make drawings of it and send them to me to be published in the next issue of the W.A.S.P. Any other objects are always welcome at any time.

SEN THEM TO 22803 SAXONY East Detroit DO NOT use my address because I am moving. So to avoid a mix-up, send them to the address given.



Guide to "A Messier Album" by John Mallas & Evered Kreimer  
Compiled by D.T. Ther

readers should complete this guide as remaining descriptions are published

| Messier No. | Issue of "S & T" |      | Messier No. | Issue of "S & T" |      |
|-------------|------------------|------|-------------|------------------|------|
| 1           | November         | 1968 | 56          | August           | 1969 |
| 2           | October          | 1969 | 57          | August           | 1969 |
| 3           | June             | 1967 | 58          | April            | 1970 |
| 4           | June             | 1969 | 59          | April            | 1970 |
| 5           | June             | 1970 | 60          | April            | 1970 |
| 6           | July             | 1969 | 61          | April            | 1969 |
| 7           | July             | 1969 | 62          | July             | 1969 |
| 8           | July             | 1967 | 63          | February         | 1969 |
| 9           | June             | 1970 | 64          | June             | 1967 |
| 10          | August           | 1968 | 65          | March            | 1969 |
| 11          | August           | 1970 | 66          | March            | 1969 |
| 12          | August           | 1968 | 67          | January          | 1969 |
| 13          | June             | 1968 | 68          | May              | 1969 |
| 14          | August           | 1968 | 69          | August           | 1967 |
| 15          | October          | 1969 | 70          | August           | 1967 |
| 16          | July             | 1970 | 71          | September        | 1968 |
| 15          | July             | 1970 | 72          | September        | 1967 |
| 18          | July             | 1968 | 73          | September        | 1967 |
| 19          | July             | 1969 | 74          | December         | 1967 |
| 20          | July             | 1967 | 75          | September        | 1970 |
| 21          | July             | 1967 | 76          | October          | 1968 |
| 22          | August           | 1970 | 77          | December         | 1967 |
| 23          | July             | 1967 | 78          | January          | 1970 |
| 24          | July             | 1968 | 79          | December         | 1969 |
| 25          | July             | 1968 | 80          | June             | 1969 |
| 26          | August           | 1970 | 81          | May              | 1967 |
| 27          | September        | 1968 | 82          | May              | 1967 |
| 28          | August           | 1970 | 83          | May              | 1969 |
| 29          | September        | 1969 | 84          | May              | 1968 |
| 30          | September        | 1967 | 85          | April            | 1968 |
| 31          | October          | 1967 | 86          | May              | 1968 |
| 32          | October          | 1967 | 87          | May              | 1968 |
| 33          | December         | 1967 | 88          | May              | 1970 |
| 34          | October          | 1968 | 89          | May              | 1970 |
| 35          | November         | 1968 | 90          | May              | 1970 |
| 36          | November         | 1967 | 91          | May              | 1970 |
| 37          | November         | 1967 | 92          | June             | 1968 |
| 38          | November         | 1967 | 93          | February         | 1968 |
| 39          | September        | 1969 | 94          | February         | 1969 |
| 40          | March            | 1970 | 95          | March            | 1968 |
| 41          | December         | 1969 | 96          | March            | 1968 |
| 42          | January          | 1970 | 97          | January          | 1968 |
| 43          | January          | 1970 | 98          | April            | 1968 |
| 44          | January          | 1969 | 99          | April            | 1968 |
| 45          | December         | 1968 | 100         | April            | 1968 |
| 46          | February         | 1968 | 101         | March            | 1969 |
| 47          | February         | 1968 | 102         |                  |      |
| 48          | February         | 1970 | 103         | November         | 1969 |
| 49          | April            | 1969 | 104         | April            | 1969 |
| 50          | February         | 1970 | 105         | March            | 1968 |
| 51          | March            | 1969 | 106         | March            | 1970 |
| 52          | November         | 1969 | 107         | June             | 1970 |
| 53          | June             | 1967 | 108         | January          | 1968 |
| 54          | August           | 1967 | 109         | March            | 1970 |
| 55          | September        | 1970 | 110         | September        | 1970 |