

Mr. T. Barkley

# WATS ON

J43/1164

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## SALES CONFERENCE

The next Sales Conference at Barnet will commence at 2.15 p.m. on Wednesday January 27th. The programme will close at midday on Friday January 29th, leaving the afternoon free for routine commercial matters.

A copy of the programme will be forwarded to you as soon as planning is complete. It is hoped to be able to include sessions on Micro System 70, Projection bases for Service 3 and Bactil-60, CdS Exposure Meter and Zoom Stereo accessories. Hotel accommodation is being booked for Wednesday and Thursday.

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The Editors join in wishing all of you a very Happy Christmas and a more prosperous new year in 1965.

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# WATS ON

J44/1164

C

## CHRISTMAS SPIRIT ?

There seems to be a lack of orders coming into this office from the representatives. Perhaps it is that they are withholding these in the hope of cashing in on the new incentive scheme which starts in January.

The above mentioned scheme covers five products, the Trinac, the Service 3, the Zoom Stereo, the Eyepiece Camera and the Polaroid Land Camera. Each representative has been given a target to be achieved during the last quarter of the financial year and the Export Department are also trying for the Jackpot.

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# WATS ON

J45/1164

U.C.

## CdS Exposure Meter.

Your attention is drawn to the fact that the list price for this meter has been fixed at £29 and delivery should become available towards the end of January. A sales leaflet is in the course of preparation and this item should be a help towards obtaining targets in the incentive scheme particularly for a Trinac. An instruction booklet for the latter is being prepared and one point well worth noting is that for a given interpupillary setting, the camera can be so adjusted on the third tube of the Trinac to make it unnecessary to refocus with the viewing eyepiece of the Eyepiece Camera. Focusing can be carried out through the binocular head before exposure.

The CdS Exposure Meter will be packed in a standard carton with preformed resin bonded wood wool. The instrument will eventually be sold in a polythene bag and a separate plastic dust cover will also be supplied. A battery is included with the outfit which has been allocated code number 783. Operating instructions will be printed on the rear panel of each meter.

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# WATS ON

J46/1164

C

## ZOOM STEREO

The x 0.4 auxiliary lens has now been approved for production with first delivery towards the end of April but this is subject to glass supplies being available from Chance Brothers. Two prototype lenses are available for demonstrations - please apply to Mr. Jackson - the code number for this item is 518.

The rackwork long arm stand, code 512, is now available and has been generally well received. Representatives will be receiving their demonstration models (together with a fork lift truck) in the near future. You are reminded that this stand will accept the inclined zoom box for either conventional or reverse positions as well as the vertical zoom box. Delivery of the latter is expected within the next few weeks. Representatives are also reminded to return to Barnet as soon as possible their existing Zoom Stereo Microscopes for engraving of the new eyepiece tubes.

With thanks to the Department of Geology, University of Leeds, we have been able to establish a detailed specification for the polarising equipment for this microscope and preparation of prototype apparatus is in hand. Work is also continuing on the prototype of the incident illuminator and this should be available for you to examine at the next Sales Conference.

As we are getting low on our Zoom Stereo catalogues a new one will be prepared very shortly and it is intended to include the above mentioned new items as well as the micrometer eyepieces which are now also available.

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# WATS ON

J47/1164

C

## PROJECTION BASES

The projection bases for Service 3 and Bactil-60 incorporating the 100w. quartz iodine bulb are now almost ready and will be available for you to examine at the next Sales Conference. It has now been agreed to have fitted to these bases a continually variable control for light intensity rather than the stepped control fitted to the G. & S. conference microscope. The Kohler illuminating system will have a flicking auxiliary lens for use with the higher power objectives thus avoiding the use of such devices as flick top condensers. The bases will accept standard 2 x 2 colour filters and also the new polarising equipment. We are trying to establish suitable filters to enable the apparatus to be offered for blue light fluorescence microscopy.

Together with the bases a prototype of the viewing (not vibrating) screen is expected to be available before Christmas and for projection work it is proposed to use a microprojector eyepiece. It is anticipated that the complete Service 3 with projection base and viewing screen will be competitive with the G. & S. conference microscope.

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# WATS ON

J48/1164

U.C.

## EXHIBITIONS

Three successful exhibitions have recently been held as follows:-

University College of North Wales, Bangor,

Staffed entirely by Mr. Barkley whom we understand was extremely busy and made some most useful contacts.

Wolverhampton Technical College,

This was a one day show to the staff of the College and members of the local I.M.L.T. and undertaken by Mr. Stacey and Mr. Barkley. This has long term prospects of orders for the College and outlying hospitals.

University College of South Wales and Monmouthshire, Cardiff,

This was perhaps one of the best attended Watson exhibitions from which business has already resulted. Its success was due to a rather large degree to the work put in by Mr. Fryer.

Forthcoming exhibitions are, Association of Science Education at Imperial College, London, from December 30th to January 1st., where we will be showing a range of equipment primarily for use in schools, Labex, March 29th onwards and the Association of Science Education, Scottish branch at St. Andrews, early in April - equipment for these two exhibitions has not yet been planned. The next Watson exhibition will probably be in London.

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# WATS ON

J49/1164

C

## STEREOSCOPIC MICROSCOPES

Please find attached the first comparison of stereo microscopes primarily intended to advise you of the competition now coming from Vickers Instruments. It should be noted that their new instrument which uses objectives and eyepieces from the former range is only available with an inclined head and triple rotating nosepiece. The instrument is attractively designed but optically still no better than the Watson range. A feature of the Vickers transmitted light base is the bulb with two mirrors set at an angle to illuminate the two optical systems and their customers seem to be particularly pleased with this form of illumination. It should be noted that it is still necessary to use a ground glass stage plate to illuminate the lower power objectives. Primary investigations are being made at Barnet to design an equally efficient transmitted light base for our complete range of stereos. The Vickers simple long arm stand, priced at £20. 10. Od. does not offer all the advantages of the Bristol modified simple long arm stand although the latter is not yet in production. Development are also investigating the possibility of supplying the Bristol modified 862 with larger diameter vertical and horizontal pillars to make the stand more stable.

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	<u>WATSON</u>	<u>VICKERS</u>	<u>PRIOR</u>	<u>BECK</u>
850 Stereo	41. 0. 0.	Sterimag.	Stereomaster	Binomax
Simple Long Arm Stand	9. 15. 0.	x 10 or x 20	x 10	x 10 or x 25
1 Objective	9. 10. 0.		(Aux. lens to give x 20	
1 Pr. Eyepieces	9. 10. 0.		6. 0. 0.	
TOTAL:	69. 15. 0.	38. 4. 0.	40. 0. 0.	41. 0. 0.
Inclined head with triple nosepiece (1037)	47. 0. 0.	63. 0. 0. (reversible)	-	-
Stand for top lighting with stage plate and focusing assembly(1029+1054)	7. 10. 0.	7. 10. 0.	-	-
Transmitted light base (859)	8. 15. 0. (grnd.plt.only)	6. 10. 0. (with 3 plts. & stage clips)	-	-
Arm Rests	-	2. 12. 0.	-	-
Simple long arm stand (Modified 862)	19. 0. 0. (approx.)	20. 10. 0.	15. 10. 0.	-
Wooden Case (2120)	3. 10. 0.	7. 12. 0.	-	-
1057 Stereo	58. 0. 0.	70. 10. 0.	58. 10. 0.	-
3 Objectives	28. 10. 0.	23. 14. 0.	24. 0. 0.	-
2 Prs Eyepieces	19. 0. 0.	12. 0. 0.	14. 0. 0.	-
Streamlite	17. 10. 0.	16. 14. 0.	14. 10. 0.	-
Case (2120)	with stand.	7. 12. 0.	with stand.	-
TOTAL:	123 0. 0.	130. 10. 0.	111. 0. 0.	-
Box Foot 2027 Stereo	70. 0. 0.	70. 10. 0.	-	-
3 Objectives	28. 10. 0.	23. 14. 0.	-	-
2 Prs. Eyepieces	19. 0. 0.	12. 0. 0.	-	-
Built-in lamp	4. 15. 0.	6. 10. 0.	-	-
Arm Rests	3. 3. 0.	2. 12. 0.	-	-
Clear and ground plates	with stand	with base	-	-
Black/White plate	16. 0.	with base	-	-
Case (2114)	with stand.	7. 12. 0.	-	-
TOTAL:	126. 4. 0.	122. 18. 0.	-	-
Research 147 Stereo	87. 0. 0. (with mirror)	77. 0. 0. (with built-in lamp.)	72. 0. 0. (with mirror)	-
3 Objectives	28. 10. 0.	23. 14. 0.	24. 0. 0.	-
2 Prs. Eyepieces	19. 0. 0.	12. 0. 0.	14. 0. 0.	-
Streamlite	17. 10. 0.	16. 14. 0.	14. 10. 0.	-
Arm Rests	3. 13. 0.	2. 12. 0.	with stand.	-
Black/White plate	16. 0.	with stand.	with stand.	-
Case (2115)	with stand.	7. 12. 0.	with stand.	-
TOTAL:	156. 19. 0.	139. 12. 0.	124. 10. 0.	



# WATS ON

J50/1164

U.C.

The Export Department have asked us to make reference in this journal to the fact that the Mark 1F Barnet Ventilator which is required almost exclusively in the French Market has now received official approval from the French equivalent of the National Physical Laboratory.

In this connection it is interesting to note that the mark 1F apparatus (which differs from the ordinary mark II ventilator by being able to exert much higher negative pressures) was tested under the following conditions:

- (1) Frequency: 50 cycles per minute
- (2) Flow: 25 litres per minute
- (3) Positive Pressure: +23 c.m.  $H_2O$ .
- (4) Negative Pressure: -13 c.m.  $H_2O$ .

This ventilator worked uninterruptedly for 2906 hours, day and night, without any adjustment, no servicing and was still working perfectly when the test was called off because it seemed that it would otherwise go on for ever.

# WATS ON

NOVEMBER, 1964

T.S.M. No. 22

U.C.

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## FLUORESCENCE MICROSCOPY

We have at the office reprints of two articles by Ludwig von Bertalanffy and Felix D. Bertalanffy entitled "Acridine Orange Fluorescence in Cell Physiology, Cytochemistry and Medicine" and "Fluorescence Microscopy for the Rapid Diagnosis of Malignant Cells by Exfoliative Cytology" respectively. The former article is summarised below:-

1. The article reviews history and theory of acridine orange fluorescence microscopy in application to (i) vital staining, (ii) fixed preparations.
2. Acridine orange as a cytotochemical reagent for nucleic acids (DNA and RNA) is discussed in detail. This has especially been applied (i) to cytodiagnosis of cancer; (ii) in virus research; and (iii) in cell physiology.
3. The physicochemical and cytochemical bases of the acridine orange fluorescence technique after Bertalanffy et al. are presented in detail.
4. Correlations between RNA content, protein synthesis and cell renewal are demonstrated by the acridine orange technique.
5. Effects of radiation on cytoplasmic RNA are discussed with respect to clinical and experimental observations and their implications.
6. Acridine orange fluorescence leads to new concepts in the problem and theory of cancer. It emphasizes the possible role of cytoplasmic RNA (basophilia, ribosomes) in malignant growth. Recent facts and theories are discussed in view of the concept that cytoplasmic changes may play a more fundamental role in carcinogenesis than hitherto assumed.

These articles are available for short period loan to any representative wishing to borrow them.

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# WATS ON

NOVEMBER, 1964

T.S.M. No. 23

U.C.

## ONE DAY COURSE IN MICROSCOPY FOR TECHNICIANS

HELD AT BARNET ON MONDAY, 21ST DECEMBER, 1964

After several requests from various technicians throughout the country it was decided to hold this course for a small number of people drawn from different departments and different fields of microscopy. Those attending were as follows:-

Mr. Waggot	-	Department of Anatomy,
Mr. Henderson		University of Newcastle.
Mr. Gould	-	Department of Pharmacy,
		Welsh College of Advanced
		Technology.
Mr. James	-	Royal Infirmary, Derby.
Mr. Thomas	-	Department of Pathology,
Miss Norman		St. Paul's Hospital,
		Hemel Hempstead.

The course was organised by Mr. A.C. Terrell and consisting of the following:

The lecture on microscope optics by Mr. Terrell which went briefly into the various types of aberrations in a lens system and how they can be corrected, also details of the various forms of illumination and how they can be set up. We then had a short talk from Mr. Eyre of the Servicing Department of how to clean a microscope. The few minutes left before lunch were taken up by Mr. Terrell giving very brief outline on measurement techniques in microscopy.

After lunch Mr. Parkyn of the Technical Department gave a lecture on photomicrography with some practical demonstrations. The technicians appeared to be very interested in this as they felt they were beginning to get down to the more practical aspects of microscopy which was their main interest. The rest of the day was taken up with practical work and discussions. We had in the laboratory various microscopes and lamps which the technicians were asked to set up and do some practical experiments. These were as follows:-

1. Setting up Kohler Illumination using a regulite lamp and Service microscope and then comparing x 40 Parachromatic objective with

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# WATS ON

a x 40 flat field and a x 40 Apochromatic, noting the following:

- a) only the flat field objective can be used satisfactorily with the lowest magnification eyepiece because of field curvature.
- b) all the objectives show transverse colour with the Huygenian eyepiece.
- c) only the Fluorite oil immersion objective and the Apochromatic objective have adequate resolving power for the x 20 Compensating eyepiece.
- d) that the Apochromatic objective gives no noticeable residual colour with an unstained specimen.

Specimens provided were a blood smear and an unstained diatom slide.

## 2. Photomicrography:

The technicians were asked to take a photograph of a trichromed section using a Bactil-60 and Land Camera with the CdS Exposure Meter.

## 3. Measurement with Eyepiece Graticule:

They were asked to calibrate a graticule with a stage micrometer and then to measure a diatom, then they were asked to adjust the drawtube to obtain an exact calibration using a 16mm. objective.

## 4. Measurement with the WISE:

They were asked to calibrate the WISE using a stage micrometer and then to measure one of their own hairs.

## 5. They were asked to set up Phase Contrast equipment on the Bactil-60 and also dark ground.

As I said earlier this course was an experiment to find customer reaction to this type of course. On the whole, this was extremely favourable, all the technicians said that they had learned a great deal and all emphasized the fact that most text books on microscopy (up to the present) did not go nearly far enough into the practical aspects of microscopy, especially as regards the correct equipment to use for a specific job. Most of the technicians felt that the morning lecture by Mr. Terrell, although very interesting, was slightly above their heads, but were sure that if they heard it again or read about the various things he had mentioned in the text book they would probably understand it a lot better.

All were most interested in the practical use of the microscope and it was obvious that most of them had very little idea on how a microscope should be set up properly, all said that they felt that this course would cause a



# WATS ON

great deal of interest in a wide circle of technicians if it were to be continued.

I sat in on the morning lecture and helped Mr. Terrell in the afternoon with the practical demonstrations and I am certain that this was very worthwhile time if we decide to do this again I would feel that more time could profitably be spent in practical work and perhaps some time devoted to dealing with individual problems raised by the technicians.

R.K. Stacey

# WATS ON

NOVEMBER, 1964.

T.S.M. No. 24.

U.C.

## ABSTRACTS FROM RECENT PUBLICATIONS

### 'Laboratory Practice' Vol. 13 No. 11, Nov. 1964.

Optical Design and the Zoom Stereoscopic Microscope,  
by T.A. Minns.

A detailed discussion of the various possible forms  
of stereoscopic microscopy and a detailed description  
of the Watson Zoom Stereo Microscope.

### 'New Scientist' No. 420, 3rd December, 1964.

Is medical teaching out of date?  
by Dr. Donald Gould.

The medical curriculum is to be reviewed. At present,  
medical students spend a great deal of time in learning  
things of little relevance to their eventual careers by  
obsolete methods. A broad grounding in human biology,  
as is being tried at Keele, may be the answer.

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