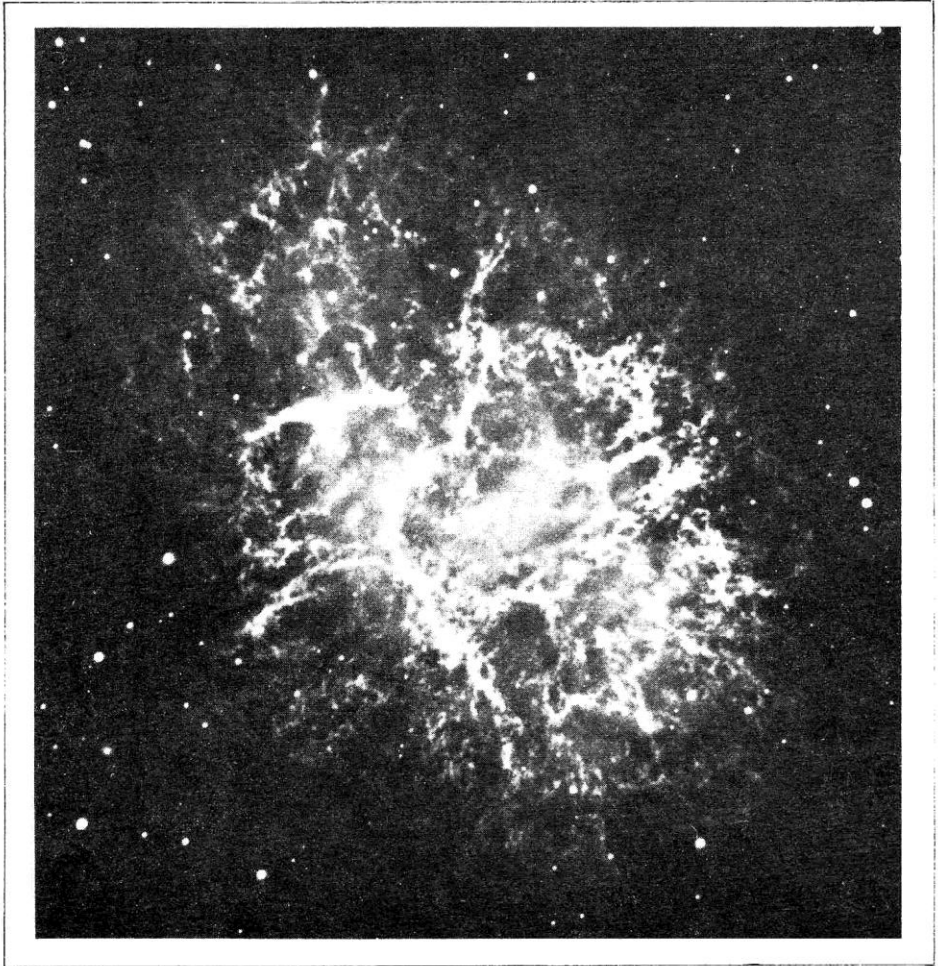


# The WASP



*The Crab nebula (M-1)*



## OCTOBER 1976

**THE JOURNAL OF THE WARREN  
ASTRONOMICAL SOCIETY**



THE WARREN ASTRONOMICAL SOCIETY PAPER (W.A.S.P.)  
IS PUBLISHED BY THE W.A.S., MONTHLY AS A PRIVILEGE  
OF MEMBERSHIP. THE W.A.S. IS ALSO A CAMPUS CLUB OF  
MACOMB COMMUNITY COLLEGE-SOUTH CAMPUS, WARREN MICH.

The Warren Astronomical Society (W.A.S.) is a local nonprofit organization of amateur astronomers. Membership is open to all interested persons. Annual dues are as follows: Student, K-12 9.00, College 11.00, Senior Citizen \$13.50, Individual \$16.00, Family \$21.00. The fees listed here include a one year subscription to Sky & Telescope Magazine.

Meetings are held on the first Thursday at Cranbrook, and the third Thursday of each month at Macomb County Comm. College, in the student union bldg.

Subscriptions and advertisements are free of Charge to all members. Non-member subscriptions and advertisements are available upon arrangement with the Editor of the W.A.S.P. Contributions of any kind are always welcome and should be submitted to the Editor before the second Thursday of the month.

THE EDITOR: Roger A. Civic (775-6634)  
26335 Beaconsfield  
Roseville, Michigan 48066

The Editor of the W.A.S.P. will exchange copies of this publication for other Astronomy club publications on an even exchange basis.

The Warren Astronomical Society maintains contact, sometimes intermittent, with the following Organizations:

The Adams Astronomical Society  
The Astronomical League  
The Detroit Astronomical Society  
The Detroit Observational and Astrophotographic Assoc.  
The Fort Wayne Astronomical Society  
The Grand Rapids Amateur Astronomical Society  
The Kalamazoo Astronomical Society  
The M.S.U. Astronomy Club  
The Miami Valley Astronomical Society  
The Oglethorpe Astronomical Society  
The Orange County Astronomers  
The Peoria Astronomical Society  
The Saint Joseph County Astronomical Society  
The Sunset Astronomical Society

Other Amateur Astronomical Clubs are invited to join this exchange of publications.

# CLUB NEWS

The "Astro-Con 76" Astronomical League Convention at Kutztown State College was a well attended convention. The College campus was charming. The weather was hot. The hills of Pennsylvania were beautiful. Many members of the W.A.S attended and enjoyed the trip.

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## PROGRAM FOR OCT. 21, 1976, Lou Faix - Program Director

The main event for this meeting will be a double header. We have two speakers, Diane McCullough and Dolores Hill. Diane will give a talk on the Constellations of Autumn, their appearance, Mythology, and the principal deep space objects contained within the borders of these constellations.

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Dolores Hill is going to give a talk on the subject of Spectrography. She will explain what spectrography is, how the recordings are made, what information they contain, how they are interpreted and what has been learned about stars and space by these recordings.

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There will be an executive board meeting of the W.A.S. officers at the Kwentus residence on Sept. 25th, 1976. The meeting will start at 7 pm. The board meetings are open to W.A.S members.

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We wish to thank Chris Edsall for his donation of two fine hard cover Atlases, Borealis and Eclipticalis to the growing W.A.S. library. Along with these two books he has also donated many B&W photographs, NASA information booklets and a dozen or more books pertaining to the field of Astronomy. These and many more interesting books are available to all W. A. S. members for their personal use. Contact Dolores Hill for more information on proper procedure.

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Mr. Kenneth Wilson, one of the W.A.S long time members has taken a position as associate Planetarium Director at the Strasenburgh Planetarium in Rochester N.Y. The W.A.S. educational effort will be diminished greatly by his moving on to the professional field of Planetarium Education. I personally will miss his smiling face and witty conversation, along with me, I am sure the W.A.S. members and officers wish Ken much luck and success in his chosen field of endeavor.

## MINUTES OF THE WAS BUSINESS MEETING AUG. 5, 1976

(A short business meeting was held during the Cranbrook meeting due to the absence of the officers from the Aug. 18 general meeting.)

The meeting opened with the film "Space Beyond Tomorrow" after which a short business meeting was held.

Pete Kwentus displayed a newspaper article in which the WAS was mentioned.

Rik Hill described the Sky Patrol and recruited more volunteers. He also mentioned a Lunar and Planetary observing program in the future.

Pete discussed the Observe Manuals and offered them for sale. He gave the observatory report and announced that the finders cope now has lighted crosshairs.

Chris Edsall donated copies of the Atlas Borealis and Atlas Eclipticallis to the club library. He also suggested housing the library at Macomb Community College. It was also announced that Dennis Jozwik donated an 18mm orthoscopic eyepiece to Stargate. Many thanks to all who have contributed and made donations to the WAS library and Stargate observatory.

The meeting proceeded with a talk and slide program by Bill Whitney (Cranbrook program chairman) on the tour of Western Observatories.

The meeting was adjourned at 11:00 P.M.

Minutes respectfully submitted by,

Dolores H. Hill, Sec'y.

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Mars Viking I & II Update: In preparation for the landing of Viking II, Viking I has been shut down. On Sept. 3, 1976, Viking made a safe landing on the plain of Utopia, 47.5N-266W., 4,600 miles away from Viking I. The temperature on the plain ranges from a cool -114 at night to a blistering -23 in the day. Winds were light and variable. The Utopia Planesha area is rock covered and much more level than the first landing site. The Scientists at J.P.L. expected sand dunes but the target was missed by some miles. Sept. 12, the sampler arm has mal-functioned part way through the dumping operations. Only one experiment can be started.

# Science and the Parascience Cults

How can the public separate fact from myth in the flood of occultism and pseudoscientific theories on the scene today?

BY KENDRICK FRAZIER

*Ancient astronauts, astrology, the Bermuda Triangle, UFO'S, psychokinesis, psychic healing, Kirlian photography, pyramid power, reincarnation, immortality, astral projection, lost continents, plant communication, orgone energy, dianetics, chariots of the gods, Ur Geller, Immanuel Velikovsky, Erich von Daniken, Jeane Dixon.*

Over the decades, the subjects and the proponents of occultism and pseudoscience come and go, and the public's toleration of and fascination with cultist theories shift like the wind. But by general agreement, the last decade has brought on a flood of interest in what is variously called fringe science, borderline science, pseudoscience, paranormal phenomena, occultism, mysticism, the cults of unreason, the new irrationalism or the new nonsense.

Whatever the label, one has to go only as far as the nearest magazine stand or paperback book rack to find it in' abundant quantities. Entire publishing industries revolve around single paranormal claims. Fortunes are made by exploiting the public's fascination with the unknown—or seemingly unknown.

The typical scientist's reactions to all this is usually to throw up his hands in disgust, mutter about the naiveté and gullibility of the general public, turn back to his experiments and forget it, leaving the populace to their own misconceptions, for better or for worse.

The problem is a difficult one for science. The time and effort required to systematically point out the errors in fact and logic in a complex pseudoscientific theory are not trivial. When astronomer Carl Sagan delivered what many considered to be a devastating blow to the catastrophism theories of Velikovsky at the San Francisco meeting of the American Association for the Advancement of Science in February 1974, he lamented the time taken away from his own studies that the preparation of the 57-page paper had required (although he said the experience was worth it). Many scientists consider efforts at debunking beneath their dignity. Others just consider it useless.



They argue that no matter what the facts are, there will always be a certain proportion of the people willing to believe in any claim. And any attempt by scientists to tell why a popularly held idea or theory is not valid inevitably leads to complaints from the wounded of authoritarianism and scientific elitism. All this has made the scientific community reluctant to enter the fray. And this in turn has allowed occultist ideas to go largely unchallenged and unevaluated in the publicly visible arenas in which they flourish.

But now there is something new on the scene—a newly formed group of scholars, scientists, and investigators willing and able to enter the debate. The formation of the Committee to Scientifically Investigate Claims of Paranormal and Other Phenomena was announced on April 30 at the meeting of the American Humanist Association in Buffalo, N. Y. Committee cochairman Paul Kurtz, professor of philosophy at the State University of New York at Buffalo and editor of THE HUMANIST, has long been concerned about what he calls the "enormous increase in public interest in psychic phenomena, the occult and pseudoscience."

"Often," he states, "the least shred of evidence for these claims is blown out of proportion and presented as 'scientific' proof. Many individuals now believe that there is considerable need to

organize some strategy of refutation. Perhaps we ought not assume that the scientific enlightenment will continue indefinitely; for all we know, like the Hellenic civilization, it may be overwhelmed by irrationalism, subjectivism and obscurantism.

"Perhaps antiscientific and pseudoscientific irrationalism is a passing fashion; yet one of the best ways to deal with it is for the scientific and educational community to respond."

The committee hopes to function like a consumer information group, serving the public and the news media by providing access to facts by which they can judge the validity of unusual claims.

They will establish a network of people interested in examining such claims, prepare bibliographies of published materials that examine such claims, encourage and commission research by objective and impartial observers in areas where needed, publish articles and books examining claims and convene conferences and meetings.

It will also publish a journal called THE ZETETIC, an expansion of a now twice yearly newsletter edited by Marcello Truzzi, professor of sociology at Eastern Michigan University in Ypsilanti.

Among the nearly 40 members of the new committee are astronomers George Abell, Bart Bok and Carl Sagan; philosophers Brand Blanshard, Antony Flew, Sidney Hook and Ernest Nagel; authors Isaac Asimov, Daniel Cohen, L. Sprague De Camp, Charles Fair, Martin Gardner and Philip I. Klass; psychologists Ray Hyman and B. F. Skinner; and magician James Randi,

Most of the committee members have studied or written extensively on cults and pseudoscience, many of them have been active critics and debunkers. Nonetheless, the committee co-chairmen insist that the group, though critical, will be open minded. "We wish to make it clear that the purpose of the committee is not to reject on a priori grounds, antecedent to inquiry, any or all such claims, but rather to examine them openly, completely, objectively and carefully," says Kurtz,

Committee members lament the shortage of critical thinking in today's society. "It is vital that individuals develop some understanding of the effective criteria for judging these claims," says Kurtz. Often scientists who attempt to point out flaws in cultist theories are accused of being close-minded. But, observes committee member L. Sprague De Camp, author of more than 30 books of science fact and science fiction, "Many people have developed minds that are not only open, but gaping."

Often subjects, considered long put to rest, bob up again years later. "In the history of cultism, one is always experiencing a feeling of *déjà vu*," says De Camp. Astrology is an example of a pseudoscientific idea once considered thoroughly

discarded but now newly re-arisen to popularity. As Kurtz says, by the year 1900, astrology was widely viewed as a merely historical curiosity. "Few intellectuals or educated persons thought that it contained any truth at all.



It existed only on the fringes of society among uneducated folk." Now, he notes, it has made a notable resurgence, "and even supposedly sophisticated people claim to believe in it."

Such concern led to the now famous statement "Objections to Astrology," published in the September/October 1975 issue of THE HUMANIST and signed by 186 scientists. The statement stirred far greater public interest than its originators had expected. The formation of the Committee to Scientifically Investigate Claims of Paranormal and Other Phenomena is an outgrowth of that effort.

One indication that the new committee will try to be fair in its approach to its task is that its co-chairman, Truzzi, considers the astrology statement to have been misguided. He says its conclusions weren't wrong-astrology is bunk-but nevertheless the statement, with its august signatories, was an appeal to authoritarianism and a misuse of scientific credentials.

Truzzi cautions his colleagues not to place all the occultist groups into one package. In fact, some of the best debunking literature comes from the occultist groups themselves, because they distrust each other and attempt to show why their beliefs are right and the other occultist beliefs are wrong.

Truzzi has prepared a taxonomy of occultism, placing cults along a five-point scale with sources of validation ranging from scientific to purely mystical.

The first group he calls proto-scientific occultism. The best example is parapsychology. Here, he says, essentially scientific criteria for demonstration of the anomalies are desired and attempted, but the claims have not been fully integrated into the scientific community (in this case

psychology) due to a lack of sufficient evidence that might convince the skeptical established sciences.

The second group is quasi-scientific occultism. An example is astrology. Here "lip service" is paid the search for scientific criteria for validation, but the search for hard evidence is more a stated goal than an actuality.

The third group is pragmatic occultism. Example: magic beliefs. Here, the basic attitude is that the method works and could be demonstrated to the skeptical scientist but that the occultist has no desire to do so.

Groups four and five are shared and solitary mystical occultism. Example: messages from spirits. Here, beliefs center around some personal demonstration of truth without the possibility of empirical validation. Truzzi points out that the final two groups are outside the scientific realm and thus should not be of concern to scientists. That parallels his view that the new committee should be concerned with a cult group only to the extent that it makes scientific claims. "We tend to tar the proto- and quasiscientific occultists with the brush of the mystical occultists," Truzzi says. "That is a serious mistake."

Truzzi also points out that what distinguishes science from pseudoscience is not subject matter but methodology. Principles inherent in the methodologies of science include "falsifiability" (one will get a negative result if the hypothesis is not true), replicability (different researchers should be able to get the same results), intersubjective verifiability (agreement between advocate and critic of criteria for verifying), and the logical principle called Occam's Razor (the simplest of two equally satisfactory explanations takes precedence).

These are long-accepted principles for sifting out valid from invalid ideas within science, and, says Truzzi, "to the degree that those making claims are willing to use the methodologies of science, we must welcome them."

He proposes two additional principles important in dealing with anomalous claims: First, the burden of proof is on those who claim the existence of an anomaly; second, extraordinary proof is necessary for extraordinary claims.

The cults and pseudosciences often have their own peculiar forms of logic. L. Sprague De Camp points to the circular logic often used by pseudoscientists. For example, UFO enthusiasts sometimes start by assuming what they wish to prove. (If flying saucers exist, the reason they haven't been exposed to view is that the government has censored the news; the fact that the government has squelched this information shows that UFOs exist.)

De Camp repeats five criteria for judging UFO contact reports first presented by a University of Denver general science instructor in 1950: that the

report be firsthand; that the teller shows no obvious bias or prejudice; that he be a trained observer; that the data be adequate and available for checking; and that the teller be clearly identified.

Philip J. Klass, an editor for AVIATION WEEK & SPACE TECHNOLOGY and a member of the new committee, devotes much of his spare time to detailed investigations of UFO sightings. At a symposium on "The New Irrationalisms: Antiscience and Pseudoscience," at the meeting of the American Humanist Association on May 1 in Buffalo, Klass presented case studies of three dramatic UFO reports. The sightings were widely seen and highly intriguing. Those who exploit and exaggerate UFO mysteries for a living, Klass says, would end there and say, "Oh, isn't that mysterious!" Klass investigated the reports further and documented the causes of the three seen phenomena. In case one, it was a Soviet rocket booster reentering the atmosphere and breaking into flaming fragments. Case two was a hoax perpetrated by youngsters who made balloons by heating the air in nine plastic laundry bags and attached railroad flares with time-delay fuses to them which when they went off appeared to observers, both air and ground, to be a fleet of UFO'S firing weapons at the surface. In case three, a report by airline pilots of a flaming UFO passing within a few hundred feet of their aircraft turned out to be, as shown by triangulation from numerous ground reports, a large meteor passing through the atmosphere 120 miles north of their planes.

In each case trained observers had their senses deceived. And in each case the observer's mind had filled in missing and mistaken--details.

Concludes Klass: "In the final analysis, after 10 years of investigating the toughest UFO cases, I can say to you without any reservation that UFOs come from the viewer's imagination when we see something unusual at night."

Klass has written two books documenting and explaining UFO sightings. They have experienced the usual fate of debunking books: small sales and little visibility. The problem is typical. Scientists and other investigators who propose articles and books showing straightforward explanations for claims of strange phenomena are told by publishers that the public doesn't want to read that an enigma is explainable. People want to be intrigued and mystified. The result, say the critics, is that the literature of occultism, with its abundant distortions of fact and logic, far outweighs in quantity and visibility the critical analyses of the same claims. The true information rarely catches up with the misinformation: the facts rarely meet the myths. And all the people who honestly would prefer to know whether--widely publicized claims are true or not are deprived of any easy way of learning.

As De Camp says, "If I undertook a thorough analysis of one of Von Daniken's books, the result would be a book several times the size of the original. It would take years of my time; and, if I were mad enough to write it, who then would read it?"

This, despite the fact that, in De Camp's words, "Von Daniken's books are solid masses of misstatements, errors and wild guesses presented as facts, unsupported by anything remotely resembling scientific data."

Larry Kusche, a skeptical investigator who has conducted a detailed investigation of the Bermuda Triangle "mystery," found that most of the "facts" upon which the alleged mystery was premised simply were not true. As he concludes in his book *The Bermuda Triangle Mystery-Solved*: "The Legend of the Bermuda Triangle is a manufactured mystery. It began because of careless research and was elaborated upon and perpetuated by writers who either purposely or unknowingly made use of misconceptions, faulty reasoning and sensationalism. It was repeated so many times that it began to take on the aura of truth."

Kusche's book, which Truzzi considers a model debunking effort, has sold respectably, but it is just one against many hooks having vastly greater sales that promote the legend. His book is soon to have broader impact, however. It serves as the basis for a NOVA television program, "Pseudoscience and the Bermuda Triangle," to be telecast on PBS the week of June 27.

Geller has conducted demonstrations before physicists, undergone tests at the Stanford Research Institute and been the subject of a research report and a restrained editorial in NATURE. Some scientists and journalists have expressed amazement after witnessing Geller's abilities at such things as key bending, duplicating drawings made by others in private, and restarting stopped watches. Some of these same observers have become skeptics after learning more about his techniques.



The evidence is very strong that they have all been tricked. James ("The Amazing") Randi, a

magician who has been investigating Geller and his techniques for the past two years, calls Geller an outright fraud. He provides impressive documentation for the case that Geller's feats are those of a skilled and accomplished magician or conjurer, not a psychic as claimed.

Perhaps the most persuasive line of evidence is that Randi and many other magicians can duplicate all of Geller's feats, using only magicians' tricks. But the case hardly rests there. Randi reveals that Geller has frequently been caught at cheating; that the tests of Geller's skills at SRI were done under incredibly sloppy conditions, often controlled by Geller himself; that in the SRI tests that eliminated the possibility of aid from a confederate, Geller either refused to try the test or failed it; that when Randi helped Johnny Carson and his staff set up the controls on demonstrations Geller performed on "The Tonight Show," Geller failed miserably; that Randi himself has easily fooled some of Geller's strongest advocates, such as British physicist John G. Taylor; that Randi by means of Geller-like tricksterism convinced PSYCHIC NEWS that Randi was a psychic; that in Israel where Geller got his start, even his friends, relatives, former girl friend and former managers swear that Geller is a cheat and a liar; and that Geller's close friend in Israel, Itzhaak Saban, acknowledges that he used to sit in the front row at performances and give Geller hand signals and that Geller then had no "psychic" abilities. Randi elaborates on all these matters in his new book, *The Magic of Uri Geller*.

Randi says he asked Harold E. Puthoff, one of the two SRI physicists who tested Geller, to answer five simple true-false questions about the testing procedures. He has not had a reply. "He will not answer those questions because he cannot without showing that he is not a capable investigator in dealing with Uri Geller."

Randi, like many magicians (SN:8/3/74, p. 78), rebukes scientists for assuming they have the skills to assess the validity of psychic demonstrations. The opposite is the case. Scientists, with "their straight-line thinking," are among the very easiest types to fool. "Wherever there is any possibility of ... chicanery being an element in any experimental process, an experienced conjuror must be called in," says Randi. "And not just any conjuror, but one whose specialty is just that particular brand of chicanery."

He also chastises the media for reporting only those demonstrations in which Geller is successful, ignoring his failures.

Geller and other supposed psychics, Randi says, have been aided by four special assumptions: believers and even "objective" experimenters accept in judging psychics' abilities: No real psychic can produce phenomena upon command or upon a regular basis (thus when they fail, that's considered



proof that they're genuine); that a psychic sometimes has to cheat when his psychic powers temporarily wane (so when he's caught, the cheating is forgiven); unless the detractor can explain *all* the phenomena exhibited, his case is not proved; and psychics cannot be expected to produce results when skeptics are present or when controls inhibit the psychic's sense of being trusted.

"If we were to try applying similar rules to, say, the science of astronomy, we would be laughed out of the running."

With the diversity and complexity of anomalous claims on the scene today, how well will the new committee succeed in its task of helping distinguish between the bogus and the valid? Much depends on the committee's acceptance by the public and the scientific community. That, in turn, will depend greatly on how well it achieves a balance between skepticism and receptivity. It must avoid what committee member Ray Hyman, professor of psychology at the University of Oregon, notes has been characteristic of too many past debunking efforts (mainly books) that take a holier than thou attitude, polarize potential readers and are as irresponsible with facts and arguments as those they criticize.

A good debunking effort, according to his standards, treats believers as just as moral, honest, intelligent and well meaning as disbelievers: "The problem is not to tell believers how stupid they are. The problem is, rather, to understand how our minds work to create conviction, even when the available facts may be inadequate to sustain that conviction."

It must give more than lip service to Kurtz's avowal for the need to maintain an open mind: "I would insist that it is essential that scientists be willing to investigate claims of new phenomena. Science cannot be sensorial and intolerant, nor cut itself off from new discoveries by making judgments antecedent to inquiry."

On the other side, those making claims, and the public, must acknowledge that scientific acceptability requires that such research, as Kurtz emphasizes, "be responsible and carefully conducted, that the evidence not be outstripped by conjecture, nor the conclusions based upon the will to believe."

Or, as Einstein once wrote, "Imagination is good but it must always be critically controlled by the available facts. There is no distinct philosophical approach which leads directly to truth."

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## Debunking Books

*Here is a brief selection of books that critically analyze cultist ideas and theories and that are considered responsible and worthwhile to the interested reader.*

CHRISTOPHER, MILBOURNE, *Mediums, Mystics and the Occult*. T.Y. Crowell, New York, 1975.

DE CAMP, L. SPRAGUE & DE CAMP, CATHERINE C., *The Ancient Engineers*. Ballantine, New York, 1974 (reprint of 1960 book).

EVANS, CHRISTOPHER, *Cults of Unreason*. Farrar, Strauss, and Giroux, 1973.

FULLER, URIAH, *Confessions of a Psychic*. Karl Fulves, Teaneck, N.J., 1975. An expose of Uri Geller's effects by a rival. (Available from Karl Fulves, Box 433, Teaneck, N.J., by sending \$3).

GARDNER, MARTIN, *Fads & Fallacies in the Name of Science*. Dover Publications, New York, 1957.

HANSEL, C.E.M., *ESP: A Scientific Evaluation*. Scribner, New York, 1966.

JASTROW, JOSEPH, *Error & Eccentricity in Human Belief*. Dover. New York.

KLASS, PHILIP J., *UFOs Explained*. Random House, New York, 1975.

KUSCHE, LAWRENCE DAVID, *The Bermuda Triangle Mystery-, Solved*. Warner Books, New York, 1975.

RAND!, THE AMAZING, *The Magic of Uri Geller*. Ballantine, New York, 1975.

SILVERBERG, ROBERT, *Scientists and Scoundrels: A Book of Hoaxes*. T.Y. Crowell, New York, 1965.

THIERING, B., & CASTEL, E. (eds) *Some Trust in Chariots: Sixteen Views on Erich von Daniken's 'Chariots of the Gods.'* Popular Library, New York, 1975.

\* \* \* \*

Subscriptions to THE ZETETIC, the committee's new journal of research into occultisms, are available by sending a check for \$10 to 923 Kensington Ave., Buffalo, N. Y. First issue this summer.

## OBSERVATORY SCHEDULE

Lectures for the coming month are listed below.

Oct. 1/2 ••• Kim Dyer •••••••••••••••••••• 835-2037  
Oct. 8/9 ••• Ray Bullock •••••••••••••••••••• 879-9458  
Oct. 15/16 Don Misson •••••••••••••••••••• 776-0424  
Oct. 21/22/23 ••• Special Education  
    Roger Civic •••••••••••••••••••• 775-6634  
    Pete Kwentus •••••••••••••••••••• 771-3283  
Oct. 29/30 Larry Kalinowski •••••••••••••••••••• 776-9720

The lecturer may select either the Friday or Saturday depending on the weather and their personal schedule. W.A.S. -members wishing to be instructed on, the operation of observatory and telescope controls should contact the lecturers directly. Additional lecturers and assistants are needed to lessen the load on these faithful old time members. Thank you.

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Observatory Report: Roger Civic ••Observatory Chairman.

The long summer vacation for the scouts at Stargate will be over on Oct. 1/2. That weekend marks the start of the new fall session.

During the long hot summer there has been a lot of good viewing for the members on warm clear nights in the peaceful camp area. Much work has also been done on the building and telescope. A group of members headed by your fearless leader spent a cool but sunny Sunday, painting the interior and exterior of the Observatory building. The merry band included, Diane & Frank McCullough, Doug Lanier and his son John, Pete Kwentus, Don Misson, Beverly Bock, Kim Dyer, John Root and little Dog.

The dome has been made water tight and the 12t" Cass. has been tuned-up. The clock drive that has had some problems is now in perfect working order, Pete Kwentus and Don Misson have been working on a mount for the 6" Schmitt camera, which can now be used with the 12½" as a guide scope.

There is still some minor painting and fixing to do at Stargate for the hard winter ahead but we have volunteers on hand and they will soon complete their tasks.

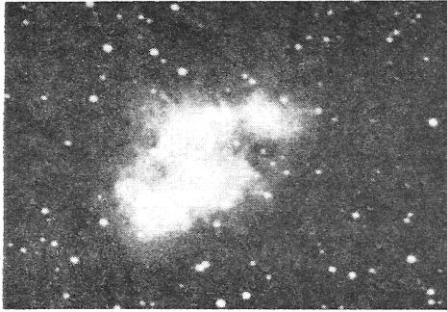
I wish to thank all the good people who helped for their unselfish efforts.

# Messier Objects~

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Reprinted from Sky & Telescope.

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**M1** NGC 1952 5<sup>h</sup> 31<sup>m</sup>.5 +21° 59'  
Planetary nebula in Taurus

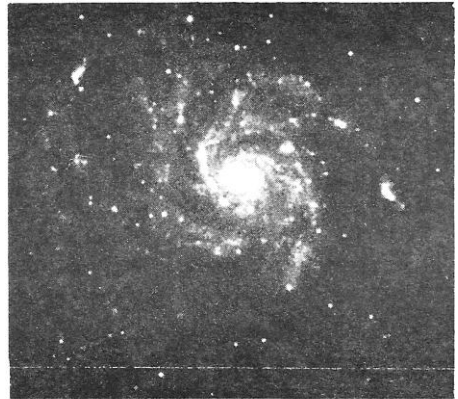
**Basic data.** The famous Crab nebula is an expanding cloud of gas from the explosion of a brilliant supernova observed in A.D. 1054 by oriental astronomers. Modern measurements show an expansion rate of 800 miles per second. Since Messier I is about 4,000 light-years distant, its present angular size of 6' by 4' corresponds to about seven by five light-years.

The Crab's light is strongly polarized in a varying pattern. It is an intense source of radio emission (Taurus A) and of X-rays. To astrophysicists, this violently active nebula is one of the most fascinating objects in the sky.

**NGC description.** Very bright and large, extended along position angle approximately 135°; very gradually brightening a little toward the middle, mottled.

**Visual appearance.** Hand-held 7 x 50 binoculars show M1 as a dim patch. Visually, a haze seems to surround the brighter middle, and the color is slightly greenish.

On the best nights, an experienced observer might notice some streaks throughout the inner portion of the nebula, but they are extremely difficult to see.



**M101** NGC 5457 14<sup>h</sup> 01<sup>m</sup>.4 +54° 35'  
Galaxy in Ursa Major

**Basic data.** Through an 18th-century error, this galaxy was also called M 102. It is a very large, bright spiral seen face on. Appearing 22' in diameter on photographs, it has a total light equivalent to an 8th-magnitude star, yet its distance is about 15 million light-years.

M101 is a late-type spiral of class Sc. According to the *Hubble Atlas of Galaxies*, the type is characterized by a small nuclear region and by multiple, branching spiral arms, easily resolved into star clouds.

Allan Sandage, from a photograph taken with the 200-inch Palomar telescope, finds that the spiral arms are only about 30" in width, which at the distance of this galaxy corresponds to about 900 light years. Along the arms lie many regions of hot, blue stars.

**NGC description.** Pretty bright, very large, irregularly round. Gradually, then suddenly, much brighter toward a small, bright central nucleus.

**Visual description.** A beautiful object. The clearly seen central region has a fluffy texture and a silvery hue. Surrounding this area is a soft sheen containing some nebulous patches.

# •buy-sell-trade•

For your own FREE ad to buy, sell, or trade anything astronomical, contact the Editors of the W.A.S.P.

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6" R.F.T. Reflector Telescope, tube only. Coulter mirror, Parks fiberglass tube, diagonal holder by Novak, spiral focus eyepiece holder. Only \$100.00, FIRM. Contact: Bill Whitney 588-1073.

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For sale; 1 1/4" Criterion S-4 Solar filter, Barlow type will accept any 1 1/4" eyepiece. Silvered mirror turns away 99.99% of the Sun's heat and light, absolutely safe, not a cheap N.D. filter. Only \$15.00, contact, Ken Wilson - 268-9337.

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For Sale: Tasco 2.4" f.13 refractor. Alt-Azimuth head 3 eyepieces, erector lens star prism, wooden case. Metal 3 leg tripod, Good condition. Only \$65.00. Call Mike Grellman, 264-0745.

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