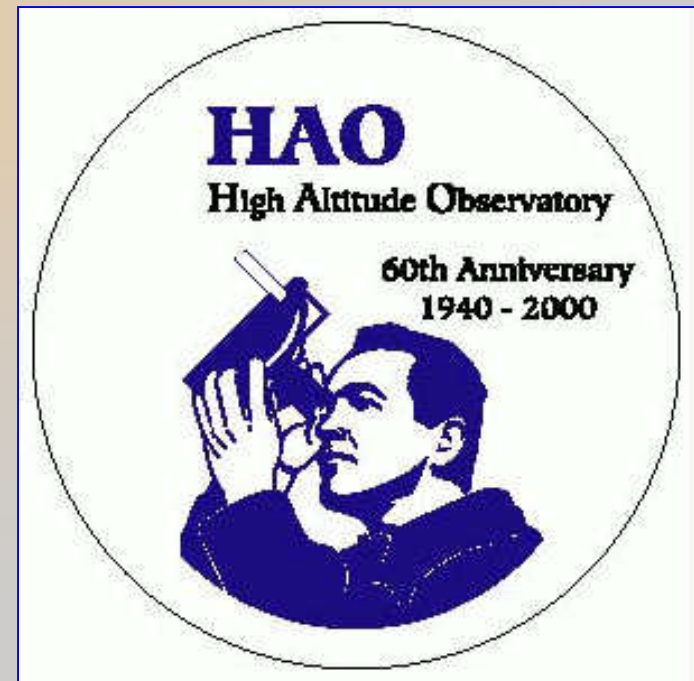


*Happy 70<sup>th</sup> Birthday, HAO!*

*featuring*

*Some Notable Events of 1940*

Tom Bogdan



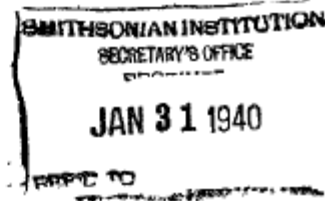


# Mr Abbot Goes to Harvard

HARVARD COLLEGE OBSERVATORY  
CAMBRIDGE, MASSACHUSETTS

1/3-15

29 January 1940



Dr. C. G. Abbot  
Smithsonian Institution  
Washington, D. C.

Dear Dr. Abbot:

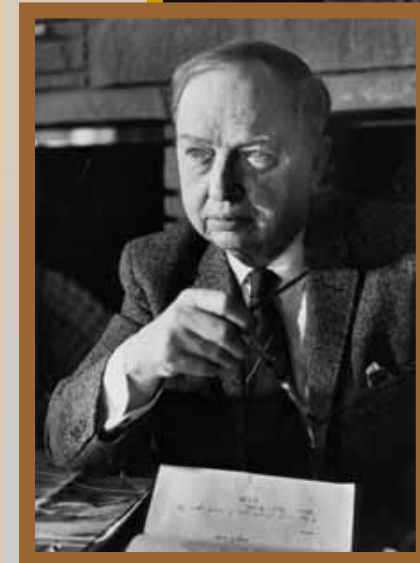
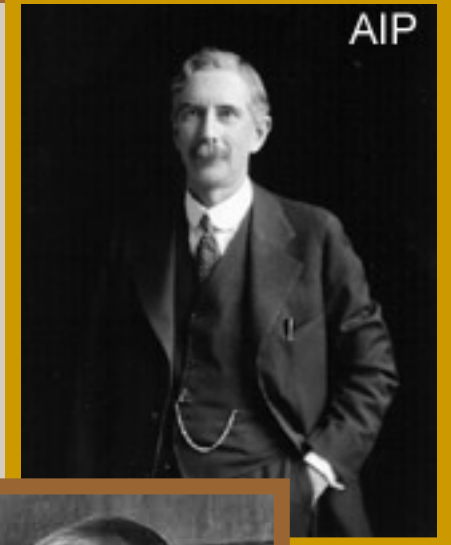
It's clinched! I am listing the dates you have suggested in two weeks of May, separated by one week. The subject matter is ideal.

The only puzzle about the whole matter, so far as I am concerned, is why I have not thought of this before. Paresis, I suppose, with lucid intervals.

At a Hollow Square with the graduate students three weeks ago, I put before them seven names of seven men with seven fields more or less disconnected from the subject matters in our regular courses in the Graduate School of Astronomy. We had a little general discussion, and then a ballot, and lo! Abou Ben Abbot's led all the rest! And so was it.

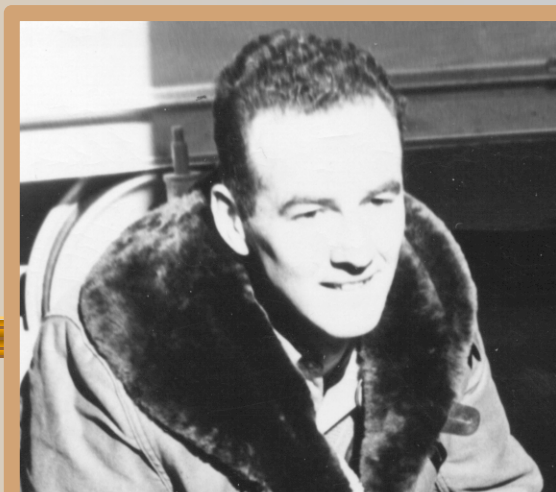
Sincerely yours

Harlow Shapley





# “Constant” ...or Not?



Reprinted from the Proceedings of the NATIONAL ACADEMY OF SCIENCES,  
Vol. 26, No. 6, pp. 399-406. June, 1940.

## ON POSSIBLE CHANGES IN THE SOLAR “CONSTANT”

BY THEODORE EUGENE STERNE, KARL FREDERICK  
WALTER ORR ROBERTS

HARVARD COLLEGE OBSERVATORY

Communicated May 8, 1940

1. *Introduction.*—In an earlier communication<sup>1</sup> (hereinafter referred to as “I”), ten periodicities suggested<sup>2</sup> by Abbot were tested for their significance, in order to see whether any evidence could be found in the monthly measures of the solar constant, of the possible existence of periodicities in the solar radiation. It was found that three harmonic components (of periods of 7, 8 and 34 months) could be attributed entirely to ordinary random errors. The other seven (of 9 $\frac{3}{4}$ , 11, 12, 13, 14, 15, and 68 months) could not, and therefore they arose either from the solar radiation, or from systematic errors. There is something about the solar radiation that it might be profitable to study further.

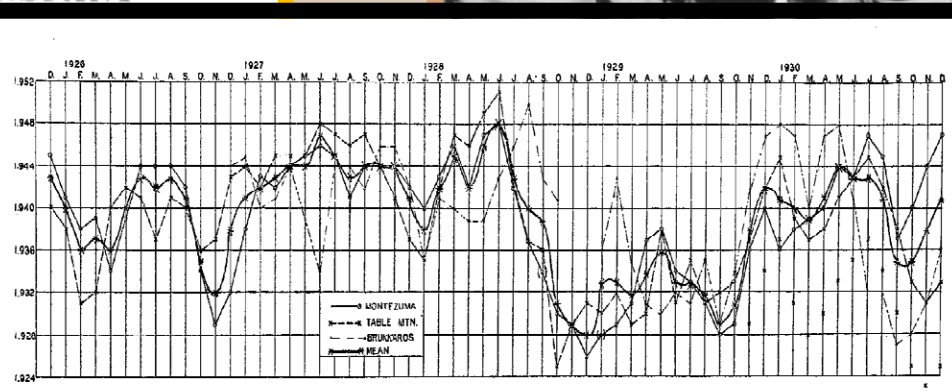


FIGURE 26A.—Monthly mean solar-constant values. Monte Zuma, Table Mountain and Mount Brinkaros

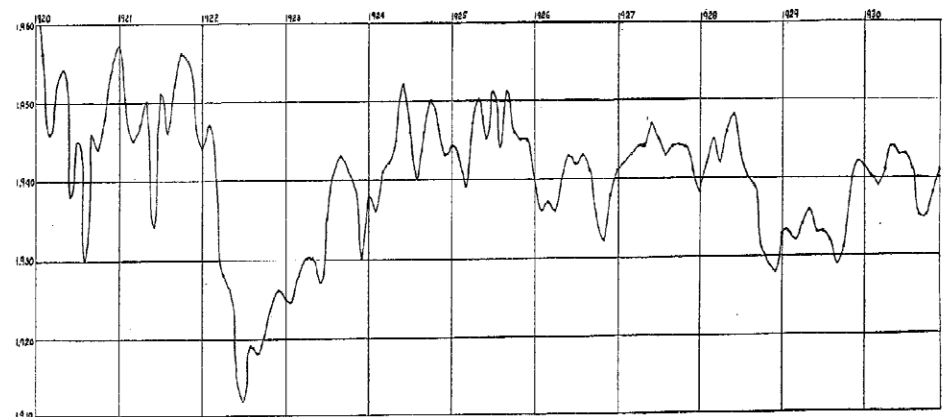


FIGURE 26B.—Preferred monthly mean solar-constant values, 1920-1930



# Look Out!...for Space Weather

## New York Times.

Copyright, 1940, by The New York Times Company.

NEW YORK, MONDAY, MARCH 25, 1940.

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### Sun-Spot Tornado Disrupts Cables, Phones and Telegraph for 5 Hours

#### Electrical Disturbance Plays Havoc With the Short-Wave, 1,000,000 Easter Messages and Police, and Press Teletypes

Something akin to a "great tornado" brought out huge spots on the surface of the sun yesterday, creating an electrical bombardment that played strange and devastating tricks on communications systems throughout the United States and disrupted radio and cable service between America and Europe.

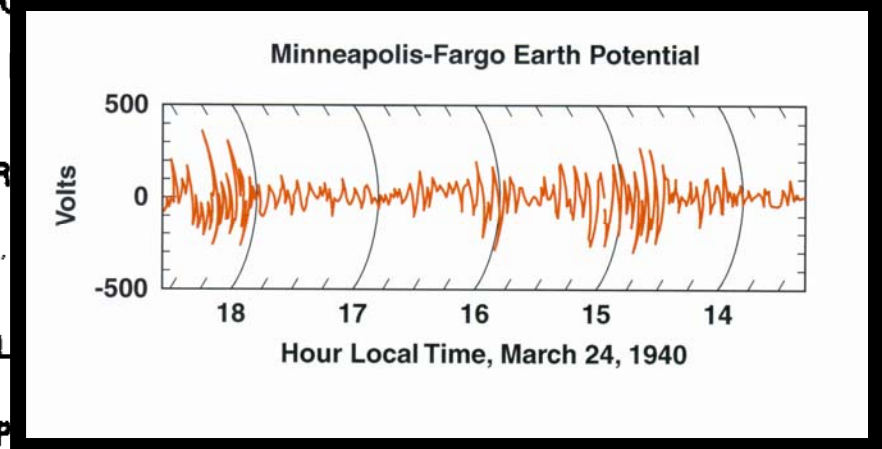
There was nothing in the freak disturbance during the daytime hours, when the trouble was worst, that could be seen by human eye or felt by human hand, yet somewhere in celestial space a brilliant

ports were received that the disturbances were starting up again.

Toward the end of an upsetting day a great many opinions had been voiced by engineers and astronomers concerning the effects of the sun spots upon the earth, 82,930,000 miles away. William H. Barton Jr., executive curator of the Hayden Planetarium, said he could not remember when sun spots had caused more serious disturbances, and veteran electrical engineers unhesitatingly pronounced it the worst thing of its kind within their memory.

### ALLIES PREFER WAR ON SOVIET TO LOSS

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# Through a Glass, Darkly

ASTRONOMY

## Flames on Sun Made Visible With Telescope Attachment

**G**REAT flame-like masses of gas, which sometimes shoot out from the surface of the sun to a height of a million miles, have been under scrutiny of astronomers at the Harvard College Observatory with a new instrument.

Until now the most useful device for showing these prominences, which may be visible to the naked eye when the sun is totally eclipsed, is the spectro-helio-

scope, a fairly complicated device with a number of optical parts and a set of prisms rotated by a motor.

The new device, less than two feet in length, has been used as an attachment to one of the observatory's smaller telescopes. It was constructed by John W. Evans, of the Chabot Observatory, Oakland, Calif., who loaned it to the Harvard College Observatory.



PUBLICATIONS OF THE  
ASTRONOMICAL SOCIETY OF THE PACIFIC

52

San Francisco, California, October 1940

No. 309

THE QUARTZ POLARIZING MONOCHROMATOR

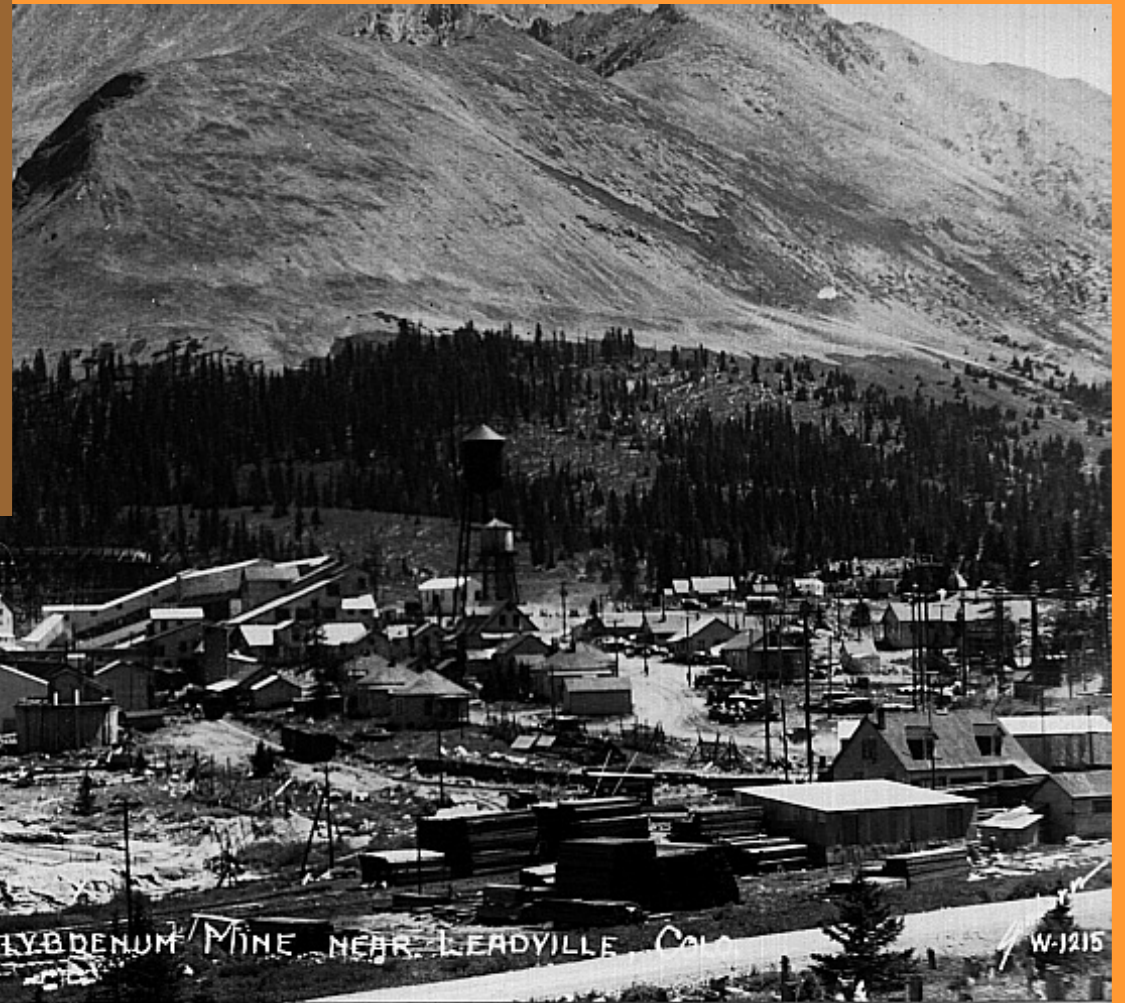
BY JOHN W. EVANS

The quartz polarizing monochromator, devised independently by Lyot<sup>1</sup> and Öhman,<sup>2</sup> has interesting possibilities as an instrument for solar research. Its purpose is the isolation of a narrow band in the spectrum for observations in monochromatic light over an extended field. The first instrument, transmitting a band at H $\alpha$  with an effective width of 40 angstroms, was made by Öhman. He reported that solar prominences were easily visible through it when it was held behind the eyepiece of an ordinary refracting telescope.

More recently a monochromator which isolates a band of 5 angstroms effective width has been made at the Chabot Observatory. Its performance when attached to the eight-inch refractor of the observatory has been highly satisfactory. The



# *On the Shoulders of Giants*



PANORAMA OF CLIMAX MOLYBDENUM MINE NEAR LEADVILLE, COLO.

W-1215



# May I Borrow the Car, Mr Sloan?

WALTER S. ORR

May 23, 1940

Memorandum for Mr. Walter Orr

Mr. Orr requested me to forward to you the attached letter dated May 16th which he received from Mr. Sloan.

ABW

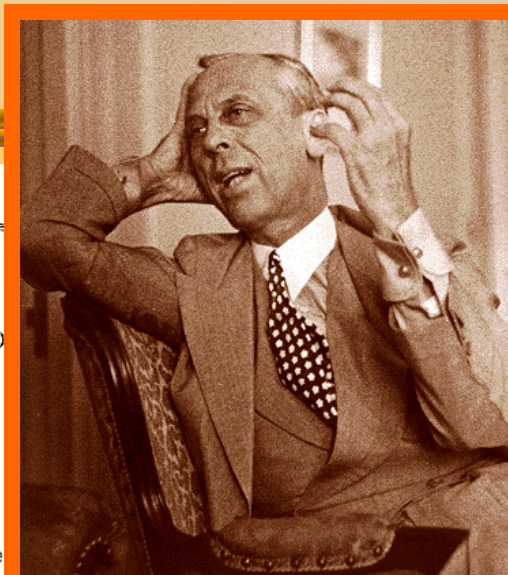
May 24

Dr. Shapley:

This represents the total results of truck-seeking campaign to date. My letter to Mr. Orr, and his letter to Mr. Sloan represent the total efforts to date. Perhaps I should leave it at this?

W. O. Roberts

*only* The attached carbon, of which the first paragraph ~~only~~ concerns this matter, is my answer to the memorandum. W.O.R.



GENERAL MOTORS CORPORATION  
300 BROADWAY AT 57<sup>TH</sup> STREET  
NEW YORK, N. Y.

May 20, 1940.

RE: GENERAL MOTORS P.R. - GENERAL

My dear Mr. Orr:-

I have yours of May 16th and have noted letter from your nephew, Walter Orr Roberts, and return same herewith for your records.

I am quite certain that this would be outside of the province of the Corporation so far as its advertisement scheme is concerned. This does not mean that there is anything wrong with it - quite the contrary. It seems very desirable but it appears to me to be on too limited an area for us here to deal with. Perhaps, upon reflection, you will so agree.

Very truly yours,

APSR./K



# Taking Flight



The Authors Observing Sunspots.



379 Marion Street  
Denver, Colorado

September 2, 1940

Gentlemen,

We were very glad to see your evident appreciation, when we showed you the Maunder "Butterflies" last Saturday and shall be delighted for you to frame it and keep it on an indefinite loan from us, as these treasures are of value only as they can be seen and appreciated and we know of no more appropriate place for this purpose than your solar observatory. It will also be where we can see it, when the desire so urges us.

We received it direct from Mrs. A. S. D. Maunder, the widow of E. W. Maunder, who worked for many years at Greenwich Observatory and the enclosed copy of part of the letter from Mrs. Maunder is of direct interest in connection with it and I suggest that you paste this copy on the back of the frame,

Sincerely yours

(s) Stephen A. Ionides

(s) Margaret L. Ionides





1940 May 21 1940

My dear Margaret and Mr. Ionides.

You asked me for a drawing or diagram hand made by my husband and/or myself. When I last wrote I was afraid that I had neither, but the day before yesterday, I came upon the original "Maunder Butterfly", and I am sending this in a roll herewith (postal authorities permitting, but as it is full labelled as to what it is, I think it can contravene no warpolicy).

We made this diagram in a week of evenings, one dictating and the other ruling these little lines that show the spots in any given latitude at any given time in the sunspot period. Every half hour or so we exchanged the dictating and ruling according as voice or hand got tired. We had to do it in a hurry because we wanted to get it before the Society at the same meeting as the other sunspot observers, whose views we knew to be heretical; one of them (Father Cortis of Stonyhurst Observatory) sent us his paper to read but my husband returned it unread as he said we were working on the same matter and he would rather not know the actual contents of the paper.

As it turned out, this paper, especially the diagram - wiped Father Cortis' and Prof. Lockyer's papers clean off the slate, and fully established the manner of procedure of the sunspot 11-year cycle.

This diagram, as you see, has three dessiccated butterflies on it; It originally for this paper had two only, but we added a third cycle when it had gone its 11 - 12 years complete course.

.....

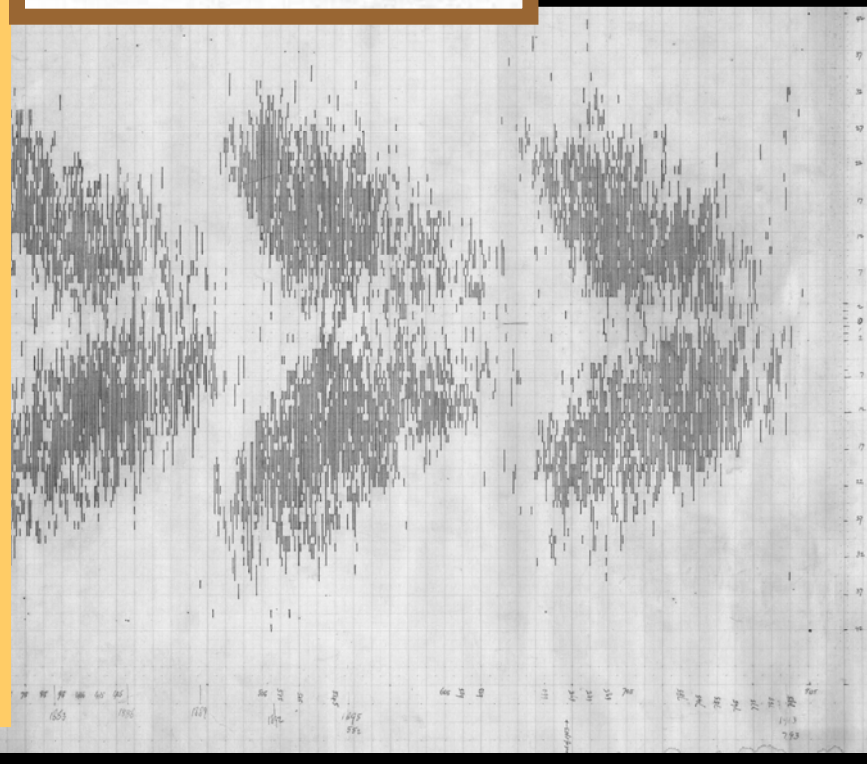
Believe me,

yours very truly

(signed) A. S. D. Maunder



(Block kindly lent by "The Christian Realm.")





# *Et tu, Brute?*

## Book Review

### *Stars and Men*\*

# Stars and Men

by

STEPHEN A. IONIDES  
B.A. OXFORD, 1902; F.R.G.S.

and

MARGARET L. IONIDES  
A.B. UNIVERSITY OF CALIFORNIA, 1933



THE BOBBS-MERRILL COMPANY  
PUBLISHERS  
INDIANAPOLIS NEW YORK

ND MEN," written by A. and Margaret L. and daughter, is indeed book. The authors have managed to infuse the pages of their work with the delightful enthusiasm of the amateur. To them astronomy is an exciting adventure, an adventure to be shared with the reader. The style of the book is charmingly informal. If the title were changed to read "Men and Stars," perhaps it would more accurately delineate the scope of the book. Fully ninety per cent of the text is devoted to historical matters and enlivening "asides" and anecdotes that are only occasionally irrelevant. The book should clearly be read and regarded as a history. Nevertheless, some readers may feel that the thread of modern astronomical discovery is too thinly

or at least unevenly spun. Indeed there are many "sins" — if it is fair so to designate them — of omission. The problems of the nature, structure, and composition of stars are scarcely indicated; the intricacies of star clusters, of the Milky Way system, and of the external galaxies are ignored. The variable stars are taken care of in one three-sentence paragraph. The disproportion is shown by the fact that five paragraphs (and a  $\frac{3}{4}$ -page diagram) are devoted to the subject of the stellar interferometer. Thus the work, considered as a history, is somewhat lacking in homogeneity. The book should be in every amateur's library.

D. H. M.

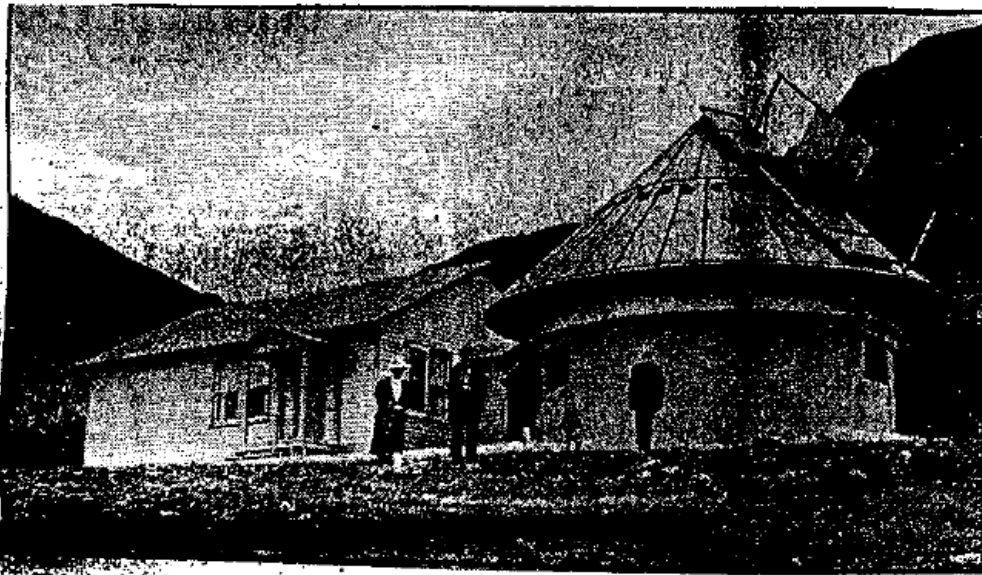
\* *Stars and Men*, by Stephen A. and Margaret L. Ionides, The Bobbs-Merrill Company, 1939. 460 pp. \$4.00.



# Extra, Extra! Read All About It

## Secrets About the Sun

solar observatory which was opened at Climax, Colo., on top of Fremont pass, Sunday. Photographs will be taken of the sun to learn about disturbances there which affect the earth. The finished observatory is the culmination of more than six years of study and work on the instrument. Here are pictures of the observatory.



This is the observatory with the house on the left, which connects and where Walter O. Roberts, the director, and his wife will live. The buildings rest on the steep side of a mountain at an elevation of 11,513 feet above sea level. The house is electrically heated.



## NEW SOLAR OBSERVATORY BUILT NEAR CLIMAX INFORMALLY OPENED

400 Visitors Shown Thru Station Completed After Six Years of Study by Denver U. Graduate And His Associates.

Climax, Colo., Sept. 9.—Science had in operation Monday its newest observatory to find out what makes the sun tick. It is on the slope of a mountain here on Fremont pass, 11,513 feet up.

Known as the Climax station of the Harvard college observatory, the solar observation tower is the third one of its kind now

in operation and the only one in the western hemisphere. One is in the Swiss Alps and the other in the Pyrenees of France.

Approximately 400 persons visited the observatory Sunday at informal opening ceremonies, less than twenty hours after it had been announced completed.

Yet to be done, however, is a little painting here and there and a few minor adjustments on the various instruments in the weird-looking oval observatory building with the cone-shaped roof.

Its completion is the culmination of more than six years study and work.

### BEST INFORMATION TO BE DISCOVERED.

Built under the personal direction of Dr. Donald H. Menzel, professor of astrophysics at Harvard and a Denver university graduate, it is expected to give scientists their best information on disturbances on the sun, which in turn disrupt such things on this earth as radio, telephone, telegraph and even electricity. Altho Dr. Menzel was not at the

### MOVIE CAMERA IS ATTACHED.

An electrically operated movie camera with thirty-five millimeter film is attached to the coronagraph. This camera shoots one picture every ten seconds.

The photographs record the prominences and the corona, or halo, of the sun, as they appear during the artificial eclipse. Ordinarily such pictures would be possible only during brief natural, total eclipses.

The prominences which will show on pictures, Roberts explained, are disturbances which may extend 600,000 miles from the edge of the sun. These prominences probably are gases which move at the rate of 300 to 500 miles a second.

The sun is 96 million miles away from the earth, but these activities upon it are believed to have a definite influence on the earth.

### SPECTROGRAPH CAN BE ATTACHED.

Another device, known as a spectrograph, can and will be attached to the coronagraph. This is another type which uses spectral photo-



## Secrets About the Sun

solar observatory which was opened at Climax, Colo., on top of Fremont pass, Sunday. Photographs will be taken of the sun to learn about disturbances there which affect the earth. The finished observatory is the culmination of more than six years of study and work on the instrument. Here are pictures of the observatory.



Mr. and Mrs. Roberts beside the instrument, known as a coronagraph, which contains a battery of lenses and thru which pictures of the sun will be made. Roberts, a graduate of Amherst and Harvard, will be in charge of the observatory during the winter.



This is the observatory with the house on the left, which connects and where Walter O. Roberts, the director, and his wife will live. The buildings rest on the steep side of a mountain at an elevation of 11,513 feet above sea level. The house is electrically heated.

