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DR. KELLER, PROGRAM DIRECTOR FOR ASTRONOMY,  
NATIONAL SCIENCE FOUNDATION, SPEAKS TO NCA  
ON "THE RESULTS OF RECENT SOLAR RESEARCH."

One of the primary factors in the establishment of the schedule of the International Geophysical Year now in progress, the current peak of solar activity, affords a unique opportunity to investigate our nearest star, the sun.

Dr. Geoffrey Keller, an eminent scientist and authority on solar research, will present an interpretation of the results of these recent studies. He will illustrate his lecture with slides and chalk.

While serving the National Science Foundation as Program Director for Astronomy, Dr. Keller is on leave from his position as Director of Perkins Observatory, Delaware, Ohio, in which capacity he has served since 1953. Dr. Keller was previously Associate Professor of Astronomy and Physics at Ohio State and Wesleyan Universities, Associate Physicist of the Bureau of Ordnance, Navy Department, and from 1938 to 1941, Assistant Professor of Physics at Columbia University.

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REPORT ON NCA MOONWATCH AND MINITRACK TRIP IN MARCH

This trip was extremely well attended. The weather was beautiful, not really a spring day, but a forerunner with spring just around the next satellite watch. Despite the difficulty in finding the Minitrack site, we conducted close to twenty cars down there, and there were about 35-40 people there. All the personnel were most obliging in giving us talks and demonstrations of the equipment and the antenna setup.

When everyone had been through the van and learned how to track satellites and stars, we went first to the NCA satellite site and thence to Larry White's on the Engineers' proving ground, where respectively Bob Dellar and Larry gave comprehensive talks on the equipment, the use of the telescopes, and the methods of observing. The members had an opportunity to look through the scopes themselves and ask questions.

Afterwards 24 of the group went to the Hunter Motel for dinner. The food was delicious and reasonable, and everyone had a chance to discuss the impression of the day.

Tove Neville

MAY CALENDAR

- MAY 3 (Saturday) Lecture Series: "THE RESULTS OF RECENT SOLAR RESEARCH".  
Dr. Geoffrey Keller, Program Director for Astronomy, National Science Foundation.  
8:15 P.M., Dept. of Commerce Auditorium, 15th & E Streets, N.W. The public is welcome.
- May 10 (Saturday) - Maryland and D. C. Juniors over 12 meet with Leith Holloway at 2:00 P.M., at the Chevy Chase Community Center, 5601 Connecticut Avenue, N.W.  
Discussion Topic: "THE OUTER PLANETS - Jupiter, Saturn, Uranus, Neptune, and Pluto."
- May 17 (Saturday) - Discussion Group, 8:00 P.M. in the Foyer of the Commerce Auditorium of the Commerce Department. Bob Wright will lead this. Bob is not announcing his topic in advance. We are all very curious and hoping he will tell us about his recent satellite work, particularly the telemetering of the Explorers and Vanguard.

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May 18 (Sunday) - "EXPLORING THE SKY" - Joint program of the National Capital Astronomers and the National Capital Parks. Ft. Reno Park, 40th and Chesapeake Streets, N.W., 9:00 P.M. Slides if cloudy, cancelled if rain. Jupiter is out, bright and big. It is in a good position to observe the belts and red spot. Bring your friends and -- TELESCOPES!

May 23 (Friday) - GROUP OBSERVING at the newly reconditioned NCA 5" Clark refractor, at the Naval Observatory, starting at 8:00 P.M. Your NCA membership card will admit you. The group will be instructed by Mr. Isherwood.

CONTINUING ACTIVITIES

EACH MONDAY NIGHT, the telescope making class meets with Hoy Walls at 7:30 at the Chevy Chase Community Center.

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OBSERVATIONAL DATA FOR MAY

Mercury will reach greatest western elongation on the 14th of May. Venus is a morning star this month and rises about an hour before the sun. Mars is in Aquarius and rises about two hours before the sun. Jupiter is near Spica and rises shortly before sunset. Saturn is in Ophiuchus and rises two hours before midnight. The date of maximum intensity for the ETA AQUARID meteor shower is May 4. This shower averages 12 meteors per hour.

LUNAR OCCULTATIONS FOR MAY

DATE	STAR	MAG.	AGE	PHASE	TIME (E.S.T.)	P
May 8-9	Beta Cap	3.2	20.2	D	1:47.7 A. M.	51°
8-9	16 B. Cap	6.2	20.2	R	2:47.5 A. M.	287
8-9	Beta Cap	3.2	20.2	R	2:57.4 A. M.	284
21	BD / 17° 1306	7.4	3.2	D	8:04.6 P. M.	117
22	68 Gem	5.1	4.3	D	9:32.3 P. M.	92
22	67 Gem	6.7	4.3	D	9:36.1 P. M.	136
24	BD / 10° 1972	7.4	6.2	D	8:26.4 P. M.	93

A. L. White, Astronomy Editor

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NCA AWARDS MEMBERSHIPS TO SCIENCE FAIR WINNERS

Science fair winners in astronomy in the Washington area will be awarded NCA memberships for one year, including SKY AND TELESCOPE, and SPACE, formerly the JUNIOR ASTRONOMER. These memberships will be presented for election at the May 3 meeting.

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NEW MEMBERS

Richard G. Shoemaker, 2851 - 29th St. N.W., Washington 8, D.C. CO 5-0111  
James Wilkie, Apt. 506, 1717 G St., N.W., 6, D. C. NA 8-9000, X-506

Juniors

Clair Lewis, 1600 - 45th St., N.W., Washington, D. C. FE 3-2430  
John Raymond Comulada, 7103 Decatur St., Glenridge, Md. WA 7-6632  
Kenneth Albert Ullman, 4616 N. 38th St., Arlington, Va. KE 6-6524

## MIDDLE EAST REGIONAL CONVENTION NOTES

Nineteen N. C. A. members and their families journeyed to Morgantown, W. Va., for the Middle East Regional Convention on April 19. The Physics Building of the West Virginia University was the scene for the all-day sessions.

Regional Chairman Dana Law brought Saturday's sessions to order, after a welcome by Prof. Charles Cochran. The roll call of Societies revealed 11 of the 13 Regional Societies were represented and a total adult registration of 90. An invitation was offered and accepted to hold the 1959 Regional Convention in Delaware.

Regional Society Activities was the first discussion session, under the leadership of Herbert Williams of the Spitz Laboratories. We heard from several societies about their program activities. Among those reporting was our own President, Robert McCracken.

Next on the agenda, Mrs. Wilma Cherup, Executive Secretary of the Astronomical League, gave a report on League activities. Her list included the Book Service, wherein we can secure Astronomical books at a 10% discount. She reminded us to make plans for the General Convention over the July 4th weekend, at Cornell University, Ithaca, New York.

A delicious lunch in the college cafeteria was followed by the Junior Session, conducted by our own Ben Adelman. There was a paper on Venus, and discussion of Junior programs of some of the societies. He suggested that a person be appointed to coordinate Regional Junior Activities.

The next session on Instrumentation was conducted by David Meisel of Fairmont, West Virginia. An excellent presentation by Lyle Johnson, on tape and slides, concerning the building of his 16-inch telescope was the highlight of this session. Nelson Griggs, another of our N. C. A. members, discussed plans for the Science League, by which amateur radio would aid astronomers and other scientists by providing rapid notification of scientific phenomena for further observation.

Several interesting papers were given in the Observing Session, among them a commentary by Dana Law, concerning the work of N. C. A. Juniors under Leith Holloway, particularly Lewis Acker and Samuel Friedman, on Cepheid Variables.

A Business Session followed in which Dana Law was re-elected Chairman of the Region: R. Thomas LuCaric, Baden, Pa., Vice-Chairman; Beth Beyer, Pittsburgh, Pa., Secretary; and Emil Klein, Philadelphia, Pa., Treasurer. The matter of a Regional Junior Representative, brought up by Ben Adelman, was turned over to the council for action.

The final session, entitled "Space Age," was conducted by Charles LeRoy of Pittsburgh, Pa. He called on several of the delegates for details on their moon-watch stations. Bob McCracken and Bob Wright reported for N. C. A. The final speaker was Dr. Armand Spitz, Coordinator of Visual Satellite Observations. He congratulated us on a job well done, and asked our continued cooperation in this most important job.

That evening a most delicious banquet was held at the Trinity Episcopal Church. There were very imaginative decorations on a stellar theme, with favors for everyone. Dr. Nicholas Wagman, Director of the Allegheny Observatory, was the speaker at the banquet. He presented a most interesting history of the Allegheny Observatory, accompanied by slides.

Those who arrived early Friday were treated to a Planetarium demonstration and Star Party on the grounds of the University.

Betty Lipscomb

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### "THE JUNIOR ASTRONOMER" BECOMES "SPACE"

I would like to take this opportunity to tell my fellow NCA members about SPACE, formerly The Junior Astronomer. Under the old title, it has been read by NCA juniors and some adult NCA'ers for the past two years. Recently, I signed a contract with the Astronomical League taking over ownership of the publication.

This will enable me to introduce improvement that I have planned for a long time. The name has been changed to indicate the wider coverage of the periodical. SPACE will report on all the sciences exploring space, as well as classical astronomy. In time, I plan to increase the number of pages and to add several features. SPACE will continue to aim at easy readability, making it suitable for both teen-agers and adults who do not have a technical knowledge of science.

The price will remain the same - 50 cents for group subscriptions and 75 cents for an individual subscription. SPACE is a supporting member of the Astronomical League. It will cooperate with the League in various ways.

Benjamin Adelman, Editor  
SPACE

Mr. Adelman's telephone number is Whitehall 6-4708. He will be glad to answer any questions concerning SPACE.

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### "GRAVITY, AN ENIGMA" SUBJECT OF ANNUAL JOSEPH HENRY LECTURE

Dr. Robert Dickie, Professor of physics at Princeton, famous for his fundamental work in this field, some of which made possible the advent of radio astronomy, gave the annual Joseph Henry lecture before the Philosophical Society of Washington on April 18. Incidental to Dr. Dickie's subject was his revelation that astronomers have just determined on the basis of new evidence that the age of the universe is 13,000 billion years. It will be recalled that this figure was upped from 4 to  $6\frac{1}{2}$  billion only 3 or 4 years ago.

Dr. Dickie demonstrated Descartes' concept of gravity as vortices in the ether which swept the planets around the sun. Newton came along with his law of the inverse square of the distance. There was much resistance to Newton's notions. Scientists found it repugnant to accept the idea of action without a mediating agent. Actually Newton himself did not regard gravity as consisting of "action at a distance." It was his followers who held this view. In 1916 Einstein destroyed ether and replaced it with a vacuum possessing geometrical properties. In some ways Einstein's conceptions go back to Descartes except that the ether is abolished. It might be said to be a semantic trick but the ether needed abolishing. The old concept of ether with almost mechanical properties was replaced with "space" which has very complex mathematical and empirical properties indeed. It is crowded with electromagnetic waves, gravity, fields, with photons and mesons which are constantly being madly created and madly reabsorbed. There are many views to explain these phenomena of space. There is Hoyle's view that hydrogen is constantly being created. Yet another explanation is that hydrogen is constantly streaming in from regions of the universe which we cannot see.

There are problems which Einstein's theory does not explain. One enigma of gravity is that there is a dichotomy between it and electromagnetic waves. It is geometrical. They are not. It is very weak in comparison with electromagnetic forces.

An hypothesis of Dirac, tied in with Eddington's numbers (in this set of equations Eddington found values for the total mass, extent, and curvature of the universe--he even calculated the number of particles in the universe), suggests that gravity is not the local phenomenon postulated by Newton but is a property of the structure of the universe, depending in strength upon the number of particles in the universe and the age of the universe. In such a view gravity is a function of the galactic interaction of distant matter. In this model gravitational energy is growing weaker in relation to electromagnetic energy, as the universe (of a model such as Hubble's) expands. In such a universe the earth, sun, and planets were once subjected to much stronger gravitational forces than now. Drawing upon geology, Dr. Dickie presented considerable evidence to support Dirac's view.

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