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OF THE
ASTRONOMICAL INSTITUTES
OF GREECE
1961

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ACADEMY OF ATHENS
RESEARCH AND COMPUTING CENTER
ATHENS
1962

FOREWORD

The Greek National Committee for Astronomy is taking the initiative to group and publish in the English language, beginning with the first year of this decade, the Annual Reports of the astronomical Institutes and astronomical University departments of the country. This is the second year and we feel that this publication is not yet as completely on the frontier of research. as we would have wished it to be. The trends, however, are encouraging and difficulties will be overcome; these arise mainly from the fact that the climatic and human assets of this country are handicapped by limited finances and budgets which render severe the struggle for acquiring facilities at a level which, elsewhere, has already been attained.

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Annual Reports for the Year 1961 of the:

ASTRONOMICAL INSTITUTE
NATIONAL OBSERVATORY OF ATHENS

ANNUAL REPORT 1961

1.— **Staff.** Professor Plakidis has assumed the chairmanship of the Board of Administration of the National Observatory of Athens, as from July 1st, 1961. He will hold it for two years.

Mr. J. Focas has obtained his PhD at the University of Paris, on June 6, 1961, with honors (mention trés honorable).

Mr. George Banos and Cosmas Banos have been appointed assistants on August 1st, 1961, filling existing vacancies.

2.— **Meridian Observations, and hour - service.** The Syngros meridian circle (Gauthier 160 mm) was used by Mr. Haimis and Mr. Banos to observe the transits of 447 stars, of which 37 were circumpolar. 372 hour-signals from Pontoise were registered by the chronometer personnel.

3.— **Solar Observations.** 358 observations were made by projecting the image with a 80 mm refractor. Photospheric features, such as spots, faculae, etc. were registered. Of these, 258 observations were made by Mr. D. Elias who continued noting degrees of granulation within the Bartlett Jr. program. Furthermore 182 chromospheric observations were made visually and 45 photographically with the Halle filter which was installed on November 1st, 1951.

Dr. C. Macris and Mr G. Banos secured extensive series of photographs through colored filters with the Doridis refractor (Gauthier 400 mm), allowing the study of granulation on various wave lengths; this project was supported by the Royal Research Institution.

4.— **Eclipse Observations.** A group of astronomers from this Observatory, headed by Prof. Xanthakis of the Academy of Athens, observed the total eclipse of February 15, 1961. The group consisted of Dr. C. Macris, Mr. G. Banos and Mr. D. Elias, and was stationed on the island of Hvar off the dalmation coast. The program included, among others, photographing the corona through colored filters. This eclipse was also observed as partial in Athens, visually and photographically, by Dr. Adamopoulos and Mr. Haimis. 400 photographs

were secured. The same and Mr. G. Banos observed the lunar eclipse of August 20, 1961.

5.— Observations of Planets. Dr. J. Focas, using the Doridis refractor continued his visual, photometric, photographic and polarimetric observations of Venus, Jupiter and Saturn.

6.— Various Equatorial Observations. With this same instrument Dr. Adamopoulos investigated faint comets. Dr. Focas made 13 observations of comet Seki (1961 f) and Mr. D. Elias secured 3 observations of comet Candy (1960 n), 6 of comet Wilson (1961 d) and 14 of comet Seki (1961 j). Likewise Mr. Elias observed with the same instrument 16 lunar occultations of stars, as well as 199 variables. He secured furthermore 679 positions of earth-satellites and 120 estimates of brightness.

7.— Laboratory Activities. Dr. J. Focas measured with the Riddell measuring machine photographs of Jupiter taken in 1958 and after, to determine the rotation periods of jovian features at various latitudes. He likewise used the Moll microphotometer on photographs of Mars and Saturn. Mr. Elias measured the chords and diameters of the sun on 200 photographs of the partial solar eclipse of October 2, 1959 (4,500 measures) and on 110 photographs of the total eclipse of February 15, 1961 (3,500 measures).

8.— Other Observations. Some new longitude determinations of this Observatory were made by Dr. Adamopoulos and Mr. Haimis. They used for this purpose meridian observations and hour-signals.

As from October 1st, 1961, Dr. C. Macris is making microphotometric measuremeuts of flocculi on the K2,3 Ca+ lines using Arcetri data. This research is financed by NATO.

Dr. Focas continued his investigations on the morphology of the major planets; Mr. D. Elias pursued determinations of the life-time of sunspot goups function to the 22-year cycle, determinations of photometric parameters of comets observed by himself and of the atmospheric absorption coefficients at Penteli.

9.— Computations. Dr. Adamopulos has computed calendar elements for 1962, the contacts of the February 15, 1961 total eclipse, a number of data for certificates and affidavits and special tables for computing hour-signals. Mr. Elias calculated the contacts of the February 15, 1961 eclipse for the island of Hvar by adopting the Danjon and Minnaert method. He likewise calculated risings and settings of the Moon as well as earth-satellite passages. Furthermore all observers reduced their observatios.

10.—Activities abroad and participation to International Meetinges. Dr. J. Focas, on being invited, caried out observations of Mars at the Pic-du-Midi, and at Meudon, as Special Consultant

of the Jet Propulsion Laboratory, Caltec; Prof. Plakidis, Dr. Macris and Dr. Focas participated to the meetings of the I.A.U General Assembly at Berkeley. Dr. Adamopoulos and Mr. Elias attended the seminar organised by the Hellenic Society of Solar and Aeolian Energy under the auspices of NATO.

11.—Collaboration with Prof. Anderson. At his request we continued sending to him copies of photospheric observations and projection drawings of the Sun obtained since 1957.

12.—Donations. Mrs. J. A. Neff offered $ 1,000 to this Observatory to be used for installing the Bruce camera.

Mr. G. Barthel, Consul General of Greece in Bilefield, W. Germany, has offerred $ 5,000 to construct and install in this Observatory a heliometric telescope for measuring the Sun's diameter with Dr. Erich Schönberg's method. This instrument has been installed by Dr. Schönberg assisted by Mr. D. Elias.

13.—Constructions and Purchases of Equipment. A camera destined to photograph planets was constructed at the Observatory's workshop under Dr. Focas' supervision; an optical table for measuring solar photographs has been completed. The new monochromatic filter with thermostat and a 110 mm objective (F: 1,680 mm) both constructed by Halle, Berlin were delivered on February 10, 1961.

A new Kipp and Zonnen Moll microphotometer was delivered to the Obervatory in March 1961, and a Nardin 9194 sidereal chronometer in September.

Three filters were purchased at the end of the year; these are Corning 9863, 5030 and 3384. Likewise a Luxacopy photostat printer, a lath for the workshop, and air-conditioning facilities for the Moll microphotometer room.

14.—Visitors. In the course of the year this Observatiory was visited by student-groups from several schools of Athens and the provinces. The visiting scientists of the year were: Dr. Kisley Anderson, professor of Physics at the University of California, Sir Harold Jeffreys emeritus professor of Astronomy and Experimental Philosophy at Cambridge, England, Lady Jeffreys, Dr. Lynga of the Lund Observatory, Dr. and Mrs. Kaplan, Dr. Gill of Yale, Dr. and Mrs. Wilson of Jet Propulsion Laboratory, Caltech, an Prof. Shönberg.

15.— Penteli Station. a) Observations. Mr. Chasapis continued the routine 8 a.m. meteorological observations and their reduction; data were communicated to the Meteorological Institute of this Observatory. He likewise received 117 hour signals from Pontoise and 138 checkings of the clocks were made. Mr. Chasapis used the Zeiss heliograph to optain 52 photographs of the solar disk and these were measured by means of a measuring machine constructed by Mr. Sigalas, the techician of the Observatory. Mr. D. Elias with the Newall

refractor (630 mm) took 30 photographs of the photospheric granulation. Prof. Plakidis and Ass. Prof. Cotsakis secured 24 photographs of the solar eclipse of February 15, 1961 with the Zeiss heliograph (110 mm).

Mr. Elias and Mr. Chasapis observed the lunar eclipse of August 26, 1962 with the Zeiss 80 mm refractor and the Newall finder. They made 15 observations of comet Seki (1961 f), 10 of which on photographs with the Newall. They likewise used the birefringent micrometer adapted to the Newall to observe 16 double stars. Mr. Elias made 100 measurements of the diameter of Uranus and used the Newall to observe minima af 163 long-period variables. He took a photograph of supernova N.G.C. 4664.

Dr. Macris and Mr. Chasapis haved done some preliminary work to measure zenith brilliance during twilight and dawn with a photoelectric photometer Model II D.C. J. W. Pecker, belonging to the Department of Astronomy of the University of Athens.

b. Buildings and Installations. The water supply of the station from the communal network was completed in June, 1961. The hut for the Dallmeyer cameras was likewise completed in June; it consists of two rooms, one having a sliding roof for housing the instruments and one destined to be used as a dark room. An extra credit was obtained to repair the old buildings of the station. Construction of the building which will house the equatorial table bearing the Bruce, the Ross and the Schmidt cameras, was begun at the end of the year.

c. Visitors. All visitors of the Observatory at Athens visited this station. These were foreign scientists, student-groups from schools in Athens and the provinces, society groups, private individuals, etc.

16.—Publications. The following publications were made by members of the staff:

S. Plakidis.—Activities of the Astronomicl Institute of the National Observatory of Athens during 1960. Bull. Geogr. Serv. Army (in press).

C. Macris and G. Banos.—Mean distance between Photospheric Granules and its change with the solar activity. Memoirs of the Nat. Observ. Athens, Series I, Astronomy, No 8.

C. Macris. Studies on the Flocculi of the solar chromosphere. Part I. Lifetime of the Flocculi. To be Published in the Memor. Societá Astronomica Italiana.

J. Focas. Etude photométrique et polarimétrique des phénomènes saisoniers de la planéte Mars. Annales Astroph. T. 24, No 4, pp. 309-225, 1961 (Thesis for PhD Univ. of Paris)

J. Focas. Observations of comet Seki (I961 f) I.A.U. Circulars, Copenhagen, No 1780, 1781, 1732.

J. Focas.—Polarimetric, photometric and visual Observations of Mars made at the Pic-du-Midi Observatory in 1961. Publications of the Cal. Inst. of Technology, Jet Prop. Lab.

J. Focas.—Rapport sur les travaux de la Comission 16 de l' U.A.I· Transactions of the I.A.U., Berkeley 1961.

J. Focas. Circulation and disturbance phenomena in the atmosphere of Jupiter. Communicated to the 1961 meetings of the I.A.U.

D. Elias.—Observations of comet Candy (1960 n). I.A.U. Circular 1754.

D. Elias.—Observations of comet Seki (1961 f) I.A.U. Circulars Nos 1778, 1780, 1781, 1782.

D. Elias.—Preliminary photometry of comet Seki (1961 f) I.A.U. Circular No 1783.

D. Elias.—Variable-Star observations in 1954. Bullet. Astr. Inst. Nat. Obs. Athens, No 13 (1954-2).

D. Elias.—(in preparation).

a) Solar activity in 1655.

b) Positions of comets Arend Rolland and Mrkos from observations in 1957.

c) Observations of earth-satellites.

d) Eclipse partiélle du Soleil, 2 Décembre 1956.

e) Les paramétres photométriques des cométes Arend Rolland et Mrkos.

f) Paramétres photométriques definitives de la cométe Seki (1961 f).

17. Library.—Mr. Haimis has continued checking-in publications and periodicals and doing his best to meet requirements. However the library locale, which is the original main building of the Observatory used by Julius Schmidt during the last century, has become inadequate and is badly in need of repair. A number of difficulties in the use of the library arise from this unsatisfactory situation and it is to be hoped that drastic measures will soon be taken to remedy to it.

The Director of the Institute
Prof. S. Plakidis

ACADEMY OF ATHENS
RESEARCH AND COMPUTING CENTER

ANNUAL REPORT 1961

1.— Equipment. Two typewriters Hermes—Ambassador and one calculattng machine Monroe-66N have been acquired. Also the stereomicroscope ordered last year with Carl-Zeiss, Oberkochen / Wärtt. (West Germany) has been received.

2.— Scientific Programs. The following research programs have been carried out during 1961:

1) Statistical Study of Solar Activity (Dr. J. Xanthakis). The analytical study of the variation of the different indices of solar activity (relative sunspot numbers, sunspot areas, etc.) both within each sunspot cycle and from cycle to cycle has been continued, A sudden increase of the height of the sunspot maximum in the cycles No 9 and 19 could be in this way discovered aud analytically accounted for.

2) Photoelectric Photometry of Galactic Cepheids (Dr. L. Mavridis in collaboration with Dr. K. Bahner). The reduction of the observations has been completed. Light and color curves in the B, V system for the 18 cepheids BT, RX, SY Aur; RW Cam; SU, TU Cas; VZ, CD Cyg; V, X, Y, Z, RR, BG Lac; RS Ori; SV, AW Per and U Vul have been thus obtained. The discussion of the entire observational material and a special discussion of the anomalous Cepheid TU Cas are now under way.

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. Mavridis in collaboration with Dr. V. Blanco) contains parts of the four areas of the Mt. Palomar - Groningen variable stars survey currently carried out by Plaut. The spectral classification and the photometry of the M-, S- and C- type stars in these areas has been already completed and the discussion of the material has begun.

b) The second set (Dr. L. Mavridis partly in collaboration with Dr. J. Nassau) contains six areas centered on the galactic clusters NGC 129, NGC 188, NGC 752, NGC 7789, NGC 7790 and M 25. The spectral and direct plates for all these areas have been already taken with the 24/36 inch Schmidt telescope of the Warner and Swasey Observatory. The spectral classification of the M-, S- and C-type stars in these areas is currently carried out.

3.— Publications. The following publications appeared in 1961:

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

No 8: J. Xanthakis, Sur les maximums singuléremet élevés de l'activité solaire. Comptes rendus des séances de l'Académie des Sciences (Paris), t. 253, p. 1311 - 1312, 1961.

4.— Miscellaneous. Dr. J. Xanthakis was the head of, 1) the Greek expedition which observed the total eclipse of the Sun of February 15, 1961 from the island of Hvar (Jugoslavia) and, 2) the Greek delegation to the XIth General Assembly of the I.A.U. in Berkeley, California, U.S.A. Dr. L. Mavridis visited, with the help of a grant from the «Organisation Européenne de Coopération Économique» the following Institutions: 1) The Mt. Wislon and Palomar Observatories, California, U,S.A.. 2) the Warner and Swasey Observatory, Cleveland, Ohio, U.S.A., 3) the Institute for Advanced Study (Prof. Dr. Strömgren), Princeron, New Jersey, U.S.A., 4) the Astronomisches Réchen - Institute, Heidelberg, West Germany and, 5) the Landessternwarte auf dem Königstuhl, Heidelberg, West Germany. He also attended the XIth General Assembly of the I.A.U. in Berkeley, California, U.S.A.

Dr. L. Mavridis, Director

DEPARTMENT OF ASTRONOMY
UNIVERSITY OF ATHENS

ANNUAL REPORT 1961

1.— General. The courses on theoretical Astronomy were given by the full professor and the assistant professors of the Department; exercises and practical training were given the students by the auxiliary staff. The students are fourth-year undergraduates in Physics and Mathematics. Training consists in the use of astronomical instruments and equipment as well as the reduction of observations. Furthemore some fields of research offering particular interest were investigated. Publications by this Department were both scientific and popular.

2. — Personnel. Some changes were brought about in the Department's staff:

Mr. Mantzaris has left at the end of his 3-year contract. Mr. Antonacopoulos, graduate in Mathematics took his place on a 3-year contract. Mr. Frangakis having been called to the colors his place was taken by Mr. Rovithis, a fourth-year undergraduate in Mathematics.

3.— Teaching. Prof. Plakidis, head of this Department, delivered a course on General Astronomy covering subjects of Physical and Mathematical Astronomy.

Assistant—Professor D. Cotsakis delivered a course on the Moon and planets.

Assistant—Professor W. Abbott delivered a special course on planetary atmospheres to the fourth - year students in Physics.

4.— Exercises. The sudents were trained to practical astronomy at the Department, the National Observatory and the station of Penteli. Mr. D. Catsis trained students how to construct and use solar clocks, and sundials, and how to use ephemerids, astrocatalogs and classical instruments such as, chronometers, sextants, the zenith - telecope and the meridian circle. Mr. Antonacopoulos, assistant, trained them how to use monochromatic filters on the chromosphere, the equatorial telescope, photometers and the measuring machine to determine astrographic coordinates. Mr. Frangakis and Mr. Rovithis, extra assistants, trained students how to use astronomical tables, how to reduce observations, and how to use computers to this effect. The number of

students having received practical training were, 74 from the Physics Section, and 108 from Mathematics Section.

5.— Seminar. The seminar wich was always held during the winter in this Department for the staff and some senior students was likewise held this year. The speakers and the subjects were:

Assistant—Professor D. Cotsakis gave two talks and discussed the distances of galaxies and the methods of determining these distances. Mr. N. Apostolacos gave two talks on proportional computers and the problems which can be solved with their help.

Mr C. Goudas, PhD of Manchester University, England, gave two talks on electronic computers, on the Third Problem and the three-body problem. Colonel G. Sourais talked on the possibilities of space investigations by means of earth-satellites.

6.— Foreign Visitors. Dr. Kinsley Anderson, professor of Physics of the University of California visited this Department on April 17 and requested that data on solar observations be communicated to him. Emeritus professor, Sir Harold Jeffreys, accompanied by Lady Jeffries, visited Athens and gave, an April 20, a lecture in the University aula on «Saturn and his rings» with an introduction by Prof. Plakidis. Finally, on December 12, Professor R. Brode lectured in this Department on «Cosmic Rays» to an audiece consisting af the staff of the Observatory and the Department and of several specialists in this field.

7.— Participation to International Meetings. The University Senate by its decision taken on June 13, on the Faculty's proposition, appointed Prof. Plakidis to represent the University of Athens at the Berkeley meetings of the I.A.U. General Assemply held from 14-24 August. He was invited by Dr. Goldberg, chairman of the U. S. delegation, to visit the Jet Propulsion Laboratory at Pasadena, California, and participated to the seminar on the planet Mars.

Ass. Prof. W. Abbott participated to the seminar of the Institute of Advanced Studies of the High Atmosphere held in Corfu under the auspices of NATO,

8.— Purchase of equipment, books and journals. The routine credits of this Department were used, as usual, to purchase books, subscribe to scientific journals, and cover routine requirements of the Department. A special credit of 48,752 Drachmas ($ 1,625) was used no purchase equipment:

a) A Polarex telescope, 75 mm, F: 1,200 mm with tripod, of Japanese make, with zenith-prism and sun-filter.	Dr.	8,150.
b) A Luxacopy photostat printer E.B.M., No 3586 with formaica table 60 x 80 x 80 cm. and seat	»	9,250
c) A tape recorder, 3 speeds with micro, Philips E. F. 3542 A/OOE No 134801	»	5,500
d) A Novoflex telelens, No 65063.70 mm, F: 64 mm	»	6,284
e) A wide-angle Flectogen lens 2,8/35 for Exacta	»	2,700
f) An RCA photocell	»	300
g) Books, tc.	»	16.568
Total	Dr.	48,752

A photoelectric photometer, J. W. Fecker American Optical Co, was purchased for $ 1,660 from the 1960 special credits.

9.— Lectures. Lectures were given far popularising Astronomy and informing the public an the latest developments. They were given by members of the staff as follows:

a) The National Observatory and its activities, by Prof. Plakidis.

b) The coming total eclipse of the sun of February 15, 1961, by Mr. D. Catsis.

c) Calculating solar eclipses, by the same.

10.— Popular Publications. Dr. Costakis. a) The Origin of the Solar System, Athens, 1961, p. 150.

b) The McCrea Theory on the Origin of the Solar System, Astronomica Nea, April-May 1961.

c) The Sun and its Influences on the Earth. Bull. af Geogr. Serv. Army, Dec 1961.

d) Das Griechische Prinzip des Shönheit und die modernen Naturwisssenchaften, Universitas, Marz 1961.

D. Catsis:

a) Theory of eclipses, Athens, 1961

b) Calculating solar eclipses, Hell. Mathem. Society Publications.

c) Double. Stars, Astronomica Nea July—September 1961, No 40.

G. Antonacopoulos:

a) The exact value of the astronomical unit, Astronomica Nea. July September 1961.

d) The new Atlas of the Moon, Astronomica Nea, July 1961, No 39.

c) Does the Earth have other natural satellites? Astronomica Nea. October—December 1961, No 41.

Ch. Frangakis:

a) Water in the atmosphere of Venus. Astronomica Nea. Jan—February 96 No 1381.

b) Halley's Comet, Atstron. Nea, Jul—Sept. 19h1 No 40.

The Head of the Department
Prof. S. Plakidis

DEPARTMENT OF ASTRONOMY
UNIVERSITY OF THESSALONIKI

ANNUAL REPORT 1961

1.— General. The new building of the Astronomical Observatory of the University of Thessaloniki was inaugurated on May 7 of this year.

2.— Instruments. New instruments:

1) Filar micrometer for the 20 cm refractor made by Secretan, Paris.

2) Hα birefringent filter with thermostat and a 110 mm lens, made by B. Halle, Berlin.

3) Micrometer «à double image» made by Roger Danger, Paris. Items 2 and 3 have been ordered but not yet received.

3.— Staff. Mr. Ch. Papageorgiou, graduate of Physics, has been appointed as assistant in July 1961.

Mr J. Hatzidimitriou, graduate of Mathematics, has worked voluntarily in the Department since December 1961.

4.— Scientific Work during 1961. The work begun during 1960 has been continued.

Mr. Barbanis has submitted to the Faculty of Sciences his thesis on the «Application of the third integral on the distribution of stellar velocities» in Decembre 1961.

The first part of the work of Dr. Contopoulos and Mr. Bozis on dynamical problems relating to the collision of two galaxies has been completed. A paper bearing the title «Perturbations of stars in a galaxy» is in preparation. Further, analysis of computations kindly made for us by Dr. C. Goudas with the Mercury electronic computer in Manchester, is continuing.

Dr. Contopoulos and Mr. Barbanis have studied the application of the third integral to the groups of stars found by Eggen and Sandage.

In order to discuss the possibility of further applications of the third integral, a special case where the radial and vertical oscillations are almost commensurable has been laid down for numerical calculation by the electronic computer IBM 650 in Athens.

In cooperation with the Warner and Swasey Observatory of Cleveland a study of the distribution of supergiants outside the plane of the Galaxy was begun by Mr. J. Hatzidimitriou.

5.— Publications. Under the series: Publications of the Astronomical Department of the University of Thessaloniki have appeared:
Nr. 5: G. Contopoulos, Electronic Computers (in Greek) 1961.
Nr. 6: G. Contopoulos, Are there any logical beings on the other stars? (in Greek) 1961.

6.— XI Meeting of the I.A.U. Dr. Contopoulos has participated to the XI Meeting of the I.A.N. in Berkeley, California, from 15 to 24 August 1961, and has presented two commuuications: 1) Stellar Orbit Calculations (Commission 33). 2) On the collision of two Galaxies (Commission 28).

Before and after the I.A.U., in the U.S.A. where he spent two months. On this occasion he has given seminars in Yerkes Observatory and Princeton Observatory.

7.— Lectures. The course on Spherical Astronomy for the 3rd year

students, as well as the course on Astrophysics, Celestial Mechanics and Relativity for the 4th year students of Mathematics and Physics were given regularly.

8.— Seminar. A seminar for the staff of the Department was held regularly, once or twice a week, after October 1961.

The Head of the Department
Prof. Dr. G. Contopoulos

DEPARTMENT OF ASTRONOMY
TECHNICAL UNIVERSITY OF ATHENS

ANNUAL REPORT, 1961

1.— General. Mr. Catsiaris, graduate of Mathematics of the University of Athens, was appointed by the Senate chief-assistant of this Department on a voluntary basis.

She following instruments have been acquired:

a) One Veg Freiberger sextant.
b) One artificial Horizon.
c) Two Wild solar prisms for the Wild theodolite T2
d) One Wild solar prism » » T3
e) Three stop-watches.
f) One Curta No 2 computer.

2.— Theaching and training. During the 1961 academic year Prof. Argyrakos, Head of this Department, gave courses on General, Spherical and Practical Astronomy and on geodetic-astronomical measurements. The students, numbering 88, were third and fourth year undergraduates. Chief-assistant Mr. Catsiaris studied problems related to the courses and trained the students to the use of instruments.i.e. theodolites, sextants, chronometers, etc. The Head of the Department supervised part of this training which included receiving hour-signals with the Zellweger receiver, determining geographic coordinates and the azimuth of one of the pillars built on the terrace of the new University building, by observing Polaris, the sun, making circumeridian observations, and noting equal elevations and elevation lines. Exercises included determining the geographical coordinates by simultaneous use of a Wilb meridian prism.

3.— Seminars. These were permanently instituted during 1961. They were as a rule held by students taking interest in certain fields and were attended by the staff of the Department. The subjects expanded by the Head of the Department as well as by several of the students were:

a) Description and avalysis of the celestial charts published by the French I.G.N.

b) Constucting an abacus for solving problems of Spherical Astronomy, graphically, on a celestial chart.

c) Description and mode of use of the Wild meridian prism. This is adapted on the objective of the theodolites Wild T_2 and Wild T_3,

d) Description and mode of use of the Roelofs solar prism allowing pointings on the center of the solar disc instead of the limb as was done untill now.

Some of these subjects were treated in several cessions and the students were subsequently trained to the use of the instuments. The results were very satisfactory.

The Head of the Department
Prof. I. Argyrakos

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