



TEXAS SOCIETY FOR ELECTRON MICROSCOPY

TEXAS SOCIETY FOR ELECTRON MICROSCOPY
NEWSLETTER

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Dr. C. Ward Kischer, Newsletter Editor

Letters and Inquiries to:

Dr. C. Ward Kischer
Editor, TSEM Newsletter
Department of Anatomy
UTMB
Galveston, Texas 77550

Current Membership Strength: 300 individuals
17 corporations

POWER AND THE SCIENTIFIC COMMUNITY

"Its not what you know,
Its who you know".
—old saying, Anonymous

"It all depends on whether you can make a word
mean so many different things," said Alice.
Humpty Dumpty replied, "It depends on who is
master, that is all."
—Through the Looking-Glass, Lewis Carroll

"Power To The People"
—V.I. Lenin. Now a
popular chant of Third
World Group.

The three quotations cited above are pertinent especially to the present status of establishment institutions. They, in order, nearly depict the evolutionary relationship between people and institutional establishmentarianism, and between the latter and people, again.

That is to say, people organize in such a way as to establish an institution, which eventually seems to embody elements of a closed society.

This occurs partly as a result of the ego-centered nature of man, partly for protective measures, and partly for perpetuation of a hierarchy.

It also occurs as a simple result of explosive growth! When the natives become restless, authority moves protectively, enshrouding itself with political double-talk and mystery. Soon, individuals are left battling against shadows. Often, they cannot even find the so-called enemy.

Today, the scientific community finds itself in a precarious

position, a super-organized community with unusual resources for financial support (despite the problems you've heard about), physical plants unequaled anywhere in the world, a manpower supply of the highest magnitude, and a peck-order to match it?

Now picture if you will this institution (for that is surely what it is) threatened by a significant loss of funds, even those for maintenance, and a crushing oversupply of members. The natives indeed become restless, they want in, a piece of the action, if you will, but there is no place for them. Just like the problematical cow tethered to a tree, the hierarchy begins to move in a logarithmic spiral, the fixed point being a collective egotism, the patronage of which is passed back and forth, back and forth, which serves also to shore each other against small threats from without.

Remember, a few issues back I mentioned the possibility that the Ph. D. market will never again see good times, simply because we are at the beginning of a new stage in education, that of returning a college education to its proper niche. This means also, that technological progress, which has come from the college-trained, has finally been recognized as not necessarily inherently divine.

Therefore, the scientific hierarchy very skillfully, and protectively, has been and is selecting its members, often with no better rationale than to preserve "the family" for the sake of centralized power.

How is this done? Let us look at three methods, each of which is vital to our own career, that is, the success of it.

The Scientific Societies

One joins a Society, even as a graduate student, for two basic reasons, 1) to establish scientific communication in the

areas on one's interest(s), and 2) to be recognized as professional. But, oh!, how difficult it is if you have the wrong 'genealogy'!

As a student, and as a young practicing scientist, have you ever been discussing something with one of the recognized members of the hierarchy, only to be rudely interrupted, then left alone in mid-sentence? More pressing matters, assuredly, demanded his time. This scene is repeated, also, when one touches on a subject which could be embarrassing in discussion.

For example, when I was a graduate student I stood rather in awe of the so-called "established" members of the field. Gradually, however, I began to probe deeper and deeper into their knowledge until one day I discovered that many of them did not know much of what they talked about. I wondered at that time: how could guys like these run and control societies? until I realized that I, as that student, and I, as that junior member of the society, who stood silent and respectful, assuming my stupidity and naivete, supported and perpetuated the hierarchy.

If the majority, or at least a major portion of the 'silent supporters' acquiesce to the presumption of knowledge, skill and good judgement, all sorts of aggrandizements may occur, and worse, politics become open.

Consider, if you will, the American Society for Cell Biology. A wing of this organization which already controlled the Society, tried to evoke political endorsements in the name of the Society after the 1968 Chicago Democratic National Convention. Failing to get a clear endorsement against Chicago and Mayor Daley the following year saw demonstration tables taken over by "Stop The

War" propagandists. Dr. Walter Plaut's table was so commandeered, and after being notified of a complaint, refused to evict the solicitor. Dr. Taylor, then President of the Society, also stubbornly refused to do anything about it.

Only after a small group of 4 of us threatened to admit members of the John Birch Society, did we get action. Thirty minutes later the table was cleared.

This particular Society now has adopted a policy of selecting papers for platform presentation. The claim is that the Society is too big, too many papers are submitted, costs would be too great, etc. The wonder is, why in the ASCB? The EMSA is as big, yet if one pays his dues, he may present a paper at a meeting.

And that is how it should be. One joins a Society to be recognized as a professional within the profession. If the right to present your work is taken away from you, you are nothing more than the carpet on which all the shoes walk, without which re-soling costs might be prohibitive.

Last year, a member of the ASCB stood up in the business meeting and offered an alternate plan for selection of papers by Session Chairmen (who, by the way, are picked by the local arrangements committee, who, in turn, is picked by the Executive Council). This person is one of the hierarchy, and finished his offering with the comment that he had "no vested interest" in the subject of selection. Even though the payment of \$12.00 annual dues "vests" one in the Society, this person was probably right. In other words to get out of the Society what he wanted, he did not have to proceed through approval of the general membership. He had only to approach one of the ruling class!

Steven Birmingham in his book "The Right People" demonstrated that one cannot break into the ruling or inner circles of a society or group with knowledge, or even money. The 'right people' are in fact those who have acquired and held onto, property or position the longest! So, you see, in order to establish this condition one must pass on the positions to other generations. Very often, it is the graduate students of those in power who ascend fastest. And, to sustain the positions, the logarithmic spiral begins, and so does degeneracy.

If you don't see a parallel here with scientific societies, I'll eat my hat and yours, too.

"Let the ruling classes tremble", said Marx. End of lesson number one.

Grantsmanship

The Ph. D. degree is a research degree. That is to say, by virtue of the requirements to obtain the degree, upon its award, one is recognized as having the ability to perform independent investigative research. One may elect, however, as an alternative, to teach for his career. There is no axiom which connects research competence with teaching ability (the subject for a future editorial).

To those who desire to pursue research as a sole or major portion of his career, financial support of the research is obvious.

Many years ago, the National Institutes of Health were founded to provide funding for individual research efforts. Prior to this one was dependent upon the benevolence of the departmental chairman, foundations, philanthropers, etc. Or, if the research were applied, one could often obtain support from private industry.

When NIH and NSF, and other granting agencies, moved into the research support field, it quickly became recognized that an equitable system of support had to be established. Thus began the system of 'peer review', and this so-called system is in effect today.

How peer is it, though? Study sections were established to review grant applications, and these groups supposedly were to render an unbiased, cross-sectional view of one's proposed work. Is this possible? You must remember the nature of man, an ego-centered creature whose basic instincts are survival, not only in the physical sense but, because man is also gregarious, in the political sense, too. Therefore, it is impossible for one person to be completely unbiased. Thus, the supposed cross-section of a given field of research.

Two factors should now become apparent, 1) the present make-up of some sample study sections, and 2) how members are chosen.

Let's try three study sections, which may affect us in particular. There are 13 members listed for the Molecular Biology Study Section. Of those, 4 are from California institutions, and 6 from the eastern seaboard; 2 are from Texas and 1 from Tennessee.

Consider the Cell Biology Study Section. Three are from California, 6 from the eastern seaboard, 1 from Colorado, and 3 from the Great Lakes area.

Look at the Human Embryology and Development Study Section. Four from California, 5 from the eastern seaboard, 4 from the Great Lakes area, and 2 from Colorado.

That's enough! Where are the depressed areas? That's easy. The west central from Canada to Mexico and everything south of the Mason-Dixon line. It is my guess that study sections as a whole probably scrutinize these areas just like a New York City cab driver. "Youse guys still got them injuns runnin' 'round out there, ain'tcha?"

Perhaps my main gripe about study section members is that it is apparent too many of them perform in a perfunctory manner, or as dilettantes. No applicant has recourse to argue viz-a-viz!

If one is fortunate to obtain a summary critique of a rejected grant, it readily becomes apparent that the peer review method itself needs a bit of peer review! I have had grants accepted (and funded, and from NIH) and I have had grants rejected both for good reasons and for patently absurd reasons. Up until recently, when confronted with the latter I have acquiesced to absurdities and avoided polemics; but, no more! It is time to speak up, and it is time for many bystanders in the scientific community to speak openly. Otherwise, the degeneracy of the logarithmic spiral will become irreversible!

As to how members of Study Sections are chosen, I will quote from a member of a Study Section (and this also applies to grant priority rankings), "It's all run on the buddy system". His brief solipsism ended with a smile and the comment, "It's nice to have friends".

Publish or Perish

To gain in rank within the profession, one must publish. In fact, before one can obtain a federal grant, he is expected (by hook or crook) to have published something, somewhere.

Again, one confronts the so-called peer review when submitting a manuscript of data. What are the criteria used for determining acceptance or rejection of manuscripts?

An editor of a leading journal once told me, "clear originality and significance to the community of science". While that sounds noble and glorious, indeed, it must be recognized that significance in this instance cannot be used in the statistical sense, but in the relative sense. Thus we see another instance where bias and avarice may be practiced.

Originality must of necessity be used in the strictest sense and not in the theatrical sense.

Therefore, while this editor is correct, the criteria given are not specific enough.

I would go further nearly to the point of competence given until proven otherwise (such as suggested by Szent-Györgyi, see below), an "innocent until proven guilty" sort-of-thing.

That is to say, articles of scientific research should be published on their own merit, with the following conditions: that they do not contain lies, falsification of data or misuse of data; that they not be published elsewhere, even in a shrouded form; that they are not plagiarisms; and, finally, that they follow in a reasonable and readable form a basic presentation of the scientific method. The one positive criterion should be the presentation of new information.

Now, listen, can you hear all the scratching going on? The thrones are trembling at reading the above! So, we bear over and over the admonition that the journals are crowded with meaningless garbage, redundancy, and useless information. I say, r

those are judgements which only history can make. Let them stand by themselves.

Conclusion

Albert Szent-Gyorgi, writing in Perspectives In Biology and Medicine (Looking Back, autumn, 1971), suggests that anyone who has "shown himself able to do research should not be compelled to write projects at all".

When I first read that, I thought it utter nonsense. Now, I am not so sure. It is an idea worth pondering. He goes on to say, "the explosion of knowledge" is not a real problem, but "what is bad is the mass of printed words. It is the organization of science that is to blame for it. In giving out grants we judge....by the number and weight of the papers. This teaches our youngsters...to think in terms of papers and to choose problems sure to yield a paper." Thus, the spiraling degeneracy.

I have charged enough, yet, not enough. To be sure, the scientific community continues to display benevolence, prompts open and free speculation and encourages its young. But these fertile grounds are being sacrificed as the tethered cow continues to wind around that tree.

I'm afraid we suffer under the illusory concept that there is something intrinsically honorable and true in science which prevents aggrandizements and equivocations by throne seekers, politicians, and the establishment of a caste system sustained by political patronage.

I have written this essay because I am sick of hearing the old saw that the system is not perfect, but it's the best we have.

Balderdash! It is not the best we have if only because there

are not enough polemics! I entreat you, do not acquiesce before the scientific establishment simply on the basis of presumption. I don't mind being low in the peck-order, but I'll be damned if I'll be there for the wrong reasons!

Pursue, but honestly, until each person rendering judgements for your career is required, himself, to fulfill his professional obligation.

What I call for in our profession is equity, indeed Socratic Democracy!

Let us not come to that end as did Socrates, foreseeing the frailties of human nature, when after a lifetime of devotion to democratic ideology he stood atop an Athenian hillside and said, "Bury me deeper into the ground. In vain I have fought for democracy!"

Ward Kischer

Editor

PRESIDENT'S MESSAGE

This past year has been a successful one for the Texas Society for Electron Microscopy due primarily to the interest of our membership. Our fall meeting in Houston was attended by some 150 persons who heard stimulating discussions by Daniel Pease, Ned Feder, Arnold Seligman and S. J. Singer. The winter meeting in Fort Worth was also well attended and we were very fortunate to have Keith Porter, Lee Peachey and R. M. Fisher as guests. The present meeting features Jean-Paul Revel as well as a program of student presentations. The success of all the meetings has been due to our program chairman Dr. Jeffrey Chang as well as the local arrangements committees headed by Drs. Terry Hoage and Ernest Couch.

As of August 1st, both your retiring President and current Treasurer will assume new positions in New Orleans at Tulane University. We extend our appreciation to the membership for their assistance over the years and we look forward to future joint TSEM-ISEM meetings.

—Robert D. Yates

EMSA PRESIDENTIAL SCHOLARSHIPS

Editor's Note: In the last issue of the Newsletter Tom McKee wrote a letter to the membership encouraging graduate students to apply for EMSA Presidential Scholarships. Although the deadline for the August Los Angeles EMSA meeting is past, you should keep the following in mind for future meetings. I'm sure this will be a continuing program.

The Executive Council has voted to create up to twenty annual EMSA Presidential Scholarships in order to promote student interest and participation in the scientific presentations at the Society's annual meetings. Each scholarship will have a cash value equivalent to the student's round trip airplane fare (tourist class) to the meeting.

Regulations for EMSA Presidential Scholarships:

1. In order to be eligible a candidate must be a bona fide student at the time of the annual meeting and at an institution located more than 100 miles from the site of the meeting.
2. Application is made by sending a proposed abstract in the form usually submitted for inclusion in the Proceedings to the President of the EMSA no later than one month prior to the announced deadline for the final receipt of abstracts. EMSA President for 1972- Dr. Daniel C. Pease, Dept. of Anatomy, U.C.L.A. School of Medicine, Los Angeles, Calif. 90024
3. Each application must also be sponsored, as indicated with a signed statement, by a member of the EMSA.
4. The President will then select up to twenty worthy applications, at most ten from the biological field, and at most ten from the physical field.
5. Students submitting the selected abstracts will be notified and will be expected to attend the meeting and present their work at a regular scientific session. The award will be given only if the student is there to present his paper in person.
6. Scholarship winners will receive complimentary registration at the annual meeting, including a copy of the Proceedings, and a banquet ticket. Later during the meeting he will be reimbursed for his round trip airplane fare (tourist class).

REPORT ON THE DIAMOND KNIFE QUESTIONNAIRE

Twenty four (24) questionnaires were received by the Editor. Although in a few instances the information returned was difficult to extract and classify the following is generally representative of the major information:

The 24 returned questionnaires listed a total of 145 diamond knives, classified as follows*:

	<u>DuPont</u>	<u>Hacker</u>	<u>Rondikin</u>	<u>Other</u>
Good quality	54	7	4	5
Poor quality	19	12	7	2
Questionable quality	32	0	4	0

Fellow TSEM members, it seems from the above that many problems exist! The most common complaint received related to resharpening, which bordered on mostly unsatisfactory, no matter what company one dealt with. Next in priority seemed to be the delivery time necessary for return of resharpened knives. And, third on the list was what seemed to be a callous disregard of complaints. Now this was mostly not true of DuPont, but appeared to be mostly true of Hacker. The matter of Hacker not properly honoring their guarantee also was mentioned by more than one person.

Five (5) respondents indicated satisfactory service on resharpening knives. Nine (9) respondents stated unsatisfactory service, and seven (7) had not had any knives resharpened.

Twenty (20) respondents were unequivocally for Guidelines subscription by suppliers and manufacturers. Eighteen (18) supported the idea of Surety bonds bought by the supplier to guarantee their guarantee! One person said "no comment" to this, another stated, "no, do business elsewhere", and another said it "was not necessary" from their experience. Their suppliers included only DuPont and Rondikin.

One person suggested legal pressure groups, another suggested "threat of boycott" as methods to deal with the difficulties.

It is obvious that something must be done. On a collective basis, your Editor believes the best approach is to urge the parent EMSA to formulate guidelines and ask all suppliers to subscribe and to publish the names of those who refuse.

On an individual basis, two important sources of recourse

*This does not include one questionnaire returned listing 25 to 30 knives with no breakdown as to manufacturer. This questionnaire was not included in any further data.

are available: 1) the Better Business Bureau, and 2) the Federal Trade Commission. The BBB will accept your plea, and they will seek your protection as a consumer. The Federal Trade Commission may not accept a complaint and will not mediate a complaint. However, they will respond to a consistent complaint relative to false advertising or compliance with the Fair Trade Practices Act.

And better yet, the FTC will respond to a collective complaint concerning consumer legislation.

This matter should be thoroughly aired at the Business meeting.

FOR OUR BRETHREN IN THE PHYSICAL SCIENCES

A course is offered at the University of Pennsylvania, 297 Towne Building, Philadelphia, 19104, this summer June 5-9 in Advanced Electron Microscopy: Contrast Theory and Applications. Tuition \$360. Write: Director, Continuing Engineering Studies.

THE ULTRASTRUCTURE OF MITOSIS

The capacity to reproduce is perhaps the most fundamental feature of living organisms. The process of cellular reproduction in higher organisms is a sequence of temporal events generally referred to as the cell cycle. In essence, it is a composite of biomolecular events leading to the replication of the genetic apparatus and its equi-distribution to daughter cells. During a brief moment in this fascinating process, the chromosomes appear and undergo delicate ballet-like movements within the cytoplasm. Later they are equatorially distributed into opposite regions of the cells and the cytoplasm divides into two parts. This process, called mitosis, is depicted in survey electron micrographs on the opposite page. Although mitosis was first described over 100 years ago, we still know far less about the molecular mechanism of this process than is known about other, more recently discovered events of the cell cycle.

In recent years, the electron microscope has been a valuable tool for bridging the gap between the well characterized morphological events of mitosis and the molecular mechanism which are yet to be fully elucidated. The first electron microscopic studies of mitosis were conducted in the late 1950's by L. Evans Roth and Edward Daniels, and subsequently by Patricia Harris. Their studies confirmed the presence of filamentous components within the spindle fibers. Although Roth and Daniels coined the term spindle filament, subsequent studies in Keith Porter's laboratory later revealed that the spindle filament was in fact, a microtubule of approximately 200-250 Å in diameter. The development of glutaraldehyde as a fixative by Sabatini, and co-workers in the 1960's, greatly facilitated ultrastructural investigations on mitosis. In the 1960's, numerous laboratories became interested in the use of mammalian tissue culture cells for electron microscopic studies of mitosis. In 1964, Elliot Robbins and N. K. Gonatas published the first detailed account of the fine structure of mitosis in HeLa cells using modern, high resolution electron microscopy. The early EM descriptions of centriole structure in animal cells by De Harven were also an important step in understanding the mitotic process. In subsequent years, numerous investigators have been concerned with the process of regeneration of centrioles in animal cells and the importance of these organelles in establishing the bipolar spindle for mitosis. More recently, electron microscopists have identified a new component associated with microtubules of the mitotic spindle. The structure, a delicate cross-arm connecting adjacent pairs of spindle microtubules, may be analogous to the cross-arms between actin and myosin of striated myofibrils and may serve as an ATPase for force transduction. The identification of fine microfilaments associated with mitotic apparatus has led other investigators to speculate that other filamentous components in addition to microtubules are necessary for chromosome movement and spindle dynamics.

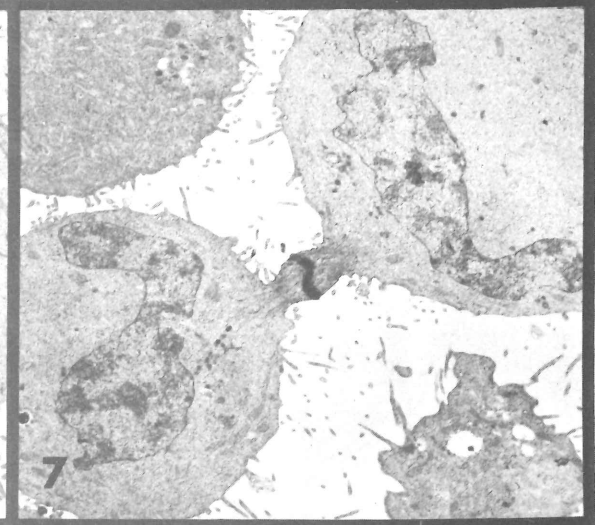
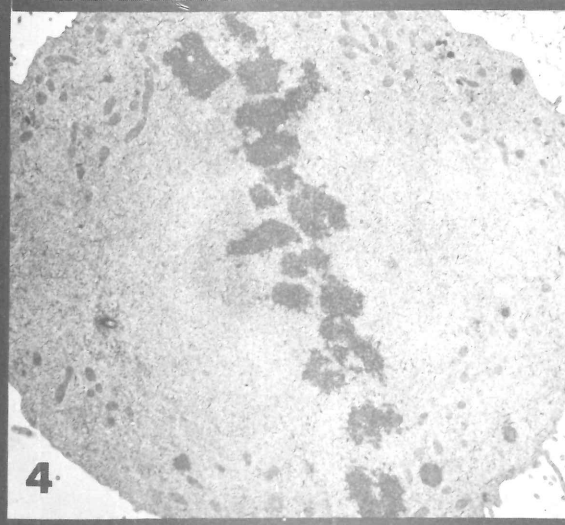
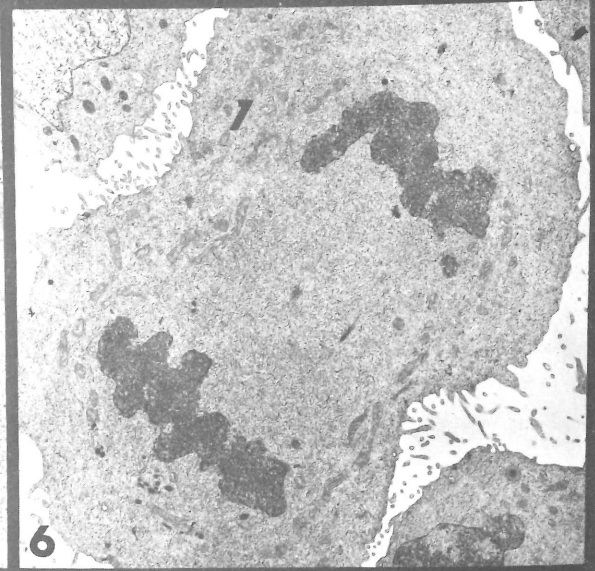
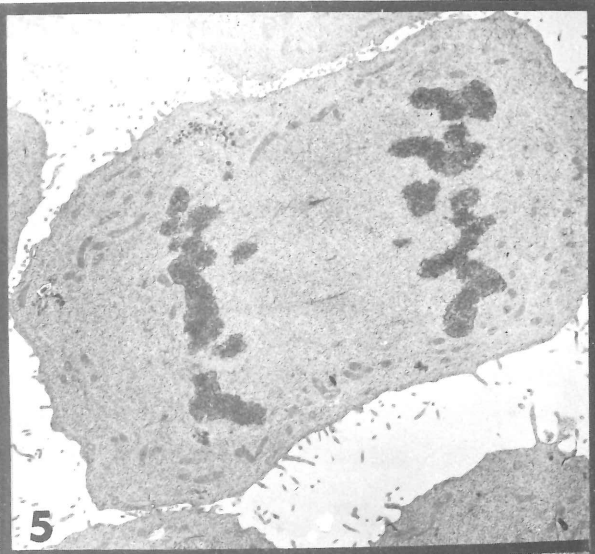
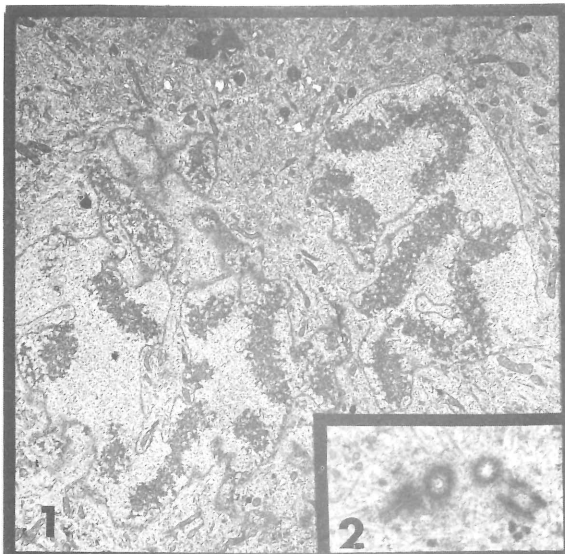
It is fairly certain that electron microscopy alone will not provide the ultimate answer concerning the molecular basis of mitosis. Nevertheless, it has, and will continue to play a key role in elucidating this important event. In the case of mitosis, it is not the sophistication of techniques nor the relevance of the problem to human needs which inspires investigators, rather, in the words of R. Bruce Nicklas, "It is the intriguing complexity and beauty of the process itself which animates most researchers."

—Bill Brinkley

Plate Descriptions

1. Late Prophase prior to nuclear envelope disruption, rat kangaroo fibroblast. X 6,000.
2. Complete centriole complement in prophase cell of rat kangaroo fibroblast. X 12,000.
3. Prometaphase with disruption of nuclear envelope and migration of chromosomes to metaphase plate, rat kangaroo fibroblast. X 4,000.
4. Metaphase. Chromosomes are aligned on the cell equator. HeLa. X 4,000.
5. Late Anaphase. Chromosomes have moved to pole and spindle elongation has begun. HeLa. X 4,000.
6. Telophase. Nuclear envelope has reformed and division of cytoplasm (cytokinesis) has begun. HeLa. X 4,000.
7. Daughter cells with Flemming Body. This cytoplasmic bridge is the last remnant of mitosis and is filled with spindle microtubules. It will be discarded resulting in two intact daughter cells. HeLa. X6,000.

— B. R. Brinkley
M.D. Anderson Hospital
Houston, Texas



BOOK AND FIELD REFERENCES

General

- ADVANCES IN OPTICAL AND ELECTRON MICROSCOPY - R. Barer and
V. E. Cosslett, Eds. 1966 Academic Press
- LECTURES ON ELECTRON MICROSCOPY - Robert W. Horne 1965 Istituto
superiore di sanita, Rome, Italy
- FUNDAMENTALS OF TRANSMISSION ELECTRON MICROSCOPY - R. D. Heidenreich
1964 Interscience
- ELECTRON MICROSCOPY AND ANALYSIS - Edit., W. C. Nixon 1971
Proc. 25th Meeting of EMAG Gordon Institute of Physics
- INTRODUCTION TO ELECTRON MICROSCOPY - Saul Wischnitzer 1970
Pergamon Press
- MODERN DEVELOPMENTS IN ELECTRON MICROSCOPY - Benjamin M. Siegel
1964 Academic Press
- THE WORK OF THE ELECTRON MICROSCOPE - Ralph W. G. Wyckoff 1968
Yale University Press
- TECHNIQUES FOR ELECTRON MICROSCOPY - Desmond H. Kay Ed. 2nd Ed.
1965 Oxford Press
- INTRODUCTION TO ELECTRON MICROSCOPY - G. E. Hall 1966 McGraw-Hill
- ELECTRON OPTICS - B. Paszkowski 1968 Elsevier
- ELEKTRONENMIKROSKOPISCHE UNTERSUCHUNGS UND PREPARATIONS-METHODEN-
L. Reimer 2nd Ed. 1967 Spring Verlag
- INDEX TO MICROSCOPY IN THE ASTM LITERATURE - N. Myers 1971
Order from G. G. Cocks, ASTM Comm. E-25, Olin Hall,
Cornell Univ., Ithaca, N. Y.

Biological

- ATLAS OF VERTEBRATE CELLS IN TISSUE CULTURE - G. Rose 1970
Academic Press
- BIOLOGICAL TECHNIQUES IN ELECTRON MICROSCOPY - C. Dawes
1971 Barnes and Noble
- INTRODUCTION TO THE FINE STRUCTURE OF PLANT CELLS - M. C. Ledbetter
K. R. Porter 1970 Springer-Verlag
- ELECTRON MICROSCOPY OF CELLS AND TISSUES - Fritiof S. Sjostrand
1967 Vol. 1 Academic Press
- HISTOLOGICAL TECHNIQUES FOR ELECTRON MICROSCOPY - Daniel C. Pease
1964 2nd Edition Academic Press

SOME BIOLOGICAL TECHNIQUES IN ELECTRON MICROSCOPY - D.F. Parsons,
Ed. 1970 Roswell Park Memorial Institute, Buffalo, New York

AN ATLAS OF FINE STRUCTURE OF THE CELL - Don W. Fawcett 1967
W. B. Saunders Co.

ELECTRON MICROSCOPIC ANATOMY - Stanley M. Kurtz, Ed. 1964
Academic Press

CELLS AND TISSUES BY LIGHT AND ELECTRON MICROSCOPY - Edmund B.
Sandborn Vol. I, 1970 Academic Press

CELLS AND TISSUES BY LIGHT AND ELECTRON MICROSCOPY - Edmund B.
Sandborn Vol. II, 1970 Academic Press

AN ATLAS OF ULTRASTRUCTURE - Johannes A. C. Rhodin 1963
W. B. Saunders Co.

ELECTRON MICROGRAPHS - BIOLOGY 2, E. Yamada, K. Fukai, and
Y. Watanabe, Eds. 1966 (This publication accompanys HITACHI
electron microscope)

THE ELECTRON MICROSCOPE IN MOLECULAR BIOLOGY - G. H. Haggis
1966 Longmans

ELECTRON MICROSCOPY: A Handbook for Biologists - E. H. Mercer and
M.S.C. Birbeck 2nd Ed. Oxford Press

PRACTICAL ELECTRON MICROSCOPY FOR BIOLOGISTS - G. A. Meek 1970
John Wiley and Sons

PRINCIPLES AND TECHNIQUES OF ELECTRON MICROSCOPY: BIOLOGICAL
APPLICATIONS, Vol I - M. A. Hayat 1971 Van Nostrand
Reinhold Co.

ATLAS OF HUMAN HISTOLOGY AND ULTRASTRUCTURE - J. L. Matthews and
J. H. Martin 1971 Lea and Febiger

ULTRASTRUCTURE OF HUMAN SKIN - A. S. Breathnach 1971 J. & A.
Churchill

Physical

ELECTRON MICROSCOPY OF THIN CRYSTALS - P. B. Hirsch 1965
Butterworth

ATLAS OF ELECTRON MICROSCOPY OF CLAY MINERALS AND THEIR ADMIXTURES
H. Beutelspacher and H. W. Van der Marel 1968 Elsevier
Publishing Co.

EXPLORING THE STRUCTURE OF MATTER - Jean-Jacques Trillat 1959
Interscience Publishers Inc.

ELECTRON MICROSCOPY AND MICROANALYSIS OF METALS -
J. A. Blek and A. L. Davies 1968 Elsevier Publishing Co.

ELECTRON FRACTOGRAPHY - ASTM Special Technical Publication No. 436
1968 American Society for Testing and Materials

TRANSMISSION ELECTRON MICROSCOPY OF METALS - G. Thomas 1962
Wiley

ELECTRON MICROGRAPHS OF LIMESTONES AND THEIR NANNOFOSSILS -
A. G. Fischer, S. Honjo, R. E. Garrison 1967 Princeton

INSTRUMENT AND CHEMICAL ANALYSIS ASPECTS OF ELECTRON
MICROANALYSIS AND MACROANALYSIS - H. A. Elion 1966
Pergamon Press

METALLOGRAPHIC POLISHING BY MECHANICAL METHODS -
L. E. Samuels 1971 Pitman and Sons

THE ELECTRON-OPTICAL INVESTIGATION OF CLAYS - Edited by
J. A. Gard 1971 Mineralogical Society 41 Queen's Gate,
London

ELECTRON MICROSCOPES, COST UNDER \$50,000

--Extracted from LABORATORY MANAGEMENT
April, 1972

ZEISS EM 9S-2

Approximate price: \$30,000
Mode: Transmission
Guaranteed resolution: 9A
Resolution obtainable: 7A
Magnification: 140-60,000x in
six steps, plus continuous
ranges from 900 to 5,000 and
from 5,000 to 60,000.
Viewing: Three 115 mm diameter
fluorescent screens and one 10x
binocular viewer.
Electron gun: 60 kv

AEI CORINTH 275

Approximate price: \$35,000
Mode: Transmission
Guaranteed resolution: 10A
Magnification: 600-100,000x in
12 steps.
Viewing: 16.5 mm sq. screen
Electron gun: 60 kv

SIEMENS ELMISKOP 51

Approximate price: \$19,000
Mode: Transmission
Guaranteed resolution: 35-40A
Resolution obtainable: 20-25A
Magnification: 1,250-12,500x in
four steps, useful magnification
with high-resolution emulsions
is 16:1, providing total
magnification capability of
200,000x.
Viewing: 115 by 54 mm window
(image size 80 mm dia.) and a
9x binocular viewer.
Electron gun: 50 kv

ULTRASCAN/TESLA BS-242E

Approximate price: \$16,000
Mode: Transmission
Guaranteed resolution: 25A
Resolution obtainable: 15A
Magnification: 1,000-30,000x in
10 steps.
Viewing: 10x binocular optical
microscope.
Electron gun: 40 or 60 kv

MATERIALS ANALYSIS SX-II

Approximate price: \$40,000
Mode: Scanning
Guaranteed resolution: 150-
200A
Magnification: 20-250,000x
Viewing: One viewing and one
photographic oscilloscope
Electron gun: 1-30 kv con-
tinuously adjustable

KENT CAMBRIDGE STEREOSCAN 600

Approximate price: \$35,000
Mode: Scanning
Guaranteed resolution: 250A
Magnification: 7-50,000x
Viewing: 95 by 124 mm CRT
Electron gun: 1.5-25 kv in
four stages

HITACHI-PERKIN ELMER SSM-2A

Approximate price: \$25,000
Mode: Scanning
Guaranteed resolution: 250A
Magnification: 20-20,000x
Viewing: Two oscilloscope
displays
Electron gun: 4, 10, and
20 kv

JEOL JSM-S1

Approximate price: \$27,000
Mode: Scanning
Guaranteed resolution: 250A
Magnification: 19-100,000x
Viewing: One CRT for viewing
and one CRT for photography
Electron gun: 4 and 10 kv

JEOL JEM-50B

Approximate price: \$9,000
Mode: Transmission
Guaranteed resolution: 100A
Magnification: 4,000x (30,000
on film)
Viewing: Fluorescent screen
Electron gun: 50 kv

JEOL JEM-T8

Approximate price: \$29,000
Mode: Transmission
Guaranteed resolution: 6.9A
Magnification: 650-100,000x
Viewing: Front viewing window
with 10x binocular scope, plus
two side viewing windows.
Electron gun: 60 kv

PHILIPS EM 201

Approximate price: \$43,000
Mode: Transmission
Guaranteed resolution: 6A
Magnification: 1,500 - 200,000x
in 14 steps
Viewing: Two viewing windows and a
binocular fine focusing screen.
Electron gun: 40 - 100 kv in
four stages.

AREA NEWS

Texas A&M University

Dr. E. Laurence Thurston, Coordinator of the Electron Microscopy Center at Texas A&M University, has reported the purchase of a JEOL JSM-U3 scanning electron microscope equipped with a transmitted electron detector and a non-dispersive x-ray spectrometer. Additional accessories were also purchased to enable the laboratory to capitalize on the versatility of this instrument. It is a worthy addition to the Electron Microscopy Center which serves as the nucleus of ultrastructure research at Texas A&M University. Dr. Thurston is primarily interested in applying the techniques of x-ray microanalysis to biological thin-sections. This procedure yields qualitative and quantitative data of elemental composition. A NOVA 1200 mini-computer is placed on line to handle the spectroscopy data and to print out information within approximately 5 min. Dr. Thurston will present the results of his recent research at a special SEM techniques symposium to be held in conjunction with the upcoming 30th annual Meeting of EMSA, Los Angeles.

Dr. Thurston also reported the recent purchase of a Phillips 300 EM and the pending purchase of a SEM by the USDA at Texas A&M.

Mr. James R. Scott, a research associate with the EM group, is publishing a useful EM technique paper in Stain Technology (July 1972), entitled, "A bulb-pipette-grid combination for fluid processing of small specimens used for electron microscopy".

Thomas R. McKee and Coy R. Morris, graduate students working within the EM Center, were awarded EMSA Presidential Scholarships to attend the 30th Annual EMSA Meeting and to present papers entitled, "Electron microscopical study of hallosite spherules" and "A morphological and crystalline structure analysis of particulate rare earth III fluorides". This is the second consecutive year Mr. McKee received this award.

Dr. U.G. Whitehouse will present a paper at the EMSA meeting in August in Los Angeles, entitled, "Some multiple bio-organic influences upon the electron optical character of montmorillonitic coacervates in saline water".

Texas Tech University:

Dr. Richard Hillman, Anatomy, College of Medicine, has acquired a Zeiss EM-9S and an MT-2 ultratome for his laboratory. Mrs. Barbara Apgar has just been hired as Chief Technician in charge of all Anatomy labs in the School of Medicine.

Dr. Jerry Berlin reports from the Biology Department that Nancy Cooper has been hired as a part-time technician in his lab. She has her Master's Degree from Venita Allison's lab at S.M.U.

Dr. Al Allenspach, Associate Prof. in Biology at Miami University of Ohio will be a guest speaker and visitor in Biology this June. Steve Barham, M.S. in May under Dr. Berlin will move to Galveston in July to begin a pre-doctoral program under Dr. Kischer at UTMB.

University of Texas Medical School at San Antonio:

Dr. Gerald Kirby, visiting assistant professor from Texas Tech, Lubbock, working in Dr. Ivan L. Cameron's laboratory, has just perfected a procedure for fixing and embedding Amoeba without morphological distortions.

Dr. Akira Arimura, The Endocrine and Polypeptide Research Laboratories, VA Hospital in New Orleans visited the Anatomy Department on Friday, March 3rd, and presented a seminar at Southwest Foundation for Research and Education.

A paper accepted for publication from the EM lab was entitled "Ultrastructural localization of antimonate deposits in the gastric mucosa" William B. Winborn, Charles M. Girard, and Leonard L. Seelig, Jr., CYTOBIOLOGIE (in press).

Baylor College of Medicine

Myocardial Biology

Dr. Barry Van Winkle is going to London for two years. He will be a lecturer in pharmacology at University of London, Royal Free Hospital School of Medicine.

Anatomy

Dr. Russell Deter is a visiting assistant professor in Lima, Peru, for the months of May and June in the laboratory of Dr. Humberto Guerra.

University of Texas, M.D. Anderson Hospital and Tumor Institute

Cell Biology

Dr. B. R. Brinkley is going to Hawaii to participate in the International Society for Developmental Biology Conference on Microtubules and Microfilaments to be held at the University of Hawaii May 27-29, 1972. The Conference is part of the dedication ceremonies for the opening of the new Kuwala Laboratory of The Pacific Biomedical Research Center.

Experimental Pathology

Dr. Jeffrey P. Chang has a busy summer ahead, including a trip to the Orient and an extensive guest lecturing agenda:

June 12-13, to lecture on "The Use of Cryostat," "The Section Freeze-Substitution," and "Ultracytochemistry of Monolayer Cells" at the Histochemistry Conference sponsored by the National Science Foundation and Vanderbilt University, Nashville, Tennessee.

June 26-28, to conduct workshops on "Electron Microscopic Cytochemistry of Seminiferous Tubules" at the annual meetings of the Society for the Study of Reproduction, East Lansing, Michigan.

July 12-August 20, to serve as a visiting professor for the National Taiwan University Medical School and National Defense Medical Center of the Republic of China, to lecture and to conduct laboratories on various subjects relating to histochemistry, ultrastructure, and ultracytochemistry, Taipei, Taiwan.

August 21-26, to attend the Fourth International Congress for Histochemistry and Cytochemistry to present a paper entitled, "Light and Electron Microscopic Demonstration of Chemical Substances in Monolayer Cells as Tissue Sections Attached to Teflon-Treated Cover Glasses," Kyoto, Japan.

August 31 to September 1, to serve as a panel member for the "International Symposium on Lysosomes," Hakone, Japan.

University of Texas Medical Branch at Galveston:

Papers presented at Pan American Congress of Anatomy in New Orleans:

"Ultrastructural studies on paraganglia innervation," by Joe A. Mascorro and Robert D. Yates.

"Prismatic and other unusual arrays of mitochondrial cristae in astrocytes of cats and hamsters." by Ricardo Morales and Donald Duncan.

Papers presented at the American Association of Anatomy meeting in Dallas:

"The effects of triparanol on muscle fibers of the rat atrium" by Robert D. Yates and Joe A. Mascorro.

The Phillips EM 300 recently installed in Dr. Yates' laboratory is functioning well and turning out beautiful negatives.

Mrs. Dora Patterson was recently promoted to the position of Research Associate I. Mrs. Patterson is associated with TSEM member Dr. Larry Ross, and both will soon be active in teratology research at the EM level.

Dr. Robert D. Yates has accepted the position as Chairman, Department of Anatomy, Tulane University Medical School, New Orleans. His Research Associate, Joe Mascorro, will be moving with Dr. Yates to Tulane in August.

CORPORATE MEMBERS

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Southwest District Office
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Humble, Texas 77338

The following we especially
welcome to new corporate member-
ship in TSEM. Many thanks for
your support.

CARROLLTON OPTICAL
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ELEKTROS, INC.
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OLYMPUS CORP.
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ETEC CORP.
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3392 Investment Blvd.
Hayward, California 94545

CORPORATE ADS

POLYSCIENCES, INC., Warrington, Pa.,

ELECTRON MICROGRAPH OPTICAL DIFFRACTOMETER, a device which enhances the resolution of electron micrographs by discriminating against random noise in favor of objects which possess small regularities or repeating features, is now available from Polysciences. This unit allows the full resolving power of electron microscopes to be attained by reducing the limitations otherwise imposed by noise and phase contrast effects. Comprehensive data sheet available.

ETEC CORPORATION, 3392 Investment Blvd. Hayward, Calif.

Etec Corporation, Hayward, California and Siemens AG, Munich, West Germany, have entered into an international sales agreement for the Etec Autoscan scanning electron microscope. According to James Dao, President of Etec and Dr. Lothar Seifert, Director of International Sales, Siemens AG, the Etec sales staff will continue to serve the United States, Canada and Mexico, and Siemens will serve the other countries of the world as exclusive sales distributor.

The Autoscan, capable of deep-relief magnifications from 7X to 240,000X was described as a clean, compact, functional, high-performance scanning electron microscope with unparalleled operational convenience. Nelson Yew, Etec's Vice President, attributes Autoscan's high performance to many unique automatic features such as contrast and dark-level adjustment, dynamic focusing, magnification compensation and gun-bias adjustment, as well as to the ultra-high 2,500-line recording CRT. In addition, he said, Autoscan's modular design safeguards the equipment against obsolescence. As new Etec modules appear, they will be added with little or no modification of the basic unit.

Siemens AG, inventor and world's leading manufacturer of the transmission electron microscope, selected the American-made Etec Autoscan scanning electron microscope as a complementary product line because of its outstanding performance, high standards of engineering and quality workmanship.

PLACEMENT SERVICE

POSITION AVAILABLE

EM Technician with tissue culture experience to work in new Cell Biology Laboratory. Requires experience in ultramicrotomy, EM maintenance and operations, darkroom procedures, tissue and cell preparations and Histology. Excellent career opportunity.

Salary - open. Starting date July 1, 1972. Contact Dr. B. R. Brinkley, Director, Division of Cell Biology, Department of Human Biological Chemistry and Genetics. The University of Texas Medical Branch at Galveston.

POSITIONS WANTED

EM Technician. B.S., M.A., 10 years experience. Female. U.S. citizen. Desire to move to Houston area. Contact: Elsa V. Mocega, 2121 Manor Lane, Park Ridge, Ill. 60068, or Dr. Rene R. Kempen, Dept. Pharmacology, UTMB, Galveston.

Ph.D. in August. B.S., M.S., and doctoral majors in biology, minors in chemistry. 11 years teaching experience; attended 4 summer science institutes of NSF. EM trained. Contact: Donald R. Cole, 202 Park Place, College Station, Texas 77840.

EM Technician or Research Associate. M.S. 1971. All techniques, experience with Hitachi and Phillips. Also light microscopy, histochemistry. Desires Houston area. Available September 1. Contact: Joyce Eckelberg, Dept. Anatomy, UTMB, Galveston.

THE BOOK NOOK

We will, with each issue, maintain a list of currently used and available books, monographs, texts, and manuals dealing with the subject of electron microscopy.

The list included below is undoubtedly incomplete. However, with each issue, more will be added, and we will eventually catalog our list into Biological and Physical Sciences.

However, since our Newsletter staff essentially consists of one person, said "staff" must rely on the membership to submit additions to the list (not articles, please). Also, when new publications appear, we will ask someone to review selected ones for publication in the Newsletter, unless we find such voluntarily submitted to us.

- ✓ INTRODUCTION TO ELECTRON MICROSCOPY - Saul Wischnitzer 1970
Pergamon Press *QH-211 W 1970*
- ✓ MODERN DEVELOPMENTS IN ELECTRON MICROSCOPY - Benjamin M. Siegel
1964 Academic Press
- THE WORK OF THE ELECTRON MICROSCOPE - Ralph W.G. Wyckoff 1958
Yale University Press
- ✓ TECHNIQUES FOR ELECTRON MICROSCOPY - Desmond H. Kay Ed.
2nd Ed. 1965 Oxford Press
- INTRODUCTION TO ELECTRON MICROSCOPY - C. E. Hall 1966
McGraw-Hill
- ELECTRON OPTICS - B. Paszkowski 1963 Elsevier
- ELECTRON MICROSCOPY OF CELLS AND TISSUES - Fritiof S. Sjöstrand
1967 Vol I Academic Press.
- HISTOLOGICAL TECHNIQUES FOR ELECTRON MICROSCOPY - Daniel C.
Pease 1964 2nd Ed. Academic Press
- SOME BIOLOGICAL TECHNIQUES IN ELECTRON MICROSCOPY -
D. F. Parsons, Ed. 1970 Roswell Park Memorial Institute,
Buffalo, New York
- AN ATLAS OF FINE STRUCTURE OF THE CELL - Don W. Fawcett 1967
W. B. Saunders Co.
- ELECTRON MICROSCOPIC ANATOMY - Stanley M. Kurtz, Ed. 1964
Academic Press
- ELEKTRONENMIKROSKOPISCHE UNTERSUCHUNGS UND PRAPARATIONS-
METHODEN - L. Reimer 2nd Ed. 1967 Spring Verlag.

- CELLS AND TISSUES BY LIGHT AND ELECTRON MICROSCOPY -
Edmund B. Sandborn Vol. I 1970 Academic Press
- CELLS AND TISSUES BY LIGHT AND ELECTRON MICROSCOPY -
Edmund B. Sandborn Vol. II 1970 Academic Press
- AN ATLAS OF ULTRASTRUCTURE - Johannes A. G. Rhodin 1963
W. B. Saunders Co.
- ELECTRON MICROGRAPHS - BIOLOGY 2, E. Yamada, K. Fukai, and
Y. Watanabe, Eds. 1966 (This publication accompanys HITACHI
electron microscope)
- THE ELECTRON MICROSCOPE IN MOLECULAR BIOLOGY - G. H. Haggis
1966 Longmans
- ELECTRON MICROSCOPY; A Handbook for Biologists - E. H. Mercer and
M. S. C. Birbeck 2nd Ed. Oxford Press
- ATLAS OF VERTEBRATE CELLS IN TISSUE CULTURE - G. Rose 1970
Academic Press
- ADVANCES IN OPTICAL AND ELECTRON MICROSCOPY - R. Barer and
V. E. Cosslett, Eds. 1966 Academic Press
- ELECTRON MICROSCOPY OF THIN CRYSTALS - P. B. Hirsch 1965
Butterworth
- LECTURES ON ELECTRON MICROSCOPY Robert W. Horne 1965
Istituto superiore di sanita, Rome Italy.
- ATLAS OF ELECTRON MICROSCOPY OF CLAY MINERALS AND THEIR
ADMIXTURES - H. Beutelspacher and H. W. Van der Marel 1968
Elsevier Publishing Co.
- EXPLORING THE STRUCTURE OF MATTER - Jean - Jacques Trillat
1959 Interscience Publishers Inc.
- ELECTRON MICROSCOPY AND MICROANALYSIS OF METALS - J. A. Belk
and A. L. Davies 1968 Elsevier Publishing Co.
- ELECTRON FRACTOGRAPHY - ASTM Special Technical Publication No. 436
1968 American Society for Testing and Materials
- FUNDAMENTALS OF TRANSMISSION ELECTRON MICROSCOPY -
R. D. Heidenreich 1964 Interscience
- TRANSMISSION ELECTRON MICROSCOPY OF METALS - G. Thomas
1962 Wiley

ELECTRON MICROGRAPHS OF LIMESTONES AND THEIR NANNOFOSSILS -
A. G. Fischer, S. Honjo, R. E. Garrison 1967 Princeton

INSTRUMENT AND CHEMICAL ANALYSIS ASPECTS OF ELECTRON
MICROANALYSIS AND MACROANALYSIS - H. A. Elion 1966
Pergamon Press

CORPORATE ITEMS

NEWS RELEASE

A NEW FACE FOR LOCAL FIRM

Acromatics, Inc. is the new name for an Arlington microscope specialty firm. Acromatics, formerly ActinoRex of Texas, has also added additional related product lines.

Acromatics now acts as an agent for Polaroid Corporation. Polaroid's MP-3 laboratory unit has found unlimited applications in the scientific community. Acromatics also now stocks the Science & Mechanics Supersensitive light meter which is useful in photomicrography.

At its Arlington warehouse, the company stocks a complete line of microscopes for all applications including laboratory, research, stereoscopic-dissecting, dark field-bright field units, and many others.

For further information, please contact Acromatics, Inc., P. O. Box 5331, Arlington, Texas 76011.

LKB INSTRUMENTS is loyal as always to TSEM in resuming their corporate membership. Their technical representative now for those needing information on LKB instrumentation is Jon W. Morris at 2800 Valley View Drive, Dallas, Texas 75234. An Ultratome III has recently been installed in the M. D. Anderson Cell Biology Laboratory, EM Section, of Dr. B. R. Brinkley in Houston. As usual, this instrument is receiving use by numerous people and is highly productive. Those of us who have been LKB users over the many years know the reliability of LKB Instruments and we look forward to many continued years of mutually prosperous endeavors.

BALZERS HIGH VACUUM CORPORATION has recently forwarded information regarding their Micro-BA3 High Vacuum Coating Unit. The manufacturer indicates that this unit is designed to give maximum flexibility and can be used successfully for production of carbon coated supports; for replica formation used in electron microscopy; for freeze drying and subsequent production of replicas of biological specimens; and for cathodic etching of polished metal surfaces. Also, it is equally useful in the development of phase contrast on polished metal surfaces, for use in the general research laboratory and use in the preparation of mineralogical specimens for electron-probe investigations. The unit is mounted on a portable stand, which contains a high vacuum pumping unit, vacuum measuring equipment and the vacuum chamber as well. There is a control unit on the table below the chamber. This is a portable, self-contained unit for high vacuum coating which has a high degree of flexibility and can be used in a number of different applications in different laboratories probably within the same building or on the same floor. The vacuum pump is air cooled with the pump down time between 5 to 15 minutes, depending upon vacuum with an ultimate pressure with a cold trap of 2×10^{-6} Torr. For further information regarding this unit, write Balzers High Vacuum Corporation, Post Office Box 10316, Santa Anna, California 92711.

JEOLCO, a long and loyal corporate member of TSEM announces their JSM-S1 Scanning Microscope. This is a compact scanning microscope which is designed to bridge the gap between the optical microscope and the conventional electron microscope. It permits direct and stereoscopic observation of solid specimens. It now includes a wide range of useful magnification and a depth of field allowing the formation of in-focus images of very rough surfaces. The resolving power is a guaranteed 250 \AA . The magnification range is from $\times 19$ - $\times 100,000$. Very low accelerating voltages, ie 4kV and 10kV are described as being advantageous. The instrument itself is small, easily located within a laboratory and the alignment is relatively simple. There is a built-in exposure meter and an automatic camera, plus automatic vacuum control. Jeolco also offers a larger JSM-U3 Scanning Electron Microscope, which can be equipped optionally with an X-ray spectrometer. This instrument has increased capabilities and contains many of the features described for the JSM-S1. For further information on these two exciting instruments, please contact JEOL.

Suite 1115, 1001 International Blvd., Atlanta, Georgia 30354.

CARL ZEISS Electron Microscope installations have been proceeding well in the Dallas-Arlington area. The laboratory of Jim Butler had a Zeiss EM-9 installed in January. This is in a new laboratory which utilizes the Porter Blum EM-2B microtome and Varian VE-10 vacuum evaporator. The EM-9 is intended for biological ultra-structural studies to support the graduate program at The University of Texas at Arlington and for faculty development in the department of biology. The laboratory consists of a five room suite centered around the Zeiss EM-9 and most of the work is being done on invertebrates. Jim describes the microscope as a "jewel".

Also, Zeiss has recently installed another EM-9 in the anatomy department at The University of Texas Southwestern Medical School under the directorship of Dr. Kastritsis. The microscope is performing well and currently is being used by Mrs. Mary Jo Harrod in her pre-doctoral work. This instrument was also installed in January. Congratulations to the two new Zeiss oriented laboratories.

NEW COMPACT

Kent-Cambridge Sci.

Scanning Electron Microscope: The Stereoscan 600 is a completely new scanning electron microscope. The compact all solid state design features accelerating voltages from 1.5 KV to 25 KV, guaranteed resolution of 250A, and unusual sampling versatility.

Operation is extremely simple with a fully automatic vacuum system, prealigned electron optics, and built-in TV display of images. The standard stage accepts large specimens of 50mm diameter. The range of accessories includes energy dispersive x-ray analysis.

The Stereoscan 600 is the first SEM to bring the full impact of good SEM performance within range of all budgets. Price - \$35,800. For further information contact Michael J. Orvis.

Brinkmann Instruments: Please ask for a copy of The Brinkman Notebook; a quarterly discussion for the biochemical analytical and clinical laboratory. Many accessories are available for an electron microscopy laboratory including Zeiss light microscopes. Contact Helmut Schares, Manager, Brinkmann Instruments, 3100 West Alabama, Houston, Texas.

AEI Scientific Apparatus Inc. announce their new high performance compact microscope CORINTH 275. This is the first really new instrument for many years and was designed specifically to meet all the needs of the cell biologist in the best possible way. It is exceptionally easy to use, and is designed for a high throughput of work. The multiple specimen holder and 50 exposure camera are included to this end. The specimen tilt facilities operate at a better resolution than some much bigger instruments. The Corinth 275 has a full complement of lenses including full double condenser system so that the specimen is protected from damage. The very large viewing screen makes this instrument extremely comfortable for one operator and uniquely suitable for demonstration and training sessions. For more information write to: J. Leta, AEI

Scientific Apparatus Inc. , 647 S. Kingery Highway, Route 83,
Elmhurst, Illinois 60126.

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PLACEMENT SERVICE

Positions Wanted

Electron microscope technician: medical technologist, 5 yrs. experience in all aspects of electron microscopy, female, German, permanent U.S. resident (Immigrant Visa), desires position in or near Houston. Available immediately. Reference #30.

Electron microscope technician: M.A., experienced female, U.S. citizen, Available immediately. Reference #32.

Electron microscope technician: B.S., experienced in histological preparation, thin sectioning, darkroom work, registered medical technologist, U.S. citizen. Available immediately. Reference #33.

Electron microscope technician: B.A., three years experience in electron microscopy of cells and tissues, female, U.S. citizen. Available June, 1971. Reference #34.

Electron microscope technician: Medical technologist, six years of experience in virology, neuropathology, enzyme histochemistry, supervision of electron microscope service lab, female, British subject, Canadian citizen, wishes to relocate in Houston-Gulf Coast area. Available immediately. Reference #37.

Research Associate or Assistant Professor: Ph.D. Rice University, 1971, Cell Biology - Electron Microscopy, excellent qualifications, U.S. citizen. Available immediately, Reference #31.

Positions Available

Experienced E.M. technician: Experienced electron microscopist to maintain two Hitachi microscopes and do routine and specialized EM techniques. Must be expert with Ultramicrotome and darkroom procedures. Contact Dr. B. R. Brinkley, Section of Cell Biology, The University of Texas M.D. Anderson Hospital and Tumor Institute, Houston, Texas 77025, Phone 526-5411, Ext. 284.

E.M. Technician: Must have previous experience in electron microscopy, ultramicrotomy, tissue processing and embedding, but not necessarily in the operation of the electron microscope. Will train on the latter. Will take charge of a scanning electron microscope and learn the technique. Experience in darkroom technique helpful, but not necessary. Primary work will be on human scar tissue. Opportunity learn organ culture and associated techniques. Degree is not essential, Contact: Dr. C. Ward Kischer, Department of Anatomy, UTMB Galveston, Texas 77550 Phone 713-765-1809.

Technician: Some previous experience in electron microscopy helpful. Primary responsibilities are tissue processing, organ culture, and laboratory management. Experience in histological techniques a must. References are required. Contact: Dr. C. Ward Kischer, Department of Anatomy, U.T.M.B., Galveston, Texas 77550. Phone 713-765-1809.

Undergraduate Students - ATTENTION - SUMMER EMPLOYMENT!
I have one and probably two positions open for undergraduate students during the summer. Must be reliable and desire to learn. Biology majors. Chemistry very helpful. Any previous experience in electron microscopy will be helpful. Opportunity to learn many new techniques, including tissue and organ culture, transmission electron microscopy and scanning electron microscopy. Will maintain animal colony and assist others in experiments. Apply: Dr. C. Ward Kischer, Department of Anatomy, U.T.M.B., Galveston, Texas 77550. Phone 765-1809.