TEXAS SOCIETY FOR ELECTRON MICROSCOPY

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NEWSLETTER

Vol. 2 No. 2

WINTER 1970

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ON THE QUALITY OF GRADUATE EDUCATION IN THE GREAT STATE OF TEXAS

I have to live with myself, and so
I want to be fit for myself to know;
I want to be able as days go by
Always to look myself straight in the eye

- Edgar A. Guest, Myself

Several years ago I confided to a peer of my Major Professor my decision to go to Houston. He admonished me saying, "Ward, nothing good ever came out of the southwest". This was almost seven years ago, but was not idle chatter, nor, apparently, a stigma this section of the country has overcome. Harken to Cass and Birnbaum's 1968 - 1969 edition of Comparative Guide to American Colleges: for RICE UNIVERSITY they write, "Rice is an unusual institution. Located in a region that has not thus far produced colleges and universities of the first rank . . . . . ". For HARVARD COLLEGE they write, "The former Dean of Admissions, Wilbur J. Bender, defined the "best" student body for Harvard as one which had some men with brilliant minds, some with originality, imagination, and moderate test scores, some who are not intellectual but just intelligent, some who have special passions, energies, or loyalties, and some who are just good ordinary decent human beings".

Here we have a definition which would fit almost any student body in the country, a cross-section of everything which is good. Yet, when it is written about we find it coupled only with Harvard.

I attended the recently-held Cell Biology meeting in San Diego where the dogma got piled higher than the foremast of an old Yankee Clipper (which gives you a clue as to its origin). Maybe I have a mad-on, or maybe I'm just disappointed at what I see in science and have been seeing for some years and have not seen very much improvement thereof.

Let me explain: when I was a graduate student I stood in awe of the colleagues of my Major Professor, most of whom were products of Johns Hopkins and Chicago. As time went on and I became bold enough to query them about their work I suddenly realized that they did not know quite as much as they projected. One thing I noticed which seemed to be common among most of them, they were quick to make judgements. By that I mean they seemed to almost always be pressing with their ideas. This is what I continue to see, too many top-ranked scientists fighting to establish their point, or indulging themselves in sophisticated rationalization of their ego-shoring theses. Such is next to impossible when vis-a-vis, but far easier when you have two of one mind, patting each other on the back while commanding the attention of a group. A paper was given at the San Diego meeting, the conclusion of which was extremely tenuous. Later a colleague of that reporter gave his paper with a similar "shaky" conclusion. His first question came from the author of the first paper and was answered thusly, " Well, B_____, you have already shown that . . ". The pity of it was that was not shown at all! Nevertheless, the ball game was in progress and I got the nasty feeling that the object was keep-away!

People like these are on study sections, they are reviewers and editors, they are program directors, they go on site visits, and they can decide many things for you and about you. Once more, harken to a summary comment from a spurned

grant proposal: "Our reviewers can project with certainty the outcome of the experiments". If you will think about that one a few minutes perhaps you will shudder as I do. Magnificent clairvoyance!

Several years ago I attended a regional scientific meeting at the University of Wisconsin, and one evening was sitting in the campus pub with two other fledgelings and two "elders". One of the latter happened to be a Program Director at the National Science Foundation, and he asked the question, "what are the really exciting areas of research today?" Each of us offered an answer to each of which he replied, "yes, I know, but what are the really exciting ideas?" Of course, in the end he told us what those ideas were. I remember what he said, and believe me, they weren't.

Now, what has all this to do with graduate education? Well, plenty! After all, those I have written about were graduate students at one time, and it makes one wonder whether they were that way to begin with or whether sometime during their career the gods drove them mad with power. We can see to it that those students with a tendency for dogma and license are straightened up firmly or otherwise removed. Next, we can temper their zeal and reforge it into inquiry, because that is much more important than answers. The latter only lead to more questions. Further, we can alert the graduate students who attend meetings to those individuals who tend to invite inquiry and not allegiance. Lastly, but perhaps most importantly, we can view the graduate student in the proper perspective, as he wishes to view himself. Some of the more pompous scientists would see graduate students as extensions of themselves, and, unfortunately, would direct them in this way. Hence, the "club" is perpetuated, so to speak.

Most or all of us in TSEM have graduate students or are responsible in some way for their experience. Therefore, being concerned in their experiences we seek the most useful way to be of benefit to them, and thusly, we reduce our role to a presentation of the fundamental assets of good science. If they come to us with a basic propensity for honesty, we reinforce it. If they are curious, we heighten it. We show them how to recognize new information. We also demonstrate to them how to change attitudes in the light of new information; and we also teach them about the virtues of simplicities in nature. One does well to accept the simplest explanations rather than indulge in sophisticated mutterings designed to collect the lesser-informed at one's feet. And, lastly, if the students are industrious, we give them all the more reason to be so.

What with all the curriculum changes, innovative teaching devices, and communicative dialectics cropping up for a student's so-called education, I sometimes wonder if the student, as a student, will survive. But he will, because even if administrators and teachers forget what education is all about, the student cannot. And there will come a time when he realizes that he must learn in spite of what we do to him or with him. We have the student only for a little while and it should be during that time that he is learning what to do with himself once he is gone. Among our group we show him a tool and we train him in its use. He is therefore steeled in its worth and confident at least that he can do something which some others cannot do. That may not sound like much, but it really is.

Our value, then, as advisors, directors, or teachers of graduate students lies in our ability to show the student how to discover himself for the benefit of his own self-education, and then to strengthen his talents and attributes so that he acts within the bounds of propriety within the profession.

I would like to think that we favor this view and act appreciably in its behalf. I do not believe that "nothing good ever came out of the southwest"; but, if ther is a truth to that, then it must be similarly true that "all of the obstruction dogma of science comes out of the east!"

Ward Kischer/Editor

PRESIDENT'S MESSAGE

First of all I would like to extend to all of the TSEM membership my wishes and those of the Executive Committee for a Happy and Enjoyable Hoiday Season. We send to you our very best wishes for success and fulfillment in the coming year of 1971. We also renew our pledge to you to work with renewed effort for the further success of TSEM.

TSEM has enjoyed a full and gratifying 1970. The spring meeting in San Antonio during Fiesta provided not only an atmosphere of relaxation and festivity, but the scientific program was outstanding. Comments by the Editor in the last issue of the Newsletter summarized the accomplishments of that program. The EMSA meeting at Houston in September served more than adequately to substitute for our Fall conclave. The scientific program was well coordinated and the local arrangements group in Houston provided for an ease of operation that brought praises from the EMSA Council. TSEM is grateful to all who work so diligently.

It was at the EMSA meeting that we were visited by our Louisiana friends from LSEM. Our talks of the upcoming joint TSEM-LSEM meeting were solidified and all of us can look forward to a 1972 joint meeting in Texas followed in 1973 by joint sessions in Louisiana. Details are still being pursued and every effort is being made to insure that such endeavors will be to the advantage of both organizations. Information within this mailing from the LSEM indicates their interest in having us attend their sessions as they have ours. Those from TEXAS who can venture to the Bayou Country this Spring are encouraged to do so.

The February meeting in Galveston brings together minds and ideas that should be stimulating to all. A tentative program is in the mailing and all are encouraged to attend. I would like to mention that such groups of speakers are expensive and difficult to arrange. We should recognize the efforts of those involved in securing speakers and support them as much as possible. It should be noted that financial support for the February meetings is coming in one form or another from the University of Texas Medical Schools in Galveston, San Antonio and Houston, and EMSA is also giving its financial blessing. It is then important that we acknowledge this support by our attendance and participation. Other laboratories, companies or institutions which desire to participate in such a manner are always welcome to do so, and the Program Chairman and Executive Committee is ever open to suggestions and comments.

This letter may seem unduly concerned with meetings; however, we should bear in mind that TSEM was designed so that individuals could meet, exchange ideas and thus better develop the EM potential in Texas. We need be concerned about meetings and especially their scientific quality. Spring of 1971 will bring us together once again in the Dallas area. The local arrangements committee is already at work and plans are being made. You should all be aware that this will be primarily an invited paper meeting and we are issuing a CALL FOR ABSTRACTS. As in the Salado meeting, graduate students are encouraged to present their work and indeed they will be given priority for a place on the program. In addition, the abstracts will be published in TEXAS REPORTS ON BIOLOGY AND MEDICINE. Thus, the presenter will have the opportunity to establish his or her thoughts and ideas in advance of a full length publication.

A formal call for abstracts will be mailed soon; however, it seems appropriate now that all be reminded the CALL is on its way. Graduate students take note and those of you with graduate students are now invited to excercise the "gentle nudge" for effort. Faculty and full members are encouraged to participate as well for at such a conjoint meeting of the minds it may well be that those in attendance will come away with new ideas, concepts and methods.

In essence then, all of us should look forward to 1971 as a year of participation in TSEM. Over the past four years I have watched individuals and their interests grow. Attendance at meetings has increased, discussions have been more prevalent and ideas have been expressed more freely. Communication has increased in general. This should now be maintained and even amplified for an election is on the horizon and new officers are to be selected. We should all attempt to have our representation. Let us look at the corporations. Each wants to present its product with such vigor that we are not able to print all the merchandising information in this Newsletter and some must be reserved for future issues. Indeed, we are grateful to the corporate members for their informational and financial support, but the hidden lesson they teach us and the one for which we should be ever appreciative is that they illustrate to us that one of the avenues to success is wholehearted and dedicated participation in whatever is at hand.

So now, after a holiday season let us all prepare for a booming 1971 for TSEM. We can bring it all together so to speak and make this the group it is, one which is continually and increasingly proud of its membership and participation. See you all in Galveston on the 12th and 13th of February.

Joe Wood
President, TSEM

SOME CONTRIBUTIONS FROM THE PHYSICAL SCIENCES VIA ELECTRON MICROSCOPY

The physical science membership of the TSEM is outnumbered by their colleagues in the biological sciences. Nevertheless, the accompanying plate shows that varied and fruitful interests exist among the physical electron microscopists of Texas.

The techniques presented cover the range of magnification from 2400 X by surface replication up to 2,000,000 X by direct lattice plane imaging. The materials studied are similarly varied. I think it is also noteworthy that both industrial laboratories and universities are represented.

Due to the varied nature of this example of micrographs, no unifying theme exists as did in the plate of micrographs of mitochondria that initiated this feature in the TSEM Newsletter. One characteristic does appear; compared to the papers presented at EMSA meetings, the study of non-crystalline materials is emphasized in the TSEM. Only two figures relate to the deformation of metals, typically a prominent topic. The remaining figures could be used in a textbook to illustrate the diversity of useful materials. Hopefully, these catholic interests of the membership can be exploited by the TSEM to provoke broad-based discussions within the physical science membership.

M. Lea Rudee

December 1970

Descriptions and Credits for Plate of Electron Micrographs

1. Linear polyethylene crystals 5000X Dr. L. D. Martin, Dow Chemical Co.

2. Linear polyethylene crystals 5000X Dr. L. D. Martin, Dow Chemical Co.

3. Magnesium oxide crystals 5000X Dr. L. D. Martin, Dow Chemical Co.

4. Graphite fibers in epoxy resin 2000X Dr. L. D. Martin, Dow Chemical Co.

5. Rubber particles in thermosetting polyester resin 2000X Dr. L. D. Martin, Dow Chemical Co.

(Note: Nos. 4 and 5 are scanning electron micrographs)

6. Phase contrast image of carbon black layer planes. Average spacing 3.8 Å. 2,000,000X. Dr. Peter A. Marsh, J. M. Huber Corp.

7. 50/50 blend of polychloroprene and natural rubber containing 20 phr N-660 carbon black. 10,000X. Dr. T. J. Mullens, J. M. Huber Corp.

8. Cross-section of clay coating on paper stock. 15,000X. Dr. L. D. Price, J. M. Huber Corp.

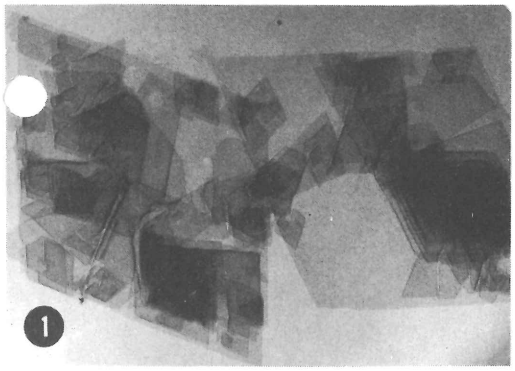
9. Electron micrographs of slip bands in a deformed disordered Cu_3Au single crystal. A-1100X B-174,000X. Dr. J. M. Roberts and Dr. K. Sahlama, Rice University.

10. Dark-field of neutron-damaged silicon taken under two-beam conditions. Circled images are anomalously wide and originate from defects that are within 0.25 of an extinction distance from a surface. Probable origin from vacancy and interstitial type defects, most likely loops on the (111) planes. Reference mark = 500 A. Dr. J. A. Sprague, Rice University.

11. Dislocations on the shear plane of a Mo single crystal deformed 21% in pure shear at 100 °C. Reference mark = 1 micron. W. H. Loesch, Rice University.

12. Dark-field exhibiting existence of 14 Å diameter microcrystallites in a thin film of amorphous germanium produced by vapor deposition. Reference mark = 100 A. Dr. M. Lea Rudee, Rice University.

13. Crystals of linear polyethylene grown in dilute solution of xylene. Several overlying single crystals of lozenge habit are present in addition to some exhibiting the dendritic habit. 12,000X. Dr. Thomas R. McKee, and Dr. U. Grant Whitehouse, Texas A & M University.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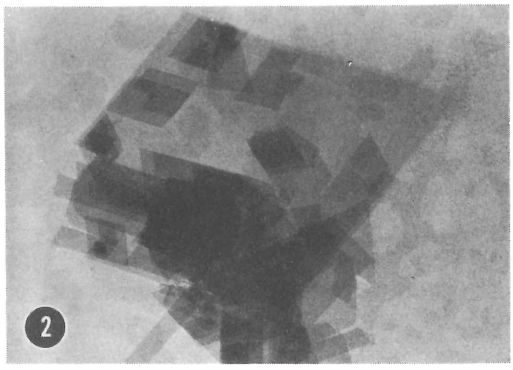
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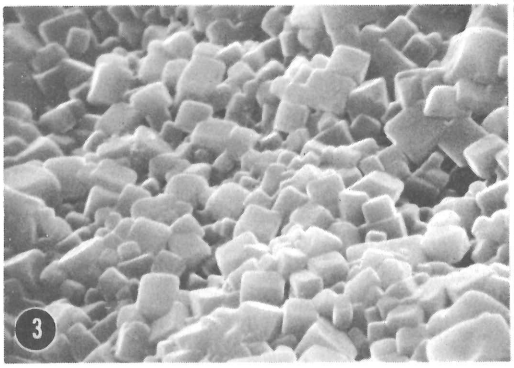
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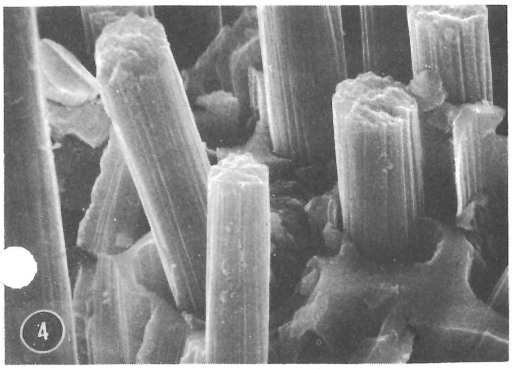
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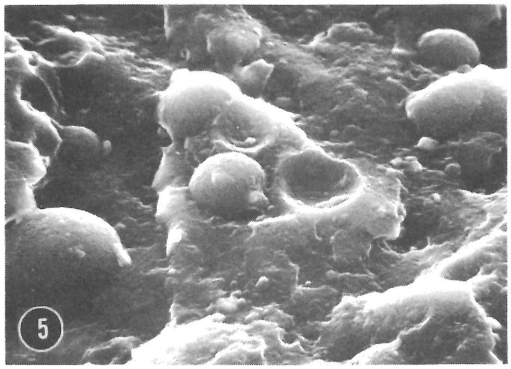
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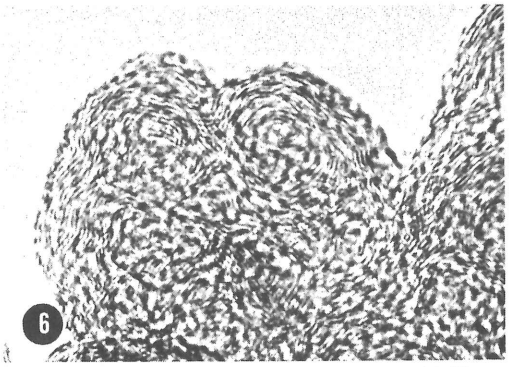
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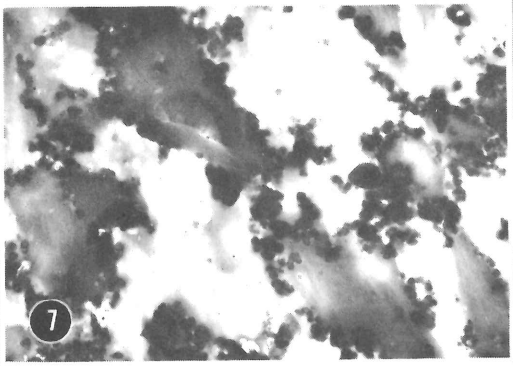
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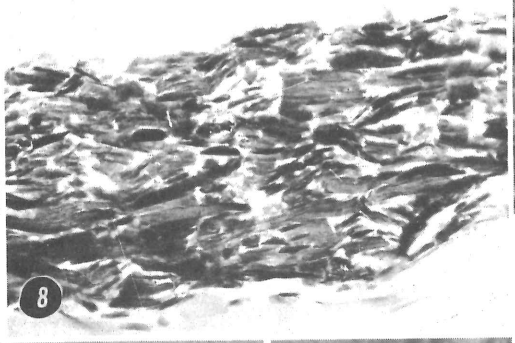
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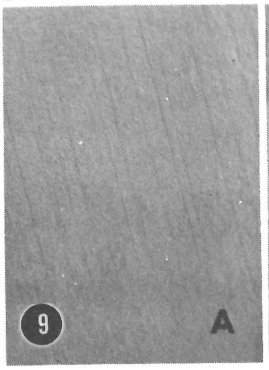
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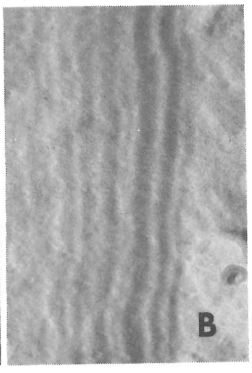
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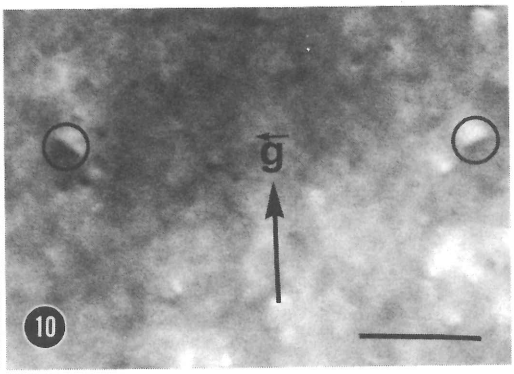
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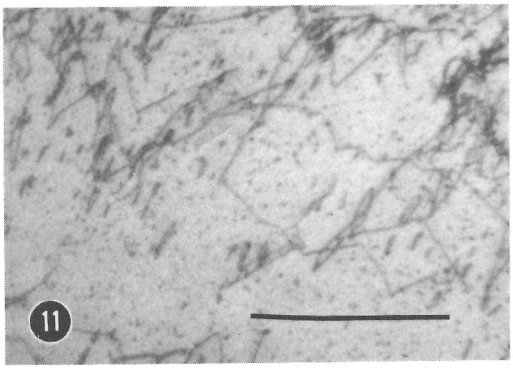
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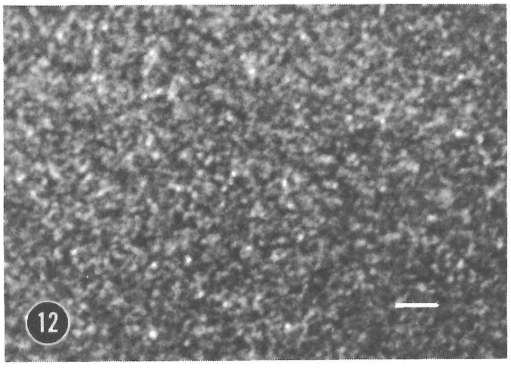
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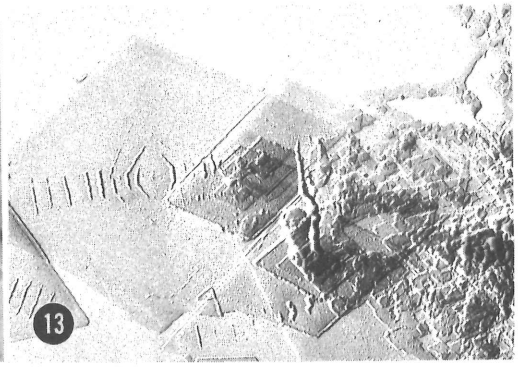
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THE BOOK NOOK

We are introducing a new feature with this issue, 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.

ELECTRON MICROSCOPY OF CELLS AND TISSUES - Fritiof S. Sjöstrand 1967 Vol I Academic Press.

INTRODUCTION TO ELECTRON MICROSCOPY - Saul Wischnitzer 1970 Pergamon 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

MODERN DEVELOPMENTS IN ELECTRON MICROSCOPY - Benjamin M. Siegel 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

THE WORLD OF THE ELECTRON MICROSCOPE - Ralph W. G. Wyckoff 1958 Yale University 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

ADVANCES IN OPTICAL AND ELECTRON MICROSCOPY - R. Barer and V. E. Cosslett, Eds. 1966 Academic Press

ELEKTRONENMIKROSKOPISCHE UNTERSUCHUNGS UND PRÄPARATIONSMETHODEN - L. Reimer 2nd Ed. 1967 Springer Verlag.

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

LECTURES ON ELECTRON MICROSCOPY Robert W. Horne 1965 Istituto superiore di sanita, Rome Italy.

TECHNIQUES FOR ELECTRON MICROSCOPY - Desmond H. Kay Ed. 2nd Ed. 1965 Oxford Press.

SHORT EXPOSURES

Joint Meeting With LSEM

The response to the questionaire concerning a joint meeting with LSEM could have been better, but, nonetheless it appeared to be fairly representative of themembership. Most replies were extremely favorable to a joint meeting, and, thus, the Executive Committee has acted upon this result to begin the preparation for such. It is well to note, however, the principal objections which were received via the questionaire and to seek ways to satisfay the obtacles presented to some of the members. Several thought that a joint meeting in Louisiana would be too far away. There is no defense to this; however, it may be possible to charter a bus or plane at reduced rates and whereby alleviate the travel time required. Several persons also cited the problem of travel funds and this is a subject the Society ought well to address itself to. Surely the time is fast approaching that the stability of TSEM is sufficient to issue grants for at least part payment of travel for those in need and especially for those bringing graduate students or who are participating in the program. There is also the possibility that EMSA may underwrite a portion of travel expenses either to a joint meeting with LSEM or our own state meeting. A third objection was possible interference with graduate student programs in session. This might be remedied by scheduling a joint meeting during an appropriate vacation period. These are all topics which are ripe for discussion at our next business meeting. So, attend and speak up!

New Journal

For those of you who did not attend the Houston EMSA meeting, a new journal was on display called MICRON. It is a quarterly journal for Electron Microscopy, Electron Probe Micro-Analysis and Associated Techniques. It is published by Structural Publications Ltd. London. Vol. 1 No. 1 appeared in June 1969. Reproductions of micrographs appear fairly good.

Welcome Mat

We are welcoming for the first time a member of the publishers world into Corporate Membership: HARPER & ROW. We are happy to have them aboard and we hope to meet their local representative at our Galveston meeting.

Get Well Soon

One of our faithful members has been hospitalized this fall in Houston at Saint Joseph's hospital, HEINZ STUDER. Heinz has been and is a dedicated member and is presently battling his way back to normal health and vigor. On behalf of the membership the Executive Committee has extended its best wishes. Heinz, we will look forward to seeing you in Galveston!

Daddy Bigbucks

At our last business meeting in Houston (EMSA) the officers of the EMSA were in attendance and delivered to us some really welcomed and valued information. Of several state EM societies who applied for funding by EMSA only two received support - OURS and LSEM. They think rather highly of our group and we are most appreciative for that. Thanks Dad!

AREA NEWS

Texas A & M University

A new seminar group, Cell Biology, Electron Microscopy, has been organized on campus. The organization elected Dr. E. L. Thurston as Chairman. Dr. Thurston has joined the Electron Microscopy Center just recently. He completed the Ph. D. at Iowa State University at Ames, and a postdoctoral at the University of Texas at Austin. His interests are the ultrastructure of blue-green algae, of chemically extracted walls of Leptosphaeria and of plant stinging emergencies. At the December meeting of the new seminar group Dr. Wayne Stenback, Baylor College of Medicine, Houston, presented a seminar on his work with CELO virus.

Dr. Julius W. Diekert, Department of Biochemistry and Biophysics, has been invited to give a paper at the symposium on seed proteins, American Chemical Society, Div. Agricultural and Food Chem. in the spring at Los Angeles. The title of his paper is "Deposition of Vacuoler Proteins in Oil Seeds".

The Electron Microscopy Center now has a Hitachi 11 E, and a HS 8. These 'scopes are installed and operational.

Mrs. Thomas A. Lee, M.S., Plant Physiology, Texas A & M and Willie J. Wilson, M.S., Biology, Sam Houston State University, have accepted graduate assistanceships at Texas A & M, Department of Plant Sciences and will be working with Dr. R. W. Toler in Plant Virology. E.M. problems are presently being outlined.

Dr. R. W. Toler, Virologist, Department of Plant Sciences, recently returned from Bogota Columbia where he represented the virology committee of the American Phytopathological Society at the Caribbean Division meeting and discussed epidemiology of Saint Augustine Decline Virus Disease.

Dr. R. S. Halliwell, Department of Plant Pathology also has a new graduate student, Robert Browning, University of Arkansas, who will be doing some work with the electron microscope.

Dr. C. K. Read, Veterinary Pathology, is presently doing toxicity studies with antimalarial drugs.

Dr. Ralph Storts, Veterinary Microbiology, is currently working on the ultrastructural effects of cainine distemper, mechanism of pathogenicity. He is using explant tissue culture and infected dog tissue. This is a part of a NIH grant.

Texas Tech University

Dr. Jerry Berlin reports on the renewal of his grant from the AEC entitled "The effects of X-irradiation on the human testis: an electron microscopic cytochemical study". Mr. John Vollet will receive his Master's degree at the end of this semester. Jay is our first student to come out of the EM lab. He will pursue his doctoral program with Dr. Evans Roth at Kansas State.

University of Texas Medical Branch

From the Department of Anatomy - accepted for publication in Anatomical Record, "Ultrastructural studies of the effects of reserpine on mouse abdominal sympathetic paraganglia" by J. Mascarro and R. Yates. Also just appeared in Zeit. f. Zellforsch. "Ultrastructural studies of vagal paraganglia in Syrian hamsters" by I-Li Chen and R. Yates.

University of Texas at Arlington

James K. Butler will have his new laboratory in full operation very soon. His new and complete facility include a MT-2B ultramicrotome and a Zeiss EM-9S2. He is offering a graduate program (Master's level) in Ultrastructure and Cell Biology.

Texas Christian University

Ernest Couch reports the installation of a Philips 300 electron microscope purchased on Title II NSF funds. He will offer a course in EM techniques in the Spring, 1971 entitled Advanced Cell Biology.

University of Texas at Dallas

Dimitri Lang has received notification of continuation of his Research Career Development Award. Dr. Donald Gray is a new faculty member at UTD. His research interests include optical rotation and rotatory dispersion of DNA. New equipment for the lab - Recording Spectropolarimeter Cary Model 61 interfaced to an on-line computer Varian 620 i.

Baylor University College of Dentistry at Dallas

Members of the Anatomy department will present four papers at the American Association of Anatomists meeting next spring. Dr. Les Matthews will present seminars at Toronto and Boston (Harvard) in the near future. "An Atlas of Human Histology and Ultrastructure" by J. L. Matthews and James H. Martin will be published by Lea & Febiger in April, 1971.

University of Texas Southwestern Medical School at Dallas

Work is progressing on the new basic science building with the expected date of occupancy set for Spring, 1972. Five more major buildings will be added within the next two to three years.

Recent visitors to the Anatomy department include Dr. E. A. Ashby from New Delhi, India; Dr. Cora Creutzfeldt of Göttingen, Germany visiting in Dr. Eleanor Siperstein's lab; and Dr. Rupert Billingham of University of Pennsylvania who presented a seminar on "Fetuses as Successful Homografts".

Drs. Costas Kastritsis, Marvin D. Siperstein and Ruth Jackson have purchased jointly a Zeiss EM 9S2 for graduate and medical student training and research in cell biology. An elective course in EM techniques will be offered to freshman medical students during May.

A new "Cell Biology Society" has been formed in the Dallas area as an outgrowth of the Metropolitan Microscopic Society. A business meeting and election of officers will be held Dec. 17th at Southern Methodist University.

The spring meeting of TSEM will be held in Dallas and will consist mainly of graduate student presentations. Dr. Les Matthews, local arrangements chairman, suggests that we begin now to motivate students toward these presentations. More specific plans for the meeting will come as a separate mailing later.

University of Texas M. D. Anderson Hospital Houston

From Dr. Bill Brinkley's lab the following papers have been accepted for publication, "Ultrastructure of mammalian spermiogenesis. II. Elimination of the nuclear membrane" by J. B. Rattner and B. R. Brinkley, to appear in J. of Ultrastructure Research; and "Ultrastructural analysis of mitotic spindle elongation in mammalian cells in vitro: direct microtubule counts" by B. R. Brinkley and J. Cartwright Jr., to appear in J. Cell Biology.

Dr. Brinkley presented invited lectures on quantitative studies of mitotic spindle fine structure to the Department of Biology at the University of Wyoming at Laramie on December 8th, the Division of Biology at the University of Utah at Salt Lake City on December 10th and the Biochemistry Division at Utah State University in Logan on December 11th.

Mr. Joiner Cartwright Jr. will be leaving Dr. Brinkley's laboratory in January to begin work on his doctorate degree at the University of Hawaii. Mr. Cartwright will receive his stipend for graduate study as a professional scuba diver collecting marine invertebrates for the department.

Southern Methodist University

Venita F. Allison, Director of The Electron Microscopy Laboratory reports the following papers accepted for publication, " Age-related changes in the fine structure of the flight muscle in the house fly" by R. Sohal and V. Allison to appear in the J. Gerontology, and "Fine structure of the capsule of Hymenolepis diminutia cysticercoids" from the Proc. 2nd Intn'l Cong. Parasit.

In addition, recently published articles include, "Fine structure of the cysticercoid of Hymenolepsis diminuta I. The outer wall of the capsule. Z. Parasitenk., 34:258, 1970; by J. Ubelaker, N. Cooper and V. Allison, and "Possible defensive mechanism of Hymenolepis diminuta cysticercoids to hemocytes of the beetle Tribolium confusum. J. Inv. Path., 16:310, 1970 by J. Ubelaker, N. Cooper and V. Allison.

Addendum

This is the last page of this issue being prepared, and your Editor has just learned this moment of the untimely death of HEINZ STUDER in Houston on the evening of December 14th. Heinz was one of our physical scientist members and was a faithful attendant to our meetings. He did not lack for enthusiasm or assistance for the Society. We will miss him greatly. For those who wish to do so, memorials may be given. For further information contact Dr. Bill Brinkley, M. D. Anderson Hospital.

Corporate Membership

It has been the policy for some time now to include in the Newsletter brief advertisements of new items by our corporate members. It is our small way of saying thank you for their continued support. However, it would help our "staff" if those among you desiring publication of an item would pre-edit your release, confining it to 200 words or less, and send it directly to the Editor in a ready form. Unfortunately, at this time we do not have the facilities to reproduce illustrations adequately.

1970-1971 Corporate Membership:

Balzers High Vacuum Corporation

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Corporate Technical Items:

LADD RESEARCH INDUSTRIES, INC. announces the new Tilting Variable Speed Rotary Shadower in a compact design. This shadower features a simplicity of design which promotes ease of operation in that it can be installed and/or removed from a vacuum evaporator in a matter of seconds. The tilting motion extends through 90 ^{o} on the rotating platform making possible the complete and uniform coating of material on specimens, especially those to be used in scanning electron microscopy. Other features are a motor in a vacuum-tight metal housing thus decreasing pump-down time and a variable rotation speed of 10 to 1000 rpm. Other rotary devices are available at lower costs. These are the variable speed rotary shadower and the constant speed rotary shadower. LADD also has other accessories for their rotary devices. For further details write to: LADD RESEARCH INDUSTRIES, INC., P. O. Box 901, Burlington, Vermont 05401. LADD has been a reliable source of equipment and supplies for many of us over the past many years.

POLYSCIENCES, INC. Osmium tetroxide solution is now available in a new disposable ampoule from Polysiences, Inc.. This new packaging combines maximum convenience and economy with instant availability and greater personal safety for the user. Two milliliters of 4% osmium tetroxide solution are contained under nitrogen in a 5 milliliter scaled, snap-open glass ampoule. The solution is stable and is micro-filtered. It may be diluted in the ampoule. Cross-contamination and loss is virtually eliminated. The osmium tetroxide solution sells for $1.95 per ampoule in lots of 25 allowing its use on a disposable basis. The price per ampoule in lots of 10 is $2.25 and $2.75 for singles. Larger ampoules are also offered by Polysciences for those scientists who require more material.

Bulk quantities of many of the chemicals for life scientists and polymer research hitherto available in research amounts only are offered owing to the recent completion of a diversified production facility. Send for the 1971 catalog of research chemicals containing over 3000 entries of interest to workers in the fields of electron microscopy, life sciences, polymer research, organic chemistry, and biomedical engineering. For further information write: POLYSCIENCES, INC., Warrington, Pennsylvania, 18976.

PERKIN - ELMER CORPORATION, as usual, continues to represent, supply and maintain HITACHI electron microscopes to members of TSEM. Recent additions to TSEM member laboratories are two firsts for the state of TEXAS. These are an HS8-2 in the Anatomical-Surgical Pathology EM Laboratory, under the directorship of TSEM Treasurer, Bob Turner, at Scott and White Memorial Hospital in Temple - and an HU12 in the EM laboratory of the Section of Anatomy and Neurobiology headed by TSEM President Joe Wood at the new University of Texas Medical School in Houston. PERKIN - ELMER has been a long-time supporter of TSEM and its activities as well as responding to equipment needs for the membership.

KENT CAMBRIDGE SCIENTIFIC, INC. announces the New Stereoscan S4 Scanning Electron Microscope. The s4 offers guaranteed resolution of 150 A with magnification from 10X to 200,000X. Versatility of the well-proven Stereoscan system is also further enhanced by unique built-in capability for obtaining crystallographic orientation patterns from specimens as small as ten microns. The full range of accessories includes special purpose stages, TV readout, cathodoluminescence, ion-etching, and facilities for x-ray microanalysis. The Stereoscan was a center of attraction at the recent EMSA meeting in Houston and the Cell Biology meeting in San Diego. For further information contact M. J. Orvis c/o KENT CAMBRIDGE SCIENTIFIC, INC., 8020 Austin Ave., Morton Grove, Ill. 60053.

SORVALL presents the Frozen Thin Sectioner with low-temperature controller. This instrument is known as the FTS/LTC-2 and is for use with the SORVALL MT-2 and MT-2B without instrument modification. This sectioner permits working temperatures of 0 to 150 °C for work with fresh, un-fixed biological tissue as well as with non-biological materials such as plastic and rubber. Utilization is made of diamond or glass knives and liquid nitrogen serves as the cooling agent. Temperature is "dialed" automatically achieved and then maintained. At the other end of the spectrum, Sorvall announces the JB-4 Porter-Blum microtome for the sectioning of paraffin blocks at 0.25 to 10 microns. The ideal feature of this microtome is that it also can accomodate plastic blocks up to 12 mm in length. This should work well toward bridging the gap from light to electron microscopy. Stainless steel knives have a full range of orientation and glass or diamond knives can be used as well. For information on these items write to: IVAN SORVALL INC., Norwalk, Connecticut 06856.

PLACEMENT SERVICE

Positions Wanted

Electron Microscope Technician: M.S., experienced, female, U.S. citizen. Available July 1, 1970, Reference # 7.

Electron Microscope Technician: B.S., experienced, female, U.S. citizen. Available December 20, 1970, Reference # 20.

Electron Microscope Technician: B.S., experienced, female, U.S. citizen. Available immediately, Reference # 21.

Electron Microscope Technician: B.S., 4 yrs. experience, female, U.S. citizen. Available January 1, 1971, Reference # 22.

Positions Available

Experienced EM technician: Require perfection with ultramicrotomy. Should have training and experience in darkroom procedures, operation and maintenance of E.M. Opportunity available for teaching and some supervision. Contact Dr. B. R. Brinkley, Section of Cell Biology, The University of Texas M. D. Anderson Hosp. and Tumor Institute at Houston, Houston, Texas. Phone: 668-3249, Ext. 284.

Experienced EM technician: Training in general EM technology required. Experience with biological material necessary. Contact Dr. Paul S. Baur, NASA-MSC Houston, Texas DC-52 Lunar Receiving Lab. Phone: 483-3169.

Predoctoral Student: Must have some experience in electron microscopy. Will have wide latitude in research project but must be willing to work with scar problems in humans. Stipend arranged according to going rate from NIH Training guidelines; but, opportunity also for part-time income. Summer employment guaranteed. Begin June 1971 or perhaps earlier. Contact: Dr. C. Ward Kischer Department of Anatomy, University of Texas Medical Branch, Galveston, Texas 77550.