

# YALE ALUMN WEEKLY

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## THE YALE OBSERVATORY.

### Sketch of Work and Growth—Meteor Photography.

The work of the Yale Observatory which has been going on steadily for the past fifteen years has been a quiet though nevertheless interesting and thorough one. New instruments are being added from year to year, and the character of the work is constantly broadening. The object is, primarily, practical work and original research, no courses in instruction being given. Those students who study astronomy have the use of a telescope in South Sheffield Hall. A brief sketch of the institution will be of interest.

In the year 1858, Mrs. Cornelia L. Hillhouse and daughters, Mary and Isaphene, gave to the Corporation of Yale College a piece of land situated on the top of Prospect Hill "subject to the condition that said land should be used only for an astronomical observatory and its appurtenances." A large tract of land adjoining this was given by the late Hon. O. F. Winchester several years later, and in 1882 the Observatory was built, in time for the observation of the transit of Venus. Two residences for observers were also built at this time by the Corporation.

By the will of Professor Elias Loomis, who died in 1889, the observatory receives one-third of the income and will ultimately receive the entire income, of a fund established by him and called the Loomis Fund. The income received is applied to one or more of the following objects only, namely: the payment of the salaries of observers whose time is devoted exclusively to the making of observations for the promotion of the science of astronomy; the reduction of astronomical observations and the defraying of the expense of publishing these observations and of publishing investigations based upon astronomical observation. The principal of the Loomis Fund is over three hundred thousand dollars.

### THE EQUIPMENTS.

The equipments for the astronomical work are very complete. In the East dome is an 8½-inch Equatorial constructed by Sir H. Grubb of Dublin, and in the West dome a six-inch heliometer by Messrs. Repsold of Hamburg. Among the other instruments now in use are, a four-inch transit instrument and a new instrument of special design for photographing meteors, constructed in 1894, by Messrs. Warner and Swasey of Cleveland, Ohio. This last instrument carries six 6-inch cameras.

In addition to the ordinary astronomical works, the transmitting of accurate time to the railroads and other parties is carried on at the Observatory by means of continuous time-signals. For the proper performance of this service the following equipment is in use:

Three standard clocks, a transit instrument, chronographs, and the accessories for refined accuracy in the determination and transmission of time. Of the three standard clocks, two are run on the 75th Meridian mean time, and the other on the Siderial time.

An important feature of the work carried on at the Observatory is the testing of thermometers. For this work there is fine apparatus for research and comparison in thermometry, including a collection of the best thermometers

obtainable of the foreign makers and observatories which devote special attention to thermometric standards.

### PAST OBSERVATIONS.

Five numbers of the "Transactions of the Yale Observatory" have appeared.

The first was a "Triangulation of the Principal Stars in the Group of the Pleiades," by Dr. William L. Elkin, Director of the Observatory.

The second number was on the "Orbit of Titan and the Mass of Saturn," by Professor Asaph Hall, Jr., now at Ann Arbor. "A Triangulation of the Stars About the North Pole," by Dr. W. L. Elkin, composed the third work.

The fourth number was on the "Orbit of Mitchell's Comet," by Dr. Margaretta Palmer, who has done much computing for the Observatory.

Number five was a "Triangulation of the Principal Stars of the Cluster in Coma Berenices," by Assistant Astronomer, Dr. F. L. Chase.

Number six, on the "Photographing of Meteors," is in the process of publication.

The original work done at the Observatory in recent years has been chiefly parallax and triangulation work with the heliometer and the photographing of meteors with the new instrument before mentioned.

### PHOTOGRAPHING METEORS.

The Yale Observatory makes it a particular part of its work to watch and photograph the flight of meteors. Of late there have been two showers of note, one the Leonid shower on November 13th and following days, and the other, the Andromedes from November 23th to the 28th.

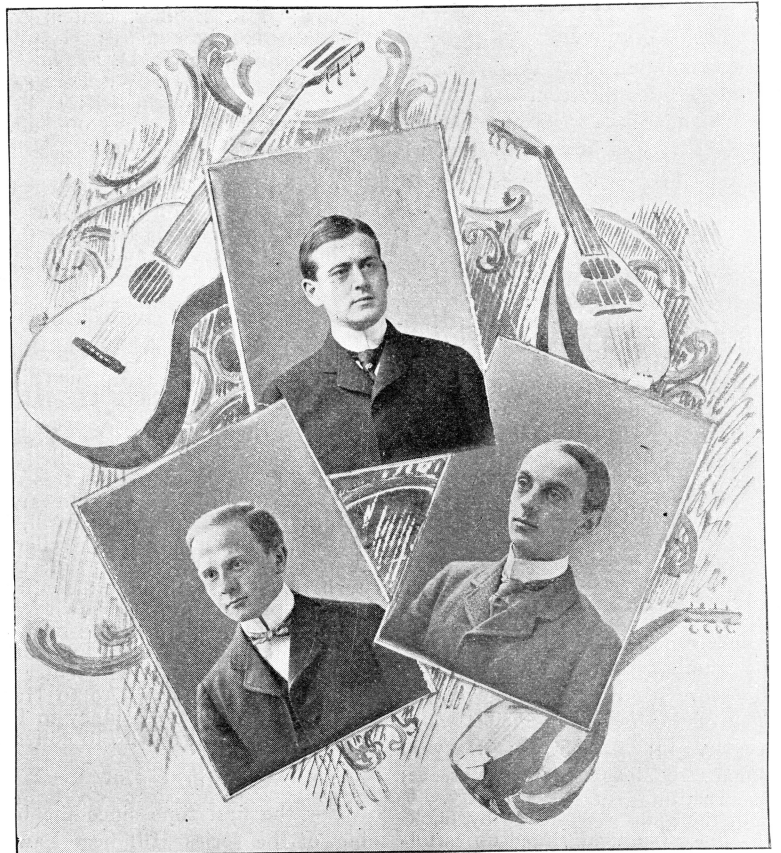
A watch was kept at the Observatory on the night of Saturday, November 13th, for six hours commencing at 11 P. M., by Robert Brown, M. A., assisted by Mr. Smith, who exposed plates in the photographic apparatus. In all 30 meteors were seen during these hours, only 5 of which were conformable to the Leonid radiant. Only one these fell in the area covered by the cameras and this was not bright enough to impress on the plates, which were much fogged by the moon, then only four and a half days past full. The nights of November 14, 15 and 16 were completely overcast here in New Haven. Dr. Wendell of Harvard, with nine assistants watching and counting, saw 90 meteors on the first night with a fairly clear sky.

These Leonids, as they are called, because they seem to radiate from the constellation Leo, are only the vanguard of the real display which is due in 1899. These meteors, though nearly a half million miles in thickness, form what is a comparatively small cluster traveling around the sun in an elliptical orbit. As the earth's orbit intersects the orbit of the meteors at only one point, we see the display only when the great mass is at that point. This occurs once in every 33 years, and that event is due in 1899.

A few, however, of the meteorites are detached from the general body and can be seen every year around the maximum epochs at about November 14th, when the earth is where the orbits meet, and then only after 11 P. M. The general course of the meteorites is east, and they move at about the rate of 45 miles a second with relation to the earth.

The Andromede shower, which was last seen at its height in 1892, did not prove to be of any great importance. Watch was kept on November 23, 24 and 27, as these were the best suited nights. Two meteoric trails were secured on the photographic plates, which have developed into very good negatives.

## GLEE AND BANJO CLUB OFFICERS.



Edward Sawyer, Manager.  
G. G. Schreiber, Leader Glee Club. S. R. Kennedy, Leader Banjo Club.

## GLEE CLUB TRIP.

### The Complete Itinerary—Make-up of Clubs—Social Functions.

The Christmas trip of the Glee and Banjo Clubs, of which the opening concert was given in the Academy of Music at Brooklyn, N. Y., last night, will be a memorable one, as it will be the longest trip ever taken. The Clubs have been practicing faithfully all Fall, and an excellent program has been prepared. The already long list of Yale songs has received two valuable additions in "Brave Mother Yale," by C. E. Merrill, '98, and "Bells of Yale," words of which are written by T. Mason, '99, and the music by C. E. Ives, '98. Both of which will be sung for the first time this year. Officers of the Clubs are: G. G. Schreiber, '98, President of the Glee Club; S. R. Kennedy, '98, President of the Banjo Club; E. Sawyer, '98, Manager; T. S. Maffitt, '98, Assistant Manager.

The Clubs are composed of the following men;

### GLEE CLUB.

*First Tenors*—D. B. Eddy, '98; D. H. Gillespie, '98; G. G. Schreiber, '98; E. G. Stalter, L. S.; A. J. Baker, 1900; M. Douglas, 1900.

*Second Tenors*—H. E. Butler, '98; G. C. Greenway, '98 S.; M. B. Yung, '98 S.; C. F. Parker, '98; E. T. Noble, '99; J. S. Porter, '99.

*First Bass*—G. Parker, '98; F. W. Sheehan, '98; F. T. vanBeuren, '98; J. W. Wadsworth, '98; H. M. Dewey, '99; G. W. Simmons, 1900.

*Second Bass*—H. S. Borden, '98; J. C. McLaughlan, '98; F. A. King, '99; R. A. McGee, '99 S.; C. S. Brooks, 1900.

### BANJO CLUB.

*Banjourines*—L. Mitchell, '99 S.; C. C. Conway, '99 S.; E. A. McCullough, '99 S.; G. S. Chappell, '99; E. S. Clark, 1900 S.; C. F. Sweet, '99.

*Piccolo Banjo*—S. R. Kennedy, '98.  
*Banjos*—J. C. Greenleaf, '99 S.; H. B. Wilcox, '98.

*Mandolins*—R. P. Loomis, '99; M. D. Eames, '99; F. J. Tytus, '98 S.

*Guitars*—W. F. Dominick, '98; C. M. Fair, '99; W. B. Ford, L. S.; A. R. Baldwin, '98; D. C. Byers, '98; H. M. Morgan, '99.

At Pittsburg a joint concert will be given with the Princeton Glee and Banjo Clubs. The advance sale of tickets has been very large and the concert is already an assured success. The following program will be rendered at all the concerts with the exception of that at Pittsburg. This concert will be equally divided between the Yale and Princeton Clubs.

### THE COMPLETE ITINERARY.

Below is given the itinerary of the Christmas trip of the University Glee, Banjo and Mandolin Clubs:

Wednesday, December 22—The first concert will be given at Brooklyn, N. Y., at the Academy of Music. The address of the clubs there will be Clarendon Hotel. Dance given by Mr. and Mrs. Thomas E. Stillman at the Pier-report Assembly rooms.

Thursday, December 23—Leave Jersey City via C. R. R. of N. J., at 2.12 P. M.; arrive at Philadelphia at P. & R. R. station, corner Twenty-Fourth and Chestnut streets, at 4.14 P. M. Concert at Horticultural Hall. Address, care of hall. Reception given by Mr. M. H. Forrest, from 5 to 7 P. M.

Friday, December 24—Leave Philadelphia, via B. & O., 12.30 midnight, [Continued on 8th page.]