The Egyptian expedition will be in charge of Astronomer HUSSEY, who will be assisted by Professor ROBERT H. WEST, formerly a student of Professor YOUNG in Princeton University and now Director of The Observatory, Syrian Protestant College, Beirut, Syria. Mrs. HUSSEY will accompany the expedition. Captain H. G. LYONS, R. E., Director-General of the Survey Department, Egypt, has most kindly arranged for the coming of several gentlemen to Professor's HUSSEY's station during eclipse week to take part in the observing programme.

In making preliminary arrangements for these expeditions invaluable assistance has been rendered by government officials in Newfoundland, in Spain, and in Egypt. Full acknowledgment of this help will be made later.

The members of the Egyptian expedition sail from New York on June 15th, of the Spanish expedition on July 6th, and of the Labrador expedition on July 8th. It is planned that the Labrador and Spanish stations shall be reached about July 23d, and the Egyptian station about August 8th. The constant clear weather expected at the latter station should permit the rapid and continuous work of mounting, adjusting, and testing the apparatus.

The general scientific plans of the expedition were published nearly a year ago in this journal. The instrumental equipment will have been completed in the Lick Observatory shops about June 1st, quite strictly in accordance with the original programme,—in a considerable measure due to the kindness of other institutions in loaning valuable pieces of apparatus. These loans will be fully acknowledged later. The equipment will leave Mt. Hamilton on June 5th for railway shipment to New York, and thence by steamer to the three countries.

During the absence of Director CAMPBELL the Lick Observatory will be in charge of Astronomer TUCKER, who has been appointed Acting Director by the Board of Regents of the University of California for this period.

W. W. CAMPBELL.

COMET *a* 1905 (GIACOBINI).

The first comet of the year 1905 was discovered by GIACOBINI on the 26th of March. Telegrams from the Lick and

Harvard College observatories giving the discovery position were received at the Students' Observatory the following day. Professor AITKEN secured his first observations on the evenings of the 27th and 30th, cloudy weather prevailing at Mt. Hamilton on the 28th and 29th. No further observations from Eastern observatories were received in the mean time. Professor AITKEN's observations were kindly telegraphed to the Students' Observatory by the Director of the Lick Observatory.

The three positions referred to above are as follows:—

March 26.3212	5^h	44^m	$14^s.0$	$+10°$	56′	56″ GIACOBINI (Nice).
27.6692	5	48	54 .8	+12	35	43 AITKEN (Mt. Hamilton)
30.7185	5	59	59 .5	+16	19	11 AITKEN (Mt. Hamilton).

Just previous to the discovery of this comet, Professor LEUSCHNER had made an adaptation of his "Short Method"[1] to the direct computation of a parabola. Applying his criterion to ascertain whether or not a parabola would fall within the limits of possible solution, it was found that a parabola could be passed through these observations. Accordingly, his parabolic method was applied at once, and the following elements obtained:—

PRELIMINARY ORBIT—ELEMENTS.

$T = 1905$ April 3.7312 Greenwich M. T.

$\left.\begin{aligned} \Omega &= 156\ \ 45.5 \\ i &= \ 40\ \ 51.4 \\ \omega &= 357°\ 49'.6 \end{aligned}\right\}$ 1905.0

$\log q = 0.04981$

The residuals for the first and third places are:—

	I	III
$\Delta\alpha \cos\delta =$	$\pm\ 0^s.0$	$-\ 0^s.1$
$\Delta\delta =$	$+\ 0'.04$	$+\ 0'.04$

A short ephemeris derived from these elements may be found in *Lick Observatory Bulletin*, No. 73.

This ephemeris held so well that it was considered unnecessary to compute a second orbit until the comet had covered

[1] *Publications of the Lick Observatory*, Vol. VII, Part I.

an arc of some length. A second orbit was, therefore, based upon the following observations by Professor AITKEN:—

1905. Greenwich M. T.	α Comet's Apparent.	δ
March 27.66920	$5^h\ 48^m\ 54^s.85$	$+12°\ 35'\ 42''.9$
April 7.69426	$6\ 32\ 29\ .42$	$+25\ 47\ 09\ .8$
April 23.72829	$7\ 53\ 37\ .34$	$+41\ 05\ 07\ .5$

The computation was made by Professor LEUSCHNER'S method of determining differential corrections to the preliminary orbit. Starting values of the residuals for the first and third dates were derived from the geocentric distance, and the heliocentric velocities at the middle date on the basis of the preliminary orbit and from the observed position for the middle date corrected for parallax and aberration, with the following result:—

$\Delta\alpha \cos\delta$	$-0'\ 56''.0$	$+6'\ 20''.2$
$\Delta\delta$	$-1\ 27\ .5$	$+7\ 10\ .2$

As the computation was arranged so as to remove the residuals in α and throw any deviation from a parabola into the declinations of the first and third places, it was evident from these residuals that a second approximation would give no better result. As a check, however, on this conclusion, and for the purpose of producing, if feasible, a parabolic ephemeris which would represent future observations as satisfactorily as possible, a second approximation to a parabola was made in such a way as to throw all the deviation into the first declination. This plan was found more convenient than a distribution of the deviation between the right ascension and the declination. The resulting residual in δ was $+67''.8$.

This residual is larger than can be accounted for by the combined effect of the errors of observation in the three given positions.

Although parabolic solutions were unnecessary in this case, they were carried through in deference to the existing tradition among astronomers to satisfy if possible the observations of a new comet by a parabola first, and to attempt an ellipse only when it can be definitely shown that the orbit is not parabolic. Fortunately, several parabolic solutions can be made by Pro-

fessor LEUSCHNER'S method very quickly; they therefore involved but little loss of time.

As the observations could not be satisfied by a parabola, another set of elements was derived from the residuals of the first parabola without hypothesis regarding the eccentricity, by means of the "Short Method" (cf. *Lick Observatory Bulletin,* No. 55). They are as follows:—

ELEMENTS.

$T = 1905$ April 4.04387, Greenwich M. T.

$\omega = 358°\ 12'\ 16''.9$
$\Omega = 157\ \ 25\ \ 27\ .3$ } 1905.0
$i = \ 40\ \ 13\ \ 02\ .0$

$\phi = \ 76\ \ 01\ \ 46$

$\log a = 1.576167$

$\log e = 9.986960$

$q = 1.114708$

$\mu = 15''.3376$

The period is about 231 years.

An ephemeris extending to June 3d may be found in *Lick Observatory Bulletin,* No. 76.

This orbit represents an observation by Professor AITKEN on the night of May 21st, very closely. The residuals are:—

$$\Delta\alpha \cos\delta = +0^s.32 \qquad \Delta\delta = +3''.5$$

Professor AITKEN, in sending this observation, says: "The wind was swaying the telescope, making the measures difficult, so that fully half of the residual may be counted as error of observation."

In passing, it may be well to point out some of the salient features of Professor LEUSCHNER'S new method. Besides the rapidity with which a general orbit may be computed, there may be noted the readiness with which passage may be made from a parabola to an ellipse, and *vice versa;* the small amount of labor involved in making successive approximations in order to remove residuals completely; the ease with which residuals (in the case of a parabola) may be distributed at will among any of the six coordinates; and, finally, the perfect perspicuity of the whole method, which enables the computer to see the

meaning of every step in the computation, nothing being hidden in abstruse analytical development.

It may be of interest to add that in this computation the "constants for the equator" were computed in advance of the elements. The latter were computed by data furnished by the former, a process which is much simpler than the usual method employed.

RUSSELL TRACY CRAWFORD.
JAMES D. MADDRILL.

BERKELEY ASTRONOMICAL DEPARTMENT.

THE RESIGNATION OF ASTRONOMER HUSSEY.

I regret to announce that Astronomer W. J. HUSSEY of the Lick Observatory staff has resigned his position, to take effect on October 1, 1905, in order to accept appointment as Professor of Astronomy in the University of Michigan and Director of the Detroit Observatory. In accepting this resignation, the Board of Regents of the University of California unanimously passed the following resolution:—

"*Resolved,* That in accepting the resignation of Astronomer W. J. HUSSEY, of the Lick Astronomical Department, the President and the Board of Regents of the University of California beg to acknowledge his faithful and efficient services during the past nine and a half years. His discovery of thirteen hundred double-star systems, his study of these and other systems, and his observations of many of the satellites in the solar system are important factors in the history of the Lick Observatory. We trust that his work in the position which he assumes in the University of Michigan will continue strongly to promote the interests of astronomical science."

Professor HUSSEY'S present colleagues wish him continued success in his new position.

It is understood, I believe, that the observatory at Ann Arbor is to be modernized through reconstruction on a considerable scale.

W. W. CAMPBELL.

APPOINTMENT OF DR. CURTISS ON THE STAFF OF THE ALLEGHENY OBSERVATORY.

Dr. RALPH HAMILTON CURTISS, who has been connected with the Lick Observatory for the past four years, first as an assistant on the Crocker Eclipse Expedition to Sumatra, for the next three years as Fellow in the Lick Observatory, and dur-