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ACADEMY OF ATHENS
RESEARCH AND COMPUTING CENTER
ATHENS
1963

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Annual Reports for the Year 1962 of the :

ASTRONOMICAL INSTITUTE
NATIONAL OBSERVATORY OF ATHENS

ANNUAL REPORT 1962

The activities of the Astronomical Institute of the Observatory of Athens and the Astronomical Station at Pentele, may de described as follows :

I.—ATHENS OBSERVATORY

Meridian and Time Services. Meridian observations were made by Mr. Haimis assisted by Mr. C. Banos, at the meridian circle (Gauthier - Syngros, 160 mm); they measured right ascensions of 409 fundamental stars, 35 of which were circumpolar. Furthermore 41 inclination determinations of the axis were made with the striding level, 35 collimation measurements, and 7 determinations of Vm. Dr. Adamopoulos and Mr. Haimis, furthermore, measured their personnal equations. Mr. Haimis, Dr. Focas, Mr. G. Banos and Mr. Elias jointly worked in comparing clocks and registering the Pontoise time - signals.

Solar Observations. Mr. Haimis, Dr. Focas, Mr. G. Banos, and Mr. D. Elias made 569 observations of the photosphere by projection of the image with a 80 mm refractor belonging to the Department of Astronomy of the University of Athens; 432 observations were made of the chromosphere by means of the HALLE filter. Dr. Macris and Mr. Th. Procakis obtained large scale photographs of the photosphere with the 400 mm Gauthier - Doridis refractor. Mr. D. Elias made 100 observations with the Schoenberg heliometer (16.000 measurements) for variations of the solar diameter.

Observations of Planets. These were carried out by Dr. Focas and the results are the following :

Venus. In the international cooperation program 1962, seven visual observations were made in the blue, 105 photographic observations were made in white light, 90 in red light, 300 in the blue and 75 in the violet. Dr. Focas used the double - image micrometer to measure the planet's diameter in white light (6 measurements) and made 6 measurements in blue light.

Mars. In the international cooperation program 1962—63,10 visual and 9 polarimetric observations were made and 130 photographs were taken in white light.

Jupiter. Dr. Focas made 37 visual observations and took 525 photographs in white and 75 in blue light. He made 450 measurements of jovian coordinates of various apparent features and followed, as from August 30, 1962, the evolution of a large disturbance in the STZ, in the region of the Red Spot.

Saturn. Dr. Focas made 15 visual observations and secured 220 photographs in white light.

Mr. Banos obtained 12 plates of Venus totalling 240 images, 150 images of Jupiter on 10 films, and 60 images of Saturn on 4 films. And finally Mr. Elias obtained drawings of features visible on Venus, as well as 14 observations on three different wave-lengths with the double-image and the filar micrometers in Dr. Schoenberg's program of observing the atmosphere of Venus. These measurements total 900.

Observations of Comets. Dr. Adamopoulos made comet searches and 6 observations of the position and brilliance of comet Seki-Lines (1962 c) with the 400 mm Gauthier-Doridis refractor. Seventeen measurements, 5 of which were photographic, were made by Dr. Focas; Mr. Elias and Mr. C. Banos secured 25 and 4 observations, respectively. Mr. Elias made, furthermore, 16 observations of comet Humason (1961 e), one of comet Tuttle-Giacobini-Kresak (1962 b) and two of comet Honda (1962 d).

Eclipses and Occultations. Dr. Adamopoulos assisted by Mr. Elias and Mr. E. Sigalas observed, from Paliochora, in Crete, the partial solar eclipse of July 30, 1962 and Mr. Elias obtained 32 photographs. The partial lunar eclipse of August 15, 1962 was observed visually by Dr. Adamopoulos and polarimetric observations were made by Dr. Focas; Dr. Macris assisted by Mr. Procakis took 10 photographs. Furthermore Dr. Focas and Mr. Elias observed the occultation of Saturn, and of 2 and 7 stars, respectively.

Other Observations. As concerns other observations Mr. Elias secured 291 observations of variable stars, one observation of Ceres, and observations of meteors. The same observer registered passages of earth-satellites and secured 70 determinations of brilliance and 225 of position.

Laboratory Activities. Eclipse plates taken during the July 31, 1962, eclipse, were measured by Dr. Adamopoulos with the Riddell measuring machine. Dr. Focas likewise measured with the same equipment 20 plates of Jupiter taken from 1958 to 1962. The same observers determined the constant of the double-image micrometer constructed by R. Danger on three wavelengths: the respective values are, 4,55 in the red, 4,59 in the yellow and 4,70 in the blue. Tracings of the 1062 Jupiter plates were made with the Moll micro-

photometer. Dr. Focas achieved 45 composite images of Mars and Jupiter from the photographs of these planets. He likewise determined the focus variations of the the Gauthier—Doridis 400 m.m. refractor through the use of negative lenses, and the lengthening amounts to 11,2 m.; the distortion coefficient of the enlarging system of the Danger double — image micrometer is 0'',00012 per second of arc. He also constructed a device allowing photometric calibrations and, in collaboration with Mr. Sigalas, designed the plans of an equatorial table to carry the Pecker-Ross, the Bruce, and the Schmidt cameras. Mr. Banos and Mr. Ilias using the Moll microphotometer traced corona plates taken at Hvar during the February 15 1961 total solar eclipse, for studying the isophotes. Mr. Elias measured eclipse plates of July 31st 1962 and checked the constant of the Danger double-image micrometer. He measured the screw of the micrometer on the Schoenberg heliometer with 240 measurements; likewise 1280 measurements were made of the distance of the threads of this micrometer and 960 checkings of the declination of the Sun with the use of the collimator of the heliometer.

Computations. Dr. Adamopoulos reduced his observations of comet Seki-Lines (1962 c) and calculated the July 31st, 1962 eclipse for two localities of Crete; he made calendar computations for use by the Meteorological and Ionospheric Institutes of this Observatory, and for private use. Together with Mr. Haimis he reduced time-signals and prepared tables used by both observers for longitude determinations. Mr. C. Banos reduced time signals and calculated risings and settings of the Moon for 1963. Mr. Elias reduced his comet observations, calculated earth-satellite transits, positions of chromospheric and photospheric features over 252 days, as well as eclipse phases; jointly with Dr. Goudas and Mr. Antonacopoulos, assistant at the Department of Astronomy of the Athens University, he used the electronic computer of the Athens Technical University to calculate the orbit of comet Saki-Lines (1961 c).

Besearch. Dr. Macris made photometric measurements of floculi in the Ca+,$K_{1,3}$ lines for determining, a) limb-darkening, b) correlation of floculi brilliance with heliocentric position, c) coefficients for reducing floculi brilliance to the center of the disc, and, d) the variations of the brilliance of floculi as they approach the limb. This project is sponsored by NATO. Mr. G. Banos investigated the analytical relations formulated by J. Xanthakis and J. Mergentaler between the Wolf number and sunspot-area, as well as the percentage of sunspots as a function of heliocentric longitude during the 1945—1961 interval. He also worked on microphotometer tracings of the corona from plates of the February 15, 1961 eclipse. Mr. Elias cooperated with Dr. Schoenberg in measuring the variations of the solar disc with the Schoenberg heliometer, and also worked in determining, a) the photometric parameters of comet Humason (1961 e), and of comet Seki-Lines (1962 e), b) the life-time of sunspot groups during the 22—year cycle, c) the size of the Earth's shadow during the

eclipse of March 24, 1959 and, d) the photometry of the penumbra during the August 15, 1962, eclipse; he also carried out photometry of the flare of December 10, 1962.

Participation in Meetings. Dr. Focas participated in the NATO summer school held at Corfu from June 17—31, 1962 and presented a paper on the correlation between Jupiter's centers of activity and emissions on 5—38 Mc/s. He also presented the results of his work on the activity in the atmospheres of Jupiter and Saturn at the symposium of the Planetary Comittee of the I,A.U., at Liége (9—12 July, 1963). Dr. Macris participated in the seventh meeting of the Italian Astronomical Society held in Milan (October 1962).

Reports. The following reports were prepared by Mr. Elias and submitted to their respective sponsoring agencies.

a) Sunspots in 1962 to the Solar Division A.A.V.S.O., N.B.S., Washington D.C. and to the Sternwarte, Zurich.

b) Copies of solar observation-sheets, by projection, as from January 1st until December 31st, 1962 to the Fraunhofer Institute.

c) Earth-satellite observations, to the Smithsonian Aph. Obs. Washington D.C., to the Academy of Sciences of the U.S.S.R., and to the Department of Scientific and industrial Research, Radio Research Station, England.

Publications. The members of our staff have made the following publications:

Dr. G. Adamopoulos.

Observations of comet Seki-Lines (1962 e), Circular I.A.U., 1804.

Dr. C. Macris.

a) Life-Time of the Floculi, Mem. Soc. Astron. Italiana v. XXXIII, 1, 1962.

b) The eclipse of February 15, 1961, Praktika Acad. Athens, v. 37, 204—209, 1962; in collaboration with Prof. J. Xanthakis, Mr. G. Banos, and Mr. D. Elias.

c) Sur une difference des dimensions des granules photosphériques au voisinage et loin de la penombre des taches solaires. C. R. Acad. Sc. Paris, T. 255, 1862—64, 15 Oct. 1962; in collaboration with Mr. Th. Procakis.

d) On the variation of the brightness of the chromospheric floculi from the center to the limb of the solar disc, Mem. M. Soc. Astron. Italiana, v. XXXIV, 3, 1962.

Mr. G. Banos.

a) The sunspot areas and the Wolf numbers. A study of the analytical relations given by J. Xanthakis and J. Mergentaler, Praktika Acad. Athens, v. 37, 38—54, 1962.

b) The total eclipse of the Sun of February 15, 1961 (see under Dr. Macris).

Dr. J. Focas.

a) Seasonal evolution of the fine structure on the dark areas of

Mars, Planetary and Space Sciences, Pergamon Press, London, v. 9, 371—381, 1962.

b) Technical Report No 32—151, Jet Propulsion Lab. Caltech, Mars 1961.

c) Outbursts of activity on Jupiter, I.A.U. Circular 1809, 1962.

d) Preliminary results concerning the atmospheric activity of Jupiter and Saturn, Mem. Soc. Roy. Sciences, Liège, 1962, and Proceedings Planet. Symposium, 1962.

e) Mars. Article in the Supplemeut of the Eleftheroudakis Encyclopaedia, volume B, pp. 311—314.

Mr. D. Elias.

a) Computing the preliminary ephemeris of a comet from three observations; in collaboration with Dr. C. Goudas and Mr. G. Antonacopoulos.

b) Comet osbervations, Circulars I.A.U.

c) Sunspot report for 1955 and solar activity in 1955, Bull. Astr. Inst. Nat. Obs. Athens, No 14, 1955.

d) Sunspot report, rot. 1449—1456, 1962.

e) The total eclipse of February 15, 1961; in collaboration with J. Xanthakis, C. Macris, and G. Banos, Praktika Acad. Athens, v. 37, 1962.

f) Observations des satellites artificielles; in preparation.

g) Eclipse partielle du soleil du 2 Dec., 1956, id.

h) Paramètres photomètriques des comètes Humason (1962 e), Seki (1961 f) and Seki-Lines (1962 c), in preparation.

i) Solar activity in 1962, in preparation.

The publication of the Bull. Astr. Inst. Nat. Obs. Athens, was continued this year with the issues No 13, 14, and 22.

Visits of Foreign Astronomers. Prof. E. Schoenberg stayed in Athens from March 28 to May 31, 1962 and from October 6 to November 10 1962 and observed with the heliometer. He also lectured on Dark Nebulae. This Observatory was visited likewise by Dr. and Mrs. H. von Klueber, by the members of NATO's Science Comittee under Dr. H. Helms, by Dr. J. Tuominen; other visitors were, the Soviet astronaut G. Gagarin, Mme R. Herman, Dr. C. Pickering of the Jet Propulsion Laboratory, Dr. E. Irvine of Utrecht and Mr. P. E. Wright of Cambridge, England.

Acquisition of Equipment and Donations. A double-image micrometer of great deployment was ordered with the firm R. Danger of Paris, and a Lyot polarimeter, constructed by A. Jobin-G. Yvon, was purchased; funds from the regular annual credits were used to this effect.

Equipment for observing the sun was purchased. This consists of: a) A ciné—camera Kameflex constructed by Eclair International Diffusion No 1120, and b) apparatus for developing ciné film constructed by N. V. Optische Industrie De Onde Delft Holland No 5125.

Other acquisitions are:

a) A stop-watch Super Autavia Haver No 70422.

b) A computing machine Original Ohner, Mod. XXIIC—0 No 711607.

c) A typewriter, Adler No 2291113, Greek.

d) A typewriter, Royal Ros No 4557399, Latin.

e) A planimeter, Maho with two lenses

Orders were placed with Secretan, Paris, for:

a) An astrographic camera for the Newall telescope of Pentele (cost $ 4,567).

b) One filar micrometer for the same telescope (cost $ 5,755).

The generous donation of Mr. G. Barthel, Consul General of Greece at Bilefeld, W. Germany, was used for acquiring a heliometer designed by Prof. Schoenberg; this was installed and adjusted by Mr. E. Sigalas and was comissioned as from mid-April 1962. Routine solal observations are since being made by Mr. Elias.

A marine chronometer was kindly donated to the Observatory by Mr. A. Evangelinos, dealer in optics.

Following our petition to the Navy General Staff the workshops at the Naval Arsenal of Salamis have begun the construction of a parallactic mounting for the equatorial table which is to carry the Ross - Fecker, Bruce, and Schmidt cameras.

The Science Comittee of NATO has made available a credit of $25.000 for modernising the meridian circle and for acquiring a recording micrometer and a printing chronograph.

An application was presented to the same Comittee for a $ 40.000 credit for ordering a 60 cm Cassegrain reflector destined to be used in observing the planets within the program of the I. A. U. Unfortunately this demand was rejected as the funds for 1962 were exhausted.

Repair of Buildings. A credit of $ 11,000 was made available for repairs to the main building of the Observatory.

Popular Activities. Lectures were organised in Athens and other cities, as in the past, and this Observatory was open to visitors and schools from Athens and from the rest of the country. In summer the Gauthier - Doridis equatorial was made available to groups of visitors wishing to view the heavens.

II. PENTELI ASTRONOMICAL STATION

Meteorological Observations. Daily routine observations were continued by Mr. C. Chasapis at 8 a.m.He also reduced and forwarded to the Meteorological Institute last year's observations as well as observations of the previous years. Pluviometric data from August to December 1962 were prepared and given to the Ministry of Public Works.

Astronomical Observations. Mr. Chasapis observed comet Seki (1962 a) twice, twice comet Tuttle - Giacobini - Kresal (1962 b), and four times comet Humason (1961 e), with the 630 mm. Newall refractor, and determined the position, the brilliance and the morphology of these objects. He likewise observed the occultation of Saturn by the Moon of August 14, 1962 and the occultations of six other stars. He made 302 measurements of irregular variable stars; of these, 194 were made with the Newall telescope for minima under the 13th mag. The variables observed total 143 and the observations were forwarded to the A.A.V.S.O. Together with Mr. Elias, Mr. Chasapis worked at the time service and reduced and compared time - signals and chronometers.

Dr. C. Macris, assisted by Mr. Chasapis, started a program of observing zenith brilliance at twilight with a Fecker photometer and a Polarex telescope, borrowed from the Department of Astronomy of the Athens University. In relation to this program these observers measured: a) The transmission coefficients of the blue and green filters (60 measurements), b) the causes affecting the Fecker photometer (40 measure ments), and c) zenith brilliance on seven evenings. About 180 measurements were made every evening. All these measurements were reduced. The depression of the sun was calculated and taken into account.

Mr. D. Ilias used the 80 mm Zeiss refractor, belonging to the Department of Astronomy of the Athens University, to take 12 plates of the penumbra during the lunar eclipse of August 15, 1962. He also obtained photographs of the photospheric granulation, and 20 astrophotographs with the Newall telescope. He also determined the inner and outer diameters of the ring of the Newall ring - micrometer (t=239 : 28, and R=355 : 26).

The Director of the Institute

Prof. S. Plakidis

ACADEMY OF ATHENS
RESEARCH AND COMPUTING CENTER

ANNUAL REPORT 1962

Staff. Mr. P. G. Alexiou was appointed research assistant, effective 1 February 1962. Mr. G. C. Ananiadis was appointed research assistant, effective 1 October 1962. Both are paid from funds made available through the Royal Hellenic Research Foundation.

Equipment. One Exakta Varex IIa, one Canon Model 7 and one Canon Motor Zoom 8EEE camera, were acquired. Also the W. Becker iris - photometer ordered in 1960 with Askania - Werke, Offenbach/Main (West Germany) has been delivered.

Research Programs. The following research programs were carried out during 1962:

1) Statistical Study of Solar Activity (Dr. J. Xanthakis partly in collaboration with Mr. G. Banos). The analytical study of the variation of the different indices of solar activity (relative sunspot numbers, areas of the sunspots, umbrae and faculae) reported last year, was extended to cover two additional indices of solar activity i. e. the average life-time of the sunspot groups and the number of sunspot groups originated during each synodic rotation of the sun. Analytical relations representing the variation of these indices, both within each sunspot cycle and from cycle to cycle, have thus been found. The comparison of the analytical relations between the sunspot areas and the relative sunspot numbers given respectively by J. Xanthakis and J. Mergentaler revealed, on the other hand, that the relations given by J. Xanthakis are superior to those given by J. Mergentaler as they are more simple and accurate in representing the existing observational data.

2) Photoelectric Photometry of Galactic Cepheids (Dr. L. N. Mavridis in collaboration with Dr. K. Bahner). The discussion of the photoelectric two-color (B, V) observations of 18 galactic cepheids reported last year was continued. A special study of the anomalous cepheid TU Cas was undertaken. By using all the photoelectric observations available until now, it has been possible to show that the complicated light variation of this star can be satisfactorilly represented as resulting from the phase and magnitude distortion of the sum of two harmonic oscillations. The existence of a third oscillation having a frequency equal to the difference of the frequencies of the main oscillations but a much smaller amplitude, has also been established. The above results were communicated to the 2. Veränderlichen-Colloquium in Bamberg and the 46. Tagung der Astronomischen Gesellschaft in Freiburg i. Br.

3) Distribution of the M—, S— and C—Type Stars in Selected Areas of the Milky Way. Two sets of areas are included in this program:

a) The first set (Dr. L. N. Mavridis in collaboration with Dr. V. M. Blanco) contains parts of the four areas of the Mt. Palomar-Groningen variable stars survey currently carried out by Dr. L. Plaut. The spectral classification of the M—, S— and C—type stars in these areas was already made on 4° objective-prism infrared spectral plates taken with the 24/36-inch Schmidt telescope of the Warner and Swasey Observatory. A revision of the photometry of these stars is now being carried out.

b) The second set (Dr. L. N. Mavridis partly in collaboration with Dr. J. J. Nassau) contains six areas centered on the galactic clusters NGC 129, NGC 188, NGC 752, NGC 7789, NGC 7790 and M25. The spectral classification of the M—, S— and C—type stars in these areas has already been made on 4° objective-prism infrared spectral plates taken with the 24/36—inch Schmidt telescope of the Warner and Swasey Observatory. The photographic photometry of these stars is now made with the help of direct plates taken with the 24/36-inch Schmidt telescope of the Warner and Swasey Observatory and the 80/120 cm. Schmidt telescope of the Hamburger Sternwarte

and photoelectric sequences already existing in the corresponding clusters.

4) Rotational Velocities of the Members of Selected Galactic clusters (Dr. L. N. Mavridis in collaboration with Dr. R. P. Kraft). The observational material used for this study consists of spectrograms with a dispersion equal to 20-40 A/mm taken with the 200 inch reflector of Mt. Palomar and the 60-inch reflector of the Mt. Wilson Observatory. Spectrograms for 50 stars in the area of the galactic cluster NGC 6633 and 28 comparison stars with known rotational velocities have been already taken, and are now under study.

Publications. The following publications appeared in 1962:

Contributions from the Research and Computing Center, Academy of Athens, Series I (Astronomy):

No 9: J. Xanthakis and G. Banos, The Sunspot Areas and the Wolf Numbers. A Study of the Analytical Relations Given by J. Xanthakis and J. Mergentaler. Memoria della Società Astronomica Italiana, vol. XXXIII, pp. 291-304, 1962.

No 10: Jean Xanthakis, Les relations analytiques des nombres des groupes de taches solaires et des nombres relatifs. Annales d'Astrophysique t. 25, p. 342-356, 1962.

No 11: K. Bahner und L. N. Mavridis, Der Lichtwechsel des unregelmässigen Cepheiden TU Cas. 2. Veränderlichen-Colloquium Bamberg 1962. Kleine Veröffentlichungen der Remeis-Sternwarte Bamberg, Astronomisches Institut der Universität Erlangen-Nürnberg Nr. 34, S. 12-13, 1962.

Visitors. The following scientists visited the Center during 1962: 1) Dr. Robert Jastrow, Director of the Institute for Space Studies, New York and, 2) Prof. Dr. Charles Fehrenbach, Director of the Observatoire de Marseille.

Miscellaneous. Dr. Xanthakis visited in April and May 1962 the astronomical institutions of Paris and the Observatoire de Haute Provence, following an invitation by the French Government. He also visited in November 1962 the Observatoire de Strasbourg, following an invitation by the Faculty of Sciences, University of Strasbourg. Dr. L. N. Mavridis visited in August and September 1962 the Hamburger Sternwarte and the Landessternwarte auf dem Königstuhl, Heidelberg. He also attended the 2. Veränderlichen-Colloquium in Bamberg, the 46. Tagung der Astronomischen Gesellschaft in Freiburg i. Br. and the International Symposium on Radioactive Dating in Athens.

The Director of the Center

Dr. L. N. Mavridis

DEPARTMENT OF ASTRONOMY
UNIVERSITY OF ATHENS

ANNUAL REPORT 1962

Staff. The contract of chief-assistant Dr. D. Katsis, was renewed for four years, as from May 29, 1962; in June he likewise obtained civil promotion. Mr. P. Rovithis, graduate in Mathematics, acted as extra assistant.

Teaching. Prof. S. Plakidis, Head of this Department, held his regular course in General Astronomy, consisting of courses in Physical and Mathematical Astronomy.

Assistant-Professor D. Kotsakis held a course on the sun and lectured on the Theory of Errors.

Exercises. Students were trained in the practical methods of Astronomy, in this Department, at the Observatory of Athens, and at the Station of Pentele. Exercises were held and supervised by Dr. Katsis, chief-assistant, Mr. Antonacopoulos, Mr. Rovithis and by the voluntary assistant Mr. Ch. Frangakis, graduate in Mathematics. The students numbered 192, 64 of whom were from the Physics Section and 128 from the Mathematics Section.

Research. Assistant-Professor W. Abbott, working in cooperation with the Ionospherics Institute of the Athens Observatory, founded a nightglow station at Darditsa, in the Peloponnese. An airglow photometer constructed at the Laboratoire de Physique de l' Atmosphère of the University of Paris, was installed there, and is used to monitor the 5577 A line of the nightglow. The project is sponsored and financed by NATO.

Lectures by Foreign Scientists. Prof. Ch. Fehrenbach, Director of the Observatory of Marseilles gave two lectures, one in this Department on the determination of radial velocities with the objective-prism, and one in the Physics auditorium on the Observatory of the Haute Provence.

Purchases of Instruments, Books and Periodicals. Our regular routine annual credit of Drchs 28, 500, or $ 950 was used for the purchase of books, payment of subscriptions to journals and periodicals, and to cover miscellaneous petty requirements of the Department. An extra credit of $ 1,000 was used for the purchase of an Exacta camera, a Nardin chronometer and further purchases of books.

Participation in Meetings. Assistant-Professor D. Kotsakis participated in the Mathematical Conference held at Janina in May 1962 where he lectured on Radio-astronomy, and in the annual general assembly of the Astronomische Gesellschaft in Freiburg (12—16 September 1962); he likewise visited the Royal Greenwich Observatory and the observatories of Uccle, Basel, Freiburg, München and Hamburg.

Assistant-Professor W. Abbott participated in the summer meetings, held at Corfu from June 17—31, 1962, of the NATO summer school on the advanced study of the Physics of the Atmosphere.

Publications. The following publications have been made by the members of this Department.

D. Kotsakis.

a) The Sun and solar influences. A monograph of 70 pages,

b) Theory of Errors and least squares. II edition.

c) The Sun, Geomagnetism, and Aurorae polaris. A lecture, published by the Hellenic Mathematical Society.

D. Katsis.

a) Elements of the true orbits of double stars, Astronomika Nea, 42, 1962.

b) Spectroscopic Binaries, Astronomika Nea, 44, 1962.

c) The inclination of the orbit of spectroscopic binaries, Astronomika Nea, 45, 1962.

d) Theory of double stars, Bull. Geogr. Serv. Army, 2nd quarter 1962

G. Antonacopoulos, jointly with D. C. Goudas.

a) Lagrange solutions to the three-body problem and minor motions in their vicinity, Bull. Geogr. Serv. Army, I quarter, 1062.

b) Computing the Preliminary Ephemeris of a comet from three observations, jointly with Mr. Elias, Memoirs, Nat. Obs. Athens, Series I, Astronomy, No 9.

Popular Lectures. The members of this Department have given popular lectures for the benefit of the public in the Hellenic Methematical Society and in a hall for public lecturing.

The Head of the Department.
Prof. S. Plakidis

ASTRONOMICAL DEPARTMENT
UNIVERSITY OF THESSALONIKI

ANNUAL REPORT 1962

Instruments. A Becker photometer and an Ulysse Nardin naval chronometer have been ordered.

Staff. The Director of the Department was Dean of the Fa-

culty of Sciences during the year 1961-62. At the end of June 1962 he left on leave for the U.S.A. From July 1, 1962 to December 31, 1962 he has been visiting professor at Yale University, New Haven, Conn. During his absence he is replaced by the Professor of Analysis, Dr. J. Anastassiades.

The chief-assistant B. Barbanis obtained his doctor's degree in May 1962.

The assistant Mr. G. Bozis received a scholarship from Yale University and left in August 1962.

Mr. J. Hatzidimitriou worked as a voluntary assistant during the 1st semester of the year. He received a scholarship from the University of Manchester and left in October 1962.

Scientific Work during 1962. Dr. Contopoulos and Mr. Bozis completed their study of the problem of collision of two galaxies. A paper on this subject has been published and a second paper is in preparation.

Dr. Contopoulos studied some special cases and applications of the third integral of motion. This work has continued at Yale University. A paper bearing the title «On the Existence of a Third Integral of Motion» was submitted for publication in the Astronomical Journal.

Dr. Barbanis studied with Dr. Goudas a new property of the third integral and a paper on this subject is in preparation.

Mr. Papageorgiou has worked on the adjustment of the photoelectric photometer.

The 20cm refractor has been accurately adjusted in its new location and observations have been made with the double image micrometer as well as with the filar micrometer.

Publications. Under the series: Contributions from the Astronomical Department of the University of Thessaloniki, have appeared:

a) Nr. 7: G. Contopoulos and G. Bozis: Perturbations of stars in a galaxy, Ann. Fac. Sciences University of Thessaloniki, Vol. 11 supplement 11, 1962.

b) Nr. 8: G. Contopoulos and B. Barbanis: An Application of the third Integral of Motion, The Observatory **82**, Nr. 927, 80, 1962.

c) Nr. 9: B. Barbanis: An Application of the third Integral in the Velocity Space, Zeitschrift für Astrophysik **56**, 56, 1962. Contribution Nr. 9 is an abstract of the Thesis of Dr. Barbanis which has been published in Greek under the same title.

Lectures. The courses on Spherical Astronomy for the 3rd-year students, as well as the courses on Astrophysics, Celestial Mechanics, and Relativity for the 4th-year students of Mathematics and Physics were given regularly.

Dr. Contopoulos gave a series of lectures on Stellar Dynamics

at the Summer Institute in Dynamical Astronomy during July 1962 and at Yale University from September to December 1962.

Conferences. Dr. Contopoulos has presented a paper under the title «Resonance cases and small divisors in a third integral of motion» at a Colloquium on Stability and Small Divisors organised by Yale University. He has alsso presented the paper «Some applications of a third integral of motion» at the meeting of the American Astronomical Society in White Sulphur Springs, December 1962.

The Director of the Department

Prof. Dr. G. Contopoulos

DEPARTMENT OF ASTRONOMY TECHNICAL UNIVERSITY OF ATHENS

ANNUAL REPORT, 1962

Staff. Mr. G. Catsiaris, graduate in Mathematics of the University of Athens, continued offering his services as chief assistant of this Department on a voluntary basis. Mr. D. Vlachos was appointed chief assistant O.C.D.E. to the chair of Astronomy; he is a graduate in Mathematics of the University of Athens.

Instruments. In the course of 1962 the credits of this Department were used to acquire the following equipment.

a) One Kern DKM3A theodolite with impersonal micrometer.
b) One » Wild T1A theodolite.
c) One » T16 »
d) One Wild T2 theodolite.
e) Three Wild T2E theodolites
f) One Hagenuk YE—12 receiver.
g) One Nardin chronometer.

Teaching and lectures. During the 1961—62 academic year Prof. Argyrakos, Head of this Department, delivered a course in General Astronomy, Spherical Astronomy and geodetic-astronomical observations. He gave on Practical Astronomy lectures which were attended by 90 students of the third and fourth class of the School of Agronomists and Surveying engineers. Chief assistant Mr. Catsiaris assisted in the course of Theoretical Astronomy while chief assistant Mr. D. Vlachos was busy with the time service, the checking of chronometers and also assisted with the training of the students in Practical Astronomy. All the activities were carried out under the direct supervision of the Head of the Department.

Seminars. These were continued and held regularly as in the past; they were attended by most of the students a large number of whom talked on various subjects, with the assistance of the members and the Head of this Department. The results were very satisfactory and very promising for the future development of these seminars.

The Head of the Department

Prof. J. Argyrakos